THE ART OF DISCRETE AND APPLIED MATHEMATICS

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This special issue collects nine papers from participants of The International Conference and PhD-Master Summer School "Groups and Graphs, Designs and Dynamics" (G2D2) (https://math.sjtu.edu.cn/conference/G2D2/), held at the Three Gorges Mathematical Research Center in Yichang, China, August 12-25, 2019. Our authors come from Belarus, China, India, Myanmar, Russia and the United Kingdom, and their papers discuss various aspects of groups and graphs. We would like to thank the authors and referees for their valuable contributions. We are also grateful to the Three Gorges Mathematical Research Center for hosting this two-weeks international event.

The G2-series is about strong and beautiful mathematics involving group actions on combinatorial objects. It has the Cayley graph $\mathrm{Cay}(\mathbb{Z}_8, \{\pm 1, \pm 2\})$ as its logo and has been an annual event since 2014; see the webpage of the seventh one G2G2 for its history: https://conferences.famnit.upr.si/event/13/. Besides the nine papers presented in this special issue, lecturers of the four short courses of the G2D2 summer school, coming from Italy, Japan, the United Kingdom, and the United States, have prepared four sets of nice lecture notes, and our more than 150 G2D2 participants from around the globe have been communicating an incredibly rich variety of mathematics during and after the event. Following the poet William Blake, let us hope that this special issue will be a grain of sand in which our reader may see the world of G2D2 2019.

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On strictly Deza graphs derived from the Berlekamp-Van Lint-Seidel graph*

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Abstract

In this paper, we find strictly Deza graphs that can be obtained from the Berlekamp-Van Lint-Seidel graph by dual Seidel switching.

Keywords: Dual Seidel switching, Berlekamp-Van Lint-Seidel graph, divisible design graph, Deza graph.

Math. Subj. Class.: 05C25, 05E30

1 Introduction

Goryainov et al. [8] gave a characterisation of strictly Deza graphs with parameters $(n, k, k-1, a)$ and $\beta = 1$. They found that such strictly Deza graphs necessarily come from strongly regular graphs having the property $\lambda - \mu = -1$ and can be obtained via two operations: strong product with an edge and the dual Seidel switching [9]. We are still far away from getting a classification of strongly regular graphs with $\lambda - \mu = -1$ [1].

It is known that if $\lambda = 0$ and $\mu = 1$, then such a strongly regular graph is either the pentagon, or the Petersen graph, or the Hoffman-Singleton graph, or a hypothetical strongly regular graph with parameters $(3250, 57, 0, 1)$.

Berlekamp et al. studied strongly regular graphs with $\lambda = 1$ and $\mu = 2$ [3]. It was shown that such a strongly regular graph has parameters either $(9, 4, 1, 2)$ (the only such a graph is 3×3-lattice), or $(99, 14, 1, 2)$, or $(243, 22, 1, 2)$, or $(6273, 112, 1, 2)$,

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or $(494019, 994, 1, 2)$. Berlekamp et al. further constructed a graph with parameters $(243, 22, 1, 2)$, which is known as the Berlekamp-Van Lint-Seidel graph, but its uniqueness as well as the existence of graphs for the other three parameter tuples remain undecided. In particular, for the tuple $(99, 14, 1, 2)$, this problem is known as the Conway's 99-graph problem.

The smallest feasible parameter tuples of strongly regular graphs with $\lambda = 2$, $\mu = 3$ and $\lambda = 3$, $\mu = 4$ are $(364, 33, 2, 3)$, $(676, 45, 2, 3)$ and $(901, 60, 3, 4)$, respectively [4], and it is unknown if strongly regular graphs with such parameters exist.

In [8], some examples of strictly Deza graphs with parameters $(n, k, k-1, a)$ and $\beta = 1$ were given. In particular, dual Seidel switching was applied to the Petersen graph, the Hoffman-Singleton graph, Paley graphs of square order. In this paper, we investigate if dual Seidel switching can be applied to the Berlekamp-Van Lint-Seidel graph or its complement.

2 Preliminaries

We consider undirected graphs without loops or multiple edges.

A k-regular graph Γ on v vertices is called *strongly regular* with parameters (v, k, λ, μ), $0 < k < v - 1$, if any two distinct vertices x, y in Γ have λ common neighbours when x, y are adjacent and μ common neighbours if x, y are non-adjacent. For a vertex x in a graph Γ, the *neighbourhood* $\Gamma(x)$ is the set of all neighbours of x in Γ.

Lemma 2.1 ([5], Theorem 1.3.1(i))**.** *Let Γ be a strongly regular graph with parameters (v, k, λ, μ), $\mu \neq 0$, $\mu \neq k$. Then Γ has three distinct eigenvalues k, r, s, where $k > r > 0 > s$ and the eigenvalues r, s satisfy the quadratic equation $x^2 + (\mu - \lambda)x + (\mu - k) = 0$.*

For a graph Γ, denote by $\overline{\Gamma}$ the complement of Γ.

Lemma 2.2 ([5], Theorem 1.3.1(vi))**.** *Let Γ be a strongly regular graph with parameters (v, k, λ, μ). Then the complement $\overline{\Gamma}$ of Γ is a strongly regular graph with parameters $(v, v - k - 1, v - 2k + \mu - 2, v - 2k + \lambda)$ and eigenvalues $v - k - 1, -s - 1, -r - 1$.*

A k-regular graph Δ on v vertices is called a *Deza graph* with parameters (v, k, b, a), $b \geq a$, if the number of common neighbours of any two distinct vertices in Δ takes on the two values a or b. A Deza graph Δ is called a *strictly Deza graph*, if it has diameter 2 and is not strongly regular. The following lemma gives a construction of strictly Deza graphs, which is known as *dual Seidel switching*.

Lemma 2.3 ([7], Theorem 3.1)**.** *Let Γ be a strongly regular graph with parameters (v, k, λ, μ), $k \neq \mu$, $\lambda \neq \mu$ and adjacency matrix M. Let P be a permutation matrix that represents an involution ϕ of Γ that interchanges only non-adjacent vertices. Then PM is the adjacency matrix of a strictly Deza graph Δ with parameters (v, k, b, a), where $b = max(\lambda, \mu)$ and $a = min(\lambda, \mu)$.*

Since ϕ in Lemma 2.3 represents an involution, the matrix PM is obtained from the matrix M by a permutation of rows in all pairs of rows with indexes i_1 and i_2, such that $\phi(i_1) = i_2$ and $\phi(i_2) = i_1$. Lemma 2.4 follows immediately from Lemma 2.3 and shows what is the neighbourhood of a vertex of the graph Δ.

Lemma 2.4. *For the neighbourhood $\Delta(u)$ of a vertex u of the graph Δ from Lemma 2.3, the following conditions hold:*

$$\Delta(u) = \begin{cases} \Gamma(u), & \text{if } \phi(u) = u; \\ \Gamma(\phi(u)), & \text{if } \phi(u) \neq u. \end{cases}$$

In [8, Theorem 2], it was shown that the strong product with an edge and dual Seidel switching is the only method to obtain strictly Deza graphs with $k = b + 1$. Recall that the graph *strong product* of two graphs Γ_1 and Γ_2 has vertex set $V(G_1) \times V(G_2)$ and two distinct vertices (v_1, v_2) and (u_1, u_2) are connected iff they are adjacent or equal in each coordinate, i.e., for $i \in 1, 2$, either $v_i = u_i$ or $\{v_i, u_i\}$ in $E(\Gamma_i)$, where $E(\Gamma_i)$ is the edge set of Γ_i [2].

It follows from Lemma 2.2 that, if a strongly regular graph Γ has the property $\lambda - \mu = -1$, then the complementary graph $\overline{\Gamma}$ has the property $\overline{\lambda} - \overline{\mu} = -1$ as well. Thus, according to [8, Theorem 2], we concentrate on order 2 automorphisms of Γ that interchange either only non-adjacent vertices or only adjacent vertices.

Let G be a group and S be an inverse-closed identity-free subset in G. The graph on G with two vertices x, y being adjacent whenever xy^{-1} belongs to S is called the *Cayley graph* of the group G with *connection set* S and is denoted by $Cay(G, S)$.

3 The Berlekamp-Van Lint-Seidel graph and dual Seidel switching

The *Berlekamp-Van Lint-Seidel graph*, denoted by Γ, is the coset graph of the ternary Golay code [5, Section 11.3]. This graph is known to be strongly regular with parameters $(243, 22, 1, 2)$.

In this section, we deal with two more ways to define this graph and give a description of the involutions of Γ and $\overline{\Gamma}$ suitable for dual Seidel switching.

The main result of this paper is the following theorem.

Theorem 3.1. *The following statements hold.*

(1) The Berlekamp-Van Lint-Seidel graph Γ has no order 2 automorphisms that interchange only adjacent vertices;

(2) The Berlekamp-Van Lint-Seidel graph Γ has the unique (up to conjugation) order 2 automorphism

that interchanges only non-adjacent vertices.

To prove Theorem 3.1, we prove two lemmas, which imply the truth of the theorem statements.

3.1 Γ from the Mathieu group M_{11}

By ATLAS of Group Representations the Mathieu group M_{11} can be represented [10] by 5×5 matrices over $GF(3)$ as follows. Put

$$x := \begin{pmatrix} 0 & 2 & 1 & 0 & 0 \\ 2 & 1 & 1 & 2 & 2 \\ 0 & 1 & 1 & 2 & 2 \\ 1 & 0 & 2 & 2 & 1 \\ 1 & 2 & 2 & 2 & 0 \end{pmatrix},\ y := \begin{pmatrix} 0 & 0 & 2 & 0 & 2 \\ 1 & 1 & 2 & 2 & 0 \\ 2 & 2 & 2 & 2 & 2 \\ 1 & 2 & 1 & 1 & 0 \\ 2 & 2 & 0 & 2 & 1 \end{pmatrix}.$$

Then the group $G := \langle x, y \rangle$ is isomorphic to M_{11}, where x is an involution. Let $V(5, 3)$ denote the 5-dimensional vector space of over $GF(3)$. We regard the elements of $V(5, 3)$

as rows and consider the action of G on $V(5,3)$ by the right multiplication, which has two orbits of size 22 and 220 on the nonzero vectors. The orbit of size 22 is given by the set

$$S_1 := \{\pm(1,0,0,0,0), \pm(0,0,1,0,1), \pm(0,1,0,1,0), \pm(0,1,2,0,0), \pm(0,0,1,2,1), \pm(0,1,0,1,2), \pm(1,1,2,0,2), \pm(1,0,0,1,2), \pm(1,0,2,1,0), \pm(1,1,0,0,2), \pm(1,1,2,1,0)\},$$

and, moreover, Γ is isomorphic to the Cayley graph $Cay(V(5,3), S_1)$. Since G stabilises S_1 setwise, G is a subgroup in the automorphism group of Γ, which is known (see [6]) to be isomorphic to the group $3^5 : (2 \times M_{11})$. The fact that M_{11} has precisely one class of conjugate involutions implies that the automorphism group of Γ has precisely three classes of conjugate involutions. Let e be the identity matrix from G. Note that $-e$ does not belong to G, but the multiplication by $-e$ is an involution of the automorphism group of $Cay(V(5,3), S_1)$, which means that the three pairwise non-conjugate involutions of the automorphism group of $Cay(V(5,3), S_1)$ are given by the right multiplication by $-e$, x and $-x$.

Lemma 3.2. *The following statements hold.*

(1) The involution $-e$ interchanges adjacent vertices as well as non-adjacent ones;

(2) The involution $-x$ interchanges adjacent vertices as well as non-adjacent ones.

Proof. (1) This involution fixes the zero vector and moves all non-zero vectors by swapping every two elements that are additive inverses of each other. In the graph $Cay(V(5,3), S_1)$, two additive inverses are adjacent whenever both of them belong to S_1. It means that the involution $-e$ interchanges adjacent vertices as well as non-adjacent ones.

(2) On the one hand, the involution $-x$ swaps the vertices $(0,1,0,1,0)$ and $(0,2,0,2,0)$, which are adjacent in $Cay(V(5,3), S_1)$. On the other hand, $-x$ swaps the vertices $(1,0,0,0,0)$ and $(0,2,1,0,0)$, which are not adjacent in $Cay(V(5,3), S_1)$. □

In view of Lemma 3.2, it remains to check the inner involution x. In the next subsection, we explore one more definition of the Berlekamp-Van Lint-Seidel graph and give a very natural description of the involution x.

3.2 Specific parity-check matrix

Recall that, for a positive integer n and a prime power q, $V(n,q)$ denotes the n-dimensional vector space over the finite field $\mathbb{F}_q$. The ternary Golay code can be constructed as the 6-dimensional subspace in $V(11,3)$ consisting of all row-vectors $\mathbf{c}$ such that the equality $H\mathbf{c}^T = \mathbf{0}$ holds, where

$$H := \begin{bmatrix} 1 & 1 & 1 & 2 & 2 & 0 & 1 & 0 & 0 & 0 & 0 \\ 1 & 1 & 2 & 1 & 0 & 2 & 0 & 1 & 0 & 0 & 0 \\ 1 & 2 & 1 & 0 & 1 & 2 & 0 & 0 & 1 & 0 & 0 \\ 1 & 2 & 0 & 1 & 2 & 1 & 0 & 0 & 0 & 1 & 0 \\ 1 & 0 & 2 & 2 & 1 & 1 & 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

is the specific parity check matrix of this code. Let $x_1, x_2, x_3, \ldots, x_{11}$ denote the vectors from $V(5,3)$ that correspond to the columns of H. There are 22 vectors of type $\pm x_i$

and 220 vectors of type $\pm x_i \pm x_j$ where $i \neq j; i, j = 1, 2, \ldots, 11$. The Cayley graph $Cay(V(5,3), S_2)$, where $S_2 := \{\pm x_1, \ldots, \pm x_{11}\}$, is known to be isomorphic with the Berlekamp-Van Lint-Seidel graph (see [3]).

Lemma 3.3. *The reversal of vectors is an involution of $Cay(V(5,3), S_2)$ that interchanges only non-adjacent vertices.*

Proof. Obviously, the reversal of vectors is a permutation of the vertex set of Γ. For a vector $\gamma \in V(5,3)$, denote by γ^r the reversed vector. Note that $(S_2)^r = S_2$ holds. Since, for any two vertices γ_1, γ_2 in Γ, we have $\gamma_1^r - \gamma_2^r = (\gamma_1 - \gamma_2)^r$, the reversal is an automorphism of $Cay(V(5,3), S_2)$.

For a vector $(a, b, c, d, e) \in V(5,3)$, consider the difference

$$(a, b, c, d, e) - (a, b, c, d, e)^r = (a - e, b - d, 0, d - b, e - a).$$

Note that the first and the fifth coordinates and the second and fourth ones are additive inverses. Since S_2 has no such vectors with zero third coordinate, the reversal interchanges only non-adjacent vertices. □

4 Concluding remarks

The following three strictly Deza graphs can be derived from the Berlekamp-Van Lint-Seidel graph Γ.

First, Lemma 2.3 and Theorem 1(2) give a strictly Deza graph with parameters $(243, 22, 2, 1)$. It has spectrum $\{22^1, 5^{48}, 4^{72}, (-4)^{60}, (-5)^{62}\}$ and its automorphism group of order 2592 is a subgroup in the automorhism group of Γ.

Further, in view of [8, Construction 1], the strong product $\Gamma[K_2]$ of the Berlekamp-Van Lint-Seidel graph with an edge is a strictly Deza graph with parameters $(486, 45, 44, 4)$. It has spectrum $\{45^1, 9^{132}, (-1)^{243}, (-9)^{110}\}$.

Finally, the order 2 automorphism from Theorem 1(2) induces an order 2 automorphism of $\Gamma[K_2]$ that interchanges only non-adjacent vertices. Applying the dual Seidel switching to $\Gamma[K_2]$, we obtain one more strictly Deza graph with parameters $(486, 45, 44, 4)$, which has spectrum $\{45^1, 9^{120}, 1^{108}, (-1)^{135}, (-9)^{122}\}$.

In the connection with the results from [8], we point out that both graphs with parameters $(486, 45, 44, 4)$ are divisible design graphs.

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On divisible design Cayley graphs*

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Abstract

Let v, k, b, a be integers such that $v > k \geq b \geq a \geq 0$. A *Deza graph* with parameters (v, k, b, a) is a k-regular graph on v vertices in which the number of common neighbors of any two distinct vertices takes two values a or b ($a \leq b$). A k-regular graph on v vertices is a *divisible design graph* with parameters $(v, k, \lambda_1, \lambda_2, m, n)$ when its vertex set can be partitioned into m classes of size n, such that any two distinct vertices from the same class have λ_1 common neighbors, and any two vertices from different classes have λ_2 common neighbors. It is clear, that divisible design graphs are Deza graphs.

It is shown that divisible design Cayley graphs arise only by means of divisible difference sets relative to some subgroup. Construction of a special set in an affine group over a finite field is given and shown that this set is a divisible difference set and thus its development is a divisible design Cayley graph.

Keywords: Deza graph, divisible design graph, divisible design, divisible different set, Cayley graph, affine group over a finite field.

Math. Subj. Class.: 05B05, 05C51, 51E05

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1 Introduction

Let v, k, b, a be integers such that $v > k \geq b \geq a \geq 0$. A *Deza graph* with parameters (v, k, b, a) is a k-regular graph on v vertices in which the number of common neighbors of any two distinct vertices takes two values a or b ($a \leq b$). Deza graphs appeared as a generalization of strongly regular graphs in [7]. This is a wide class of graphs which includes not only strongly regular graphs but also regular $(0, \lambda)$-graphs [10], $(0, 2)$-graphs [5, 11] and divisible design graphs [6, 9].

A k-regular graph on v vertices is a *divisible design graph* with parameters $(v, k, \lambda_1, \lambda_2, m, n)$ when its vertex set can be partitioned into m classes of size n, such that any two distinct vertices from the same class have λ_1 common neighbors, and any two vertices from different classes have λ_2 common neighbors. For a divisible design graph the partition into classes is called a *canonical partition*.

Let G be a finite group with the identity element e. If S is a subset of G which is closed under inversion and does not contain e, then *Cayley graph* $\mathbb{C}ay(G, S)$ is a graph with the vertex set G and two vertices x, y are adjacent if and only if $xy^{-1} \in S$.

In this paper, some divisible design graphs are constructed that arise from finite groups in the form of Cayley graphs. The following theorem is the basis for the construction.

Theorem 1.1. *Let $\mathbb{C}ay(G, S)$ be a Deza graph with parameters (v, k, b, a). Let also A, B and $\{e\}$ be a partition of G and SS^{-1} be a multiset such that $SS^{-1} = aA + bB + k\{e\}$. If either $A \cup \{e\}$ or $B \cup \{e\}$ is a subgroup of G, then $\mathbb{C}ay(G, S)$ is a divisible design graph and the right cosets of this subgroup give a canonical partition of the graph. Conversely, if $\mathbb{C}ay(G, S)$ is a divisible design graph, then the class of its canonical partition which contains the identity of G is a subgroup of G and classes of the canonical partition of divisible design graph coincide with the cosets of this subgroup.*

Proof. Let $N = A \cup \{e\}$ be a subgroup of G and let $G = Na_1 \cup \cdots \cup Na_r$ be a partition of G by the right cosets of N. For every $g, h \in N$ and $1 \leq i \leq r$, $1 \leq j \leq r$, the set of neighbors of ha_i is Sha_i and the set of neighbors of ga_j is Sga_j. Thus, the set of common neighbors for ha_i and ga_j coincides with $Sha_i \cap Sga_j$. The number $|Sha_i \cap Sga_j|$ equals $|\{(s, s^*)|sha_i = s^*ga_j\}|$, where $s, s^* \in S$. Therefore, $h = s^{-1}s^*ga_ja_i^{-1}$. If $i = j$, then $h = s^{-1}s^*g$ and $s^{-1}s^* \in N$. So there are exactly a such pairs if $s^{-1}s^* \in A$ and k such pairs if $s^{-1}s^* = e$. If $i \neq j$, then $ga_ja_i^{-1} \notin N$ and hence $s^{-1}s^* \notin N$. So $s^{-1}s^* \in B$ and there are exactly b such pairs. The case of $N = B \cup \{e\}$ is viewed in a similar way.

Conversely, let $\mathbb{C}ay(G, S)$ be a divisible design graph and N be a class of the canonical partition of divisible design graph which contains the identity of G. It's enough to prove that for any $h, g \in N$ we have $hg^{-1} \in N$. Since h and g belong to the same class of the canonical partition of $\mathbb{C}ay(G, S)$, then $|Sh \cap Sg| = \lambda_1$. The number of pairs (s, s^*) such that $sh = s^*g$ is equal to λ_1. Thus, $hg^{-1} = s^{-1}s^*$ is repeated λ_1 times in SS^{-1}. □

Theorem 1.1 shows that Cayley divisible design graphs arise only by means of divisible difference sets relative to some subgroup. Let a finite group G of order mn have a subgroup N of order n. A subset S of G is called a *divisible difference set with exceptional subgroup* N if there are constants λ_1 and λ_2 such that every non-identity element of N can be expressed as a right quotient of elements in S in exactly λ_1 ways and every element in $G \setminus N$ can be expressed as a right quotient of elements in S in exactly λ_2 ways.

In other words, if $k = |S|$, then $SS^{-1} = k\{e\} + \lambda_1(N - \{e\}) + \lambda_2(G - N)$.

2 Construction of divisible design Cayley graphs

Let $\mathbb{F}$ be a finite field with q^r elements, where q is a prime power and $r > 1$.

Consider the group $\mathbb{G}$ of all 2×2 matrices $\begin{pmatrix} 1 & 0 \\ \alpha & \beta \end{pmatrix}$, where $\alpha \in \mathbb{F}$ and $\beta \in \mathbb{F} \setminus \{0\}$. It's clear that $\mathbb{G}$ is a semi-direct product of two subgroups N and K, where N consists of all matrices $\begin{pmatrix} 1 & 0 \\ \alpha & 1 \end{pmatrix}$, and $\alpha \in \mathbb{F}$, K consists of all matrices $\begin{pmatrix} 1 & 0 \\ 0 & \beta \end{pmatrix}$, and $\beta \in \mathbb{F} \setminus \{0\}$.

define a bijection ψ^+ between N and $\mathbb{F}$ as follows: $\psi^+(a) = \alpha$ for any $a \in N$, $a = \begin{pmatrix} 1 & 0 \\ \alpha & 1 \end{pmatrix}$, $\alpha \in \mathbb{F}$. If

$$a_1 = \begin{pmatrix} 1 & 0 \\ \alpha_1 & 1 \end{pmatrix} \quad \text{and} \quad a_2 = \begin{pmatrix} 1 & 0 \\ \alpha_2 & 1 \end{pmatrix} \; \alpha_1, \alpha_2 \in \mathbb{F},$$

then

$$a_1 a_2 = \begin{pmatrix} 1 & 0 \\ \alpha_1 & 1 \end{pmatrix} \begin{pmatrix} 1 & 0 \\ \alpha_2 & 1 \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ \alpha_1 + \alpha_2 & 1 \end{pmatrix}.$$

Thus, N is isomorphic to the additive group $\mathbb{F}^+$ which we can consider as a linear space of dimension r over $\mathbb{F}_q$.

Define a bijection $\psi^\times$ between K and $\mathbb{F} \setminus \{0\}$ as follows: $\psi^\times(b) = \beta$ for any $b \in K$, $b = \begin{pmatrix} 1 & 0 \\ 0 & \beta \end{pmatrix}$, $\beta \in \mathbb{F} \setminus \{0\}$. Clearly, $\psi^\times$ is an isomorphism between K and the multiplicative group of $\mathbb{F}$.

Let K be generated by matrix $f^* = \begin{pmatrix} 1 & 0 \\ 0 & \tau \end{pmatrix}$, where τ is a primitive element $\mathbb{F}$.

Also let H be a cyclic group generated by $f = (f^*)^{q-1} = \begin{pmatrix} 1 & 0 \\ 0 & \theta \end{pmatrix}$, where $\theta = \tau^{q-1}$. Thus, $G = NH$ is a subgroup of $\mathbb{G}$ of index $q-1$ and the order of G is equal to $q^r(q^r-1)/(q-1)$. Furthermore, N is a normal subgroup of order q^r and index $(q^r - 1)/(q-1)$ in G.

By the formula of Gaussian binomial coefficients, the number of $(r-1)$-dimensional subspaces of N equals t, where

$$t = (q^r - 1)/(q - 1).$$

Let $\mathbb{M}$ be the set of preimages of all these $(r-1)$-dimensional subspaces of $\mathbb{F}^+$ in N under ψ^+. Since ψ^+ is an isomorphism, then the set $\mathbb{M}$ consists of t subgroups of order q^{r-1} from N.

Denote by M one of the subgroups from $\mathbb{M}$. Thus,

$$\mathbb{M} = \{M_i \mid \psi^+(M_i) = \psi^+(M)\tau^i, \quad i = 1, 2, \ldots, t\}.$$

Let φ be a permutation on the set $\mathbb{M} = \{M_1, M_2, \ldots, M_t\}$. As usual by $f^i(N \setminus M_{\varphi(i)})$ we denote the set $\{f^i a : a \in N \setminus M_{\varphi(i)}\}$.

Define a subset S of G in the following way:

$$S = \bigcup_{i=1}^{t} f^i(N \setminus M_{\varphi(i)}).$$

It is obvious, that S is a generating set of G. In the following lemmas, we consider the question of when this set is closed under inversion.

Lemma 2.1. *Subset S is closed under inversion in G if and only if for all integers i the following condition holds*

$$\psi^+(M_{\varphi(i)})\theta^i = \psi^+(M_{\varphi(t-i)}). \qquad (*)$$

Proof. Let $s \in S$ and $s = f^i a$, for some integer i and $a \in N \setminus M_{\varphi(i)}$. Also, let $a = \begin{pmatrix} 1 & 0 \\ \alpha & 1 \end{pmatrix}$, for some $\alpha \in \psi^+(N \setminus M_{\varphi(i)})$ and $f^i = \begin{pmatrix} 1 & 0 \\ 0 & \theta^i \end{pmatrix}$.

In such case, $a^{-1} = \begin{pmatrix} 1 & 0 \\ -\alpha & 1 \end{pmatrix}$, for $\alpha \in \psi^+(N \setminus M_{\varphi(i)})$ and $f^{-i} = \begin{pmatrix} 1 & 0 \\ 0 & \theta^{t-i} \end{pmatrix}$.

Then

$$f^i a = \begin{pmatrix} 1 & 0 \\ 0 & \theta^i \end{pmatrix}\begin{pmatrix} 1 & 0 \\ \alpha & 1 \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ \alpha\theta^i & \theta^i \end{pmatrix},$$

$$(f^i a)^{-1} = \begin{pmatrix} 1 & 0 \\ -\alpha & 1 \end{pmatrix}\begin{pmatrix} 1 & 0 \\ 0 & \theta^{t-i} \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ (-\alpha\theta^i)\theta^{t-i} & 1 \end{pmatrix}\begin{pmatrix} 1 & 0 \\ 0 & \theta^{t-i} \end{pmatrix}.$$

Thus, $s^{-1} \in S$ if and only if $-\alpha\theta^i \in \psi^+(M_{\varphi(t-i)})$. Hence, $S = S^{-1}$ if and only if $(*)$ holds. □

The interesting question to study all permutations for which the property $(*)$ holds is done next. Let $\varphi = (\varphi_1, \ldots, \varphi_t)$ be a permutation of the set $\{1, \ldots, t\}$, where $\varphi(i) = \varphi_i$.

Lemma 2.2. *For any $t > 2$ there is at least one permutation φ satisfying*

$$\psi^+(M_{\varphi(i)})\theta^i = \psi^+(M_{\varphi(t-i)})$$

for all integers i.

Proof. Let $\varphi = (\varphi_1, \ldots, \varphi_t)$. If t is an odd integer, then

$$\varphi = (1, t-1, t-3, \ldots, 2, t, t-2, t-4, \ldots, 3).$$

If t is an even integer, then

$$\varphi = (1, t-1, t-3, \ldots, t/2+2, t/2-1, t/2-3, \ldots, 2, t/2, t-2, t-4, \ldots,$$
$$\ldots, t/2+1, t, t/2-2, t/2-4, \ldots, 3).$$

□

For example, if $t = 7$, then there are exactly three permutations

$$(1, 6, 4, 2, 7, 5, 3),\ (1, 6, 3, 7, 2, 4, 5),\ \text{and}\ (1, 6, 2, 3, 5, 7, 4)$$

which satisfy the condition $(*)$ in Lemma 2.1.

Construction 2.3. Let Γ be a Cayley graph $\mathbb{C}ay(G,S)$ whose vertices are elements of the group G defined as above and

$$S = \bigcup_{i=1}^{t} f^i(N \setminus M_{\varphi(i)}).$$

In the next section we prove that if S satisfies the condition $(*)$, then Γ is a divisible design graph. Construction 2.3 gives us an infinite series of divisible design graphs which are Cayley graphs. Only the first graph among them is known and given in [9, Construction 4.20]. This divisible design Cayley graph with parameters $(12, 6, 2, 3, 3, 4)$ is the line graph of the octahedron and can be obtained as a Cayley graph from the alternating group of degree 4 (See Example 4.1 in Section 4).

3 Main theorem

The main goal of our article is to prove the following theorem.

Theorem 3.1. *Let Γ be a Cayley graph from Construction 2.3. If S satisfies the condition $(*)$, then Γ is a divisible design graph with parameters $(v, k, \lambda_1, \lambda_2, m, n)$, where*

$$v = q^r(q^r - 1)/(q-1), \quad k = q^{r-1}(q^r - 1),$$

$$\lambda_1 = q^{r-1}(q^r - q^{r-1} - 1), \quad \lambda_2 = q^{r-2}(q-1)(q^r - 1),$$

$$m = (q^r - 1)/(q-1), \quad n = q^r.$$

Proof. It is clear, that Γ is an undirected graph on $v = q^r(q^r - 1)/(q-1)$ vertices of valency

$$k = |S| = \left|\bigcup_{i=0}^{t-1} f^i(N \setminus M_{\varphi(i)})\right| = \sum_{i=0}^{t-1}(q^r - q^{r-1}) =$$

$$= (q^r - q^{r-1})(q^r - 1)/(q-1) = q^{r-1}(q^r - 1).$$

Calculate a number of common adjacent vertices for any two distinct vertices from any coset. Since Γ is a Cayley graph, then it is enough to calculate this number for the identity element of G and any non-identity element from N. Let e be the identity element of G, $a \neq e$ and $a \in N$. It is important to note that a belongs to exactly $t_1 = (q^{r-1} - 1)/(q-1)$ subgroups of N from $\mathbb{M}$.

Since $\Gamma(e) \cap \Gamma(a) = S \cap Sa$, then

$$\Gamma(e) \cap \Gamma(a) = \Big(\bigcup_{i=0}^{t-1} f^i(N \setminus M_{\varphi(i)})\Big) \cap \Big(\bigcup_{i=0}^{t-1} f^i(N \setminus M_{\varphi(i)})a\Big) =$$

$$= \Big(\bigcup_{a \in M_{\varphi(i)}} f^i(N \setminus M_{\varphi(i)})\Big) \cup \Big(\bigcup_{a \notin M_{\varphi(i)}} f^i(N \setminus M_{\varphi(i)}) \cap f^i(N \setminus M_{\varphi(i)})a\Big).$$

Hence

$$|\Gamma(e) \cap \Gamma(a)| = \sum_{i=0}^{t_1-1}(q^r - q^{r-1}) + \sum_{i=t_1}^{t-1}(q^r - (q-2)q^{r-1}) = q^{r-1}(q^r - q^{r-1} - 1).$$

Calculate a number of common adjacent vertices for any two vertices from any two distinct cosets. Since Γ is a Cayley graph, then it is enough to calculate this number for the identity element e from G and any element g from Nf^i, where $i \neq 0 \pmod t$. Let $g = f^x a_g$, $x \neq 0 \pmod t$. We have $f^x a_g = [f^{-x}, a_g^{-1}]a_g f^x$, where $[f^{-x}, a_g^{-1}]$ is the commutator of elements f^{-x} and a_g^{-1}. It is easy to verify, that if $b_g = [f^{-x}, a_g^{-1}]a_g$, then $b_g \in N$.

Since $\Gamma(e) \cap \Gamma(g) = S \cap Sg$, then

$$\Gamma(e) \cap \Gamma(g) = \Big(\bigcup_{i=0}^{t-1} f^i(N \setminus M_{\varphi(i)})\Big) \cap \Big(\bigcup_{i=0}^{t-1} f^i(N \setminus M_{\varphi(i)})g\Big).$$

Taking into account that N is a normal subgroup of G and $b_g \in N$ we have

$$f^i(N \setminus M_{\varphi(i)}) \cap f^j(N \setminus M_{\varphi(j)})b_g f^x \neq \emptyset \quad \text{if and only if} \quad i - x = j.$$

Thus, we have

$$\bigcup_{i=0}^{t-1} \big(f^i(N \setminus M_{\varphi(i)}) \cap f^{i-x}(N \setminus M_{\varphi(i-x)})f^x\big) =$$

$$= \bigcup_{i=0}^{t-1} f^{i-x} \left(f^x(N \setminus M_{\varphi(i)}) \cap (N \setminus M_{\varphi(i-x)})f^x\right).$$

If $h \in f^x(N \setminus M_{\varphi(i)}) \cap (N \setminus M_{\varphi(i-x)})f^x$, then there are some

$$\alpha_1 \in \psi^+(N \setminus M_{\varphi(i)}), \quad \alpha_2 \in \psi^+(N \setminus M_{\varphi(i-x)})$$

such that

$$h = \begin{pmatrix} 1 & 0 \\ 0 & \theta^x \end{pmatrix} \begin{pmatrix} 1 & 0 \\ \alpha_1 & 1 \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ \alpha_2 & 1 \end{pmatrix} \begin{pmatrix} 1 & 0 \\ 0 & \theta^x \end{pmatrix}.$$

Therefore, $\theta^x \alpha_1 = \alpha_2$.

Since bijection ψ^+ is an isomorphism between N and $\mathbb{F}^+$, then

$$|f^x(N \setminus M_{\varphi(i)}) \cap (N \setminus M_{\varphi(i-x)})f^x| =$$

$$= |\psi^+(N \setminus M_{\varphi(i)}) \cap \theta^{-x}\psi^+((N \setminus M_{\varphi(i-x)}))| =$$

$$= |\psi^+(N) \setminus \psi^+(M_{\varphi(i)}) \cup \theta^{-x}\psi^+(M_{\varphi(i-x)})| =$$

$$= (q^r - 2q^{r-1} + q^{r-2}).$$

Thus,

$$|\Gamma(e) \cap \Gamma(g)| == \sum_{i=0}^{t-1}(q^r - 2q^{r-1} + q^{r-2}) =$$

$$= (q^r - 2q^{r-1} + q^{r-2})(q^r - 1)/(q - 1) =$$

$$= q^{r-2}(q-1)(q^r - 1).$$

Hence, Γ is a divisible design graph. □

4 Examples

All examples in this section except Example 4.1 were found using computer search.

Example 4.1. Divisible design graph with parameters $(12, 6, 2, 3, 3, 4)$.

There is the unique example of divisible design Cayley graph with parameters $(12, 6, 2, 3, 3, 4)$ based on the alternating group Alt_4. We can choose the set

$$S = \{(13)(24), (12)(34), (123), (132), (234), (243)\}$$

as its generating set. A fragment of the Cayley table of Alt_4 below shows us the necessary properties.

	(13)(24)	(12)(34)	(123)	(132)	(234)	(243)
(13)(24)	e	(14)(23)	(243)	(124)	(143)	(123)
(12)(34)	(14)(23)	e	(134)	(234)	(132)	(142)
(123)	(142)	(243)	(132)	e	(13)(24)	(143)
(132)	(234)	(143)	e	(123)	(142)	(12)(34)
(234)	(132)	(124)	(12)(34)	(134)	(243)	e
(243)	(134)	(123)	(124)	(13)(24)	e	(234)

Example 4.2. Divisible design graphs with parameters $(36, 24, 15, 16, 4, 9)$.

It was found in [8] that there are three non-isomorphic divisible design graphs with parameters $(36, 24, 15, 16, 4, 9)$. From our Construction 2.3 with permutations $(1, 3, 4, 2)$ and $(1, 3, 2, 4)$ we have two of that non-isomorphic divisible design graphs, which are based on subgroup of index 2 of $AG(9)$. It is important to note that, if t is even, then $t/2$ and t can be in any place in φ according to the condition $(*)$.

Example 4.3. Divisible design graphs with parameters $(56, 28, 12, 14, 7, 8)$.

It was found in [8] that there are five non-isomorphic examples of divisible design graphs with parameters $(56, 28, 12, 14, 7, 8)$ which are based on group $AG(8)$. This group can be described as follows

$$G = \langle\, f_1,\ f_2,\ f_3,\ f_4 \,\rangle$$

with defining group relationships

$$f_1^7 = f_2^2 = f_3^2 = f_4^2 = e,$$

$$f_2 * f_1 = f_1 * f_3,\ f_3 * f_1 = f_1 * f_4,\ f_4 * f_1 = f_1 * f_2 * f_4.$$

Below, we give the list of generating sets for these Cayley graphs.

$S_1 = \{f_3, f_2 * f_3, f_3 * f_4, f_2 * f_3 * f_4, f_1 * f_4, f_1 * f_2 * f_4, f_1 * f_2 * f_3 * f_4, f_1 * f_3 * f_4, f_1^2 * f_2, f_1^2 * f_3, f_1^2 * f_4, f_1^2 * f_2 * f_3 * f_4, f_1^3 * f_2, f_1^3 * f_3, f_1^3 * f_2 * f_4, f_1^3 * f_3 * f_4, f_1^4 * f_2, f_1^4 * f_2 * f_3, f_1^4 * f_2 * f_4, f_1^4 * f_2 * f_3 * f_4, f_1^5 * f_2, f_1^5 * f_4, f_1^5 * f_2 * f_3, f_1^5 * f_3 * f_4, f_1^6 * f_3, f_1^6 * f_4, f_1^6 * f_2 * f_3, f_1^6 * f_2 * f_4\}$;

$S_2 = \{f_2, f_4, f_2 * f_3, f_3 * f_4, f_1, f_1 * f_3, f_1 * f_4, f_1 * f_3 * f_4, f_1^2 * f_3, f_1^2 * f_4, f_1^2 * f_2 * f_3, f_1^2 * f_2 * f_4, f_1^3, f_1^3 * f_2 * f_4, f_1^3 * f_3 * f_4, f_1^3 * f_2 * f_3, f_1^4, f_1^4 * f_2, f_1^4 * f_4, f_1^4 * f2 *$

$f_4, f_1^5 * f_2, f_1^5 * f_3, f_1^5 * f_2 * f_4, f_1^5 * f_3 * f_4, f_1^6, f_1^6 * f_2, f_1^6 * f_3, f_1^6 * f_2 * f_3\}$;

$S_3 = \{f_1, f_3, f_4, f_1^2, f_1 * f3, f_2 * f_4, f_3 * f4, f_1^2 * f_2, f_1^2 * f_3, f_1^2 * f_4, f_1 * f_2 * f_4, f_1 * f_3 * f_4, f_1^3 * f_3, f_1^5, f_1^4 * f_2, f_1^4 * f_4, f_1^3 * f_2 * f_3, f_1^3 * f_2 * f_4, f_1^3 * f_3 * f_4, f_1^6, f_1^5 * f_2, f_1^4 * f_2 * f_3, f_1^4 * f_2 * f_4, f_1^6 * f_2, f_1^6 * f_4, f_1^5 * f_2 * f_3, f_1^5 * f_3 * f_4, f_1^6 * f_2 * f_3\}$;

$S_4 = \{f_1, f_2, f_3, f_1 * f_3, f_1 * f_4, f_2 * f_4, f_3 * f_4, f_1^2 * f_2, f_1^2 * f_3, f_1^2 * f_4, f_1 * f_3 * f_4, f_1^3 * f_3, f_1^4 * f_3, f_1^4 * f_4, f_1^3 * f_2 * f_3, f_1^3 * f_3 * f_4, f_1^2 * f_2 * f_3 * f_4, f_1^6, f_1^5 * f_2, f_1^5 * f_4, f_1^4 * f_2 * f_3, f_1^4 * f_2 * f_4, f_1^3 * f_2 * f_3 * f_4, f_1^6 * f_2, f_1^6 * f_3, f_1^5 * f_2 * f_3, f_1^5 * f_3 * f_4, f_1^6 * f_2 * f_3\}$;

$S_5 = \{f_1, f_2, f_3, f_4, f_1^2, f_1 * f_3, f_1 * f_4, f_1^2 * f_4, f_1 * f_3 * f_4, f_2 * f_3 * f_4, f_1^3 * f_3, f_1^3 * f_4, f_1^2 * f_2 * f_3, f_1^5, f_1^4 * f_2, f_1^4 * f_4, f_1^3 * f_2 * f_3, f_1^3 * f_2 * f_4, f_1^2 * f_2 * f_3 * f_4, f_1^6, f_1^5 * f_2, f_1^5 * f_4, f_1^4 * f_2 * f_3, f_1^4 * f_3 * f_4, f_1^6 * f_2, f_1^6 * f_3, f_1^5 * f_2 * f_4, f_1^6 * f_2 * f_3\}$.

Three of them are isomorphic to the graphs we have from our Construction 2.3 with permutations which pointed out after Lemma 2.2.

Example 4.4. Divisible design graph with parameters $(80, 60, 44, 45, 5, 16)$.

There is at least one divisible design Cayley graph which is based on subgroup of index 3 of $AG(4^2)$ that we have from our Construction 2.3 with permutations $(1, 4, 2, 5, 3)$. This is the first example where q is not prime.

5 Conclusion remarks

Any divisible design graph can be considered as a symmetric group-divisible design [2, 3, 4], the vertices of which are points, and the neighborhoods of the vertices are blocks. Such a design is called the *neighborhood design*. However, non-isomorphic graphs can correspond to isomorphic designs. Examples 4.2 and 4.3 of this article give us non-isomorphic divisible design graphs which produce isomorphic group divisible designs. If group-divisible design admit a symmetric incidence matrix with zero diagonal, then it corresponds to divisible design graph (see [9, Section 4.3]).

There is a great possibility to construct divisible designs from groups. Let G be a group of order mn containing a subgroup N of order n. A k-subset D of G is called a *divisible* $(m, n, k, \lambda_1, \lambda_2)$ difference set (*divisible by cosets of subgroup* N) if the list of elements xy^{-1} with $x, y \in D$ contains all non-identity elements in N exactly λ_1 times and all elements in $G \setminus N$ exactly λ_2 times. In case that $N = \{0\}$, the definition of a divisible difference set coincides with the definition of a *difference set* in the usual sense. In case that $\lambda_1 = 0$, the definition of a divisible difference set coincides with the definition of a *relative difference set* [2, 12, 13].

Divisible difference set D gives rise to a symmetric group-divisible design $\mathbb{D}$ with the set of blocks $\{Dg|\, g \in G\}$ and has the same parameters as D. This symmetric group-divisible design is called the *development of* D and admits G as a regular automorphism group (by right translation). Thus, symmetric group-divisible designs with a regular group G are equivalent to divisible difference sets in G. For having a symmetric incidence matrix with zero diagonal, the divisible difference set should be reversible (or equivalently, it must have a strong multiplier -1). There is more information on such difference sets in [1].

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Torsion free equiaffine connections on three-dimensional homogeneous spaces

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Abstract

The aim of this paper is to describe equiaffine connections on three-dimensional homogeneous spaces. The affine connection is equiaffine if it admits a parallel volume form. Only the case of spaces not admitting connections with nonzero torsion is considered. For such homogeneous spaces, it is determined under what conditions the connection is equiaffine (locally equiaffine). In addition, equiaffine (locally equiaffine) connections and Ricci tensors are written out in explicit form. In this work we use the algebraic approach for description of connections, methods of the theory of Lie groups, Lie algebras and homogeneous spaces.

Keywords: Equiaffine connection, homogeneous space, transformation group, Lie algebra, torsion tensor, Ricci tensor.

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1 Introduction

The aim of this paper is to describe equiaffine connections on three-dimensional homogeneous spaces. Only the case of spaces not admitting connections with nonzero torsion is considered. The case of affine connections is known (see [2]). The affine connection is equiaffine if it admits a parallel volume form (see [4]). For all such spaces, it is determined under what conditions the connection is equiaffine (locally equiaffine). In addition, equiaffine (locally equiaffine) connections and Ricci tensors are written out in explicit form.

Let $(\overline{G}, M)$ be a three-dimensional homogeneous space, where $\overline{G}$ is a Lie group acts transitively on the manifold M. We fix an arbitrary point $o \in M$ and denote by $G = \overline{G}_o$ the stationary subgroup of o. Then we can correspond the pair $(\bar{\mathfrak{g}}, \mathfrak{g})$ of Lie algebras to $(\overline{G}, G)$, where $\bar{\mathfrak{g}}$ is the Lie algebra of $\overline{G}$ and $\mathfrak{g}$ is the subalgebra of $\bar{\mathfrak{g}}$ corresponding to the subgroup

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G. The pair $(\bar{\mathfrak{g}}, \mathfrak{g})$ is said to be *isotropy-faithful* if its isotropic representation is injective. The classification all three-dimensional isotropically–faithful pairs $(\bar{\mathfrak{g}}, \mathfrak{g})$ with torsion-free connections only, is described in [2]. Let $\mathfrak{m} = \bar{\mathfrak{g}}/\mathfrak{g}$. Invariant affine connections on $(\overline{G}, M)$ are in one-to-one correspondence [3] with linear mappings $\Lambda\colon \bar{\mathfrak{g}} \to \mathfrak{gl}(\mathfrak{m})$ such that $\Lambda|_{\mathfrak{g}} = \lambda$ and Λ is $\mathfrak{g}$-invariant. We call this mappings *(invariant) affine connections* on the pair $(\bar{\mathfrak{g}}, \mathfrak{g})$. If there exists at least one invariant connection on $(\bar{\mathfrak{g}}, \mathfrak{g})$ then this pair is isotropy-faithful [1]. The *curvature* and *torsion tensors* of the invariant affine connection Λ are given by the following formulas: $R\colon \mathfrak{m} \wedge \mathfrak{m} \to \mathfrak{gl}(\mathfrak{m})$, $(x_1 + \mathfrak{g}) \wedge (x_2 + \mathfrak{g}) \mapsto [\Lambda(x_1), \Lambda(x_2)] - \Lambda([x_1, x_2])$; $T\colon \mathfrak{m} \wedge \mathfrak{m} \to \mathfrak{m}$, $(x_1+\mathfrak{g}) \wedge (x_2+\mathfrak{g}) \mapsto \Lambda(x_1)(x_2+\mathfrak{g}) - \Lambda(x_2)(x_1+\mathfrak{g}) - [x_1, x_2]_{\mathfrak{m}}$. The connection Λ is *torsion-free* (or without torsion) if $T = 0$. In this case we have: $R(x, y)z + R(y, z)x + R(z, x)y = 0$ for all $x, y, z \in \mathfrak{m}$ (the first Bianchi identity).

We define the *Ricci tensor*: $\mathrm{Ric}(y, z) = \mathrm{tr}\{x \mapsto R(x, y)z\}$. An affine connection Λ with zero torsion has symmetric Ricci tensor if and only if it is locally equiaffine [4]. Really, $\mathrm{Ric}(y, z) - \mathrm{Ric}(z, y) = \mathrm{tr}\{x \mapsto R(x, y)z - R(x, z)y\}$. From the first Bianchi identity we obtain $\mathrm{Ric}(y, z) - \mathrm{Ric}(z, y) = \mathrm{tr}\{x \mapsto -R(y, z)x\} = -\mathrm{tr}R(y, z)$. Then $\mathrm{Ric}(y, z) - \mathrm{Ric}(z, y) = -\mathrm{tr}(\Lambda(y)\Lambda(z) - \Lambda(z)\Lambda(y)) + \mathrm{tr}\Lambda([y, z]) = \mathrm{tr}\Lambda([y, z])$. Hence Ric is symmetric if and only if $\mathrm{tr}\Lambda([y, z]) = 0$ for all $y, z \in \bar{\mathfrak{g}}$. We say that the affine connection Λ is *locally equiaffine* if $\mathrm{tr}\Lambda([x, y]) = 0$ for all $x, y \in \bar{\mathfrak{g}}$ (i.e. $\Lambda([\bar{\mathfrak{g}}, \bar{\mathfrak{g}}]) \subset \mathfrak{sl}(\mathfrak{m})$). By *equiaffine connection* we mean the (torsion-free) affine connection Λ such that $\mathrm{tr}\Lambda(x) = 0$ for all $x \in \bar{\mathfrak{g}}$. In this case, it is obvious $\lambda(\mathfrak{g}) \subset \mathfrak{sl}(\mathfrak{m})$.

We define $(\bar{\mathfrak{g}}, \mathfrak{g})$ by the commutation table of the Lie algebra $\bar{\mathfrak{g}}$. Here by $\{e_1, ..., e_n\}$ we denote a basis of $\bar{\mathfrak{g}}$ ($n = \dim \bar{\mathfrak{g}}$). We assume that the Lie algebra $\mathfrak{g}$ is generated by $e_1, ..., e_{n-3}$. Let $\{u_1 = e_{n-2}, u_2 = e_{n-1}, u_3 = e_n\}$ be a basis of $\mathfrak{m}$. We describe affine connection by $\Lambda(u_1)$, $\Lambda(u_2)$, $\Lambda(u_3)$, curvature tensor R by $R(u_1, u_2)$, $R(u_1, u_3)$, $R(u_2, u_3)$ and torsion tensor T by $T(u_1, u_2)$, $T(u_1, u_3)$, $T(u_2, u_3)$. We say that the affine connection is *trivial* if $\Lambda(u_1) = \Lambda(u_2) = \Lambda(u_3) = 0$. To refer to the pair we use the notation $d.n.m$, where d is the dimension of the subalgebra, n is the number of the subalgebra of $\mathfrak{gl}(3, \mathbb{R})$, m is the number of $(\bar{\mathfrak{g}}, \mathfrak{g})$ in [2].

The description of (torsion-free) equiaffine connections on three-dimensional homogeneous spaces can be divided into the following parts:

- classification of pairs that allow nontrivial locally equiaffine connections (the curvature tensor is only zero in Theorem 2.1; the curvature tensor is not only zero in Theorem 2.2);

- classification of pairs with only trivial locally equiaffine connections (the curvature tensor is zero in Theorem 3.1; the curvature tensor is not zero in Theorem 3.2).

The information about equiaffine (locally equiaffine) connections and Ricci tensors is contained in the proof of the Theorems 2.1, 2.2, 3.1 and 3.2.

2 Pairs of Lie algebras, admitting nontrivial locally equiaffine connections

2.1 The curvature tensor is only zero

Theorem 2.1. *I. If the pair* $(\bar{\mathfrak{g}}, \mathfrak{g})$ *allows nontrivial equiaffine connections, the curvature and torsion tensors are only zero, then* $(\bar{\mathfrak{g}}, \mathfrak{g})$ *is equivalent to one and only one of the following pairs:*

– $\bar{\mathfrak{g}}$ *is nonsolvable:*

4.21.11.	e_1	e_2	e_3	e_4	u_1	u_2	u_3
e_1	0	e_2	$-\mu e_3$	$(1-\mu)e_4$	u_1	0	μu_3
e_2	$-e_2$	0	e_4	0	0	e_2+u_1	0
e_3	μe_3	$-e_4$	0	0	0	$-2e_3$	u_2
e_4	$(\mu-1)e_4$	0	0	0	0	$-e_4$	e_2+u_1
u_1	$-u_1$	0	0	0	0	0	0
u_2	0	$-e_2-u_1$	$2e_3$	e_4	0	0	$-2u_3$
u_3	$-\mu u_3$	0	$-u_2$	$-e_2-u_1$	0	$2u_3$	0

, $\mu=-1$;

– $\bar{\mathfrak{g}}$ *is solvable:*

1.2.1	e_1	u_1	u_2	u_3
e_1	0	u_1	λu_2	μu_3
u_1	$-u_1$	0	0	0
u_2	$-\lambda u_2$	0	0	0
u_3	$-\mu u_3$	0	0	0

, $\lambda{=}-2/3$, $\mu{=}-1/3$;

2.9.1.	e_1	e_2	u_1	u_2	u_3
e_1	0	$(1-\mu)e_2$	u_1	λu_2	μu_3
e_2	$(\mu-1)e_2$	0	0	0	u_1
u_1	$-u_1$	0	0	0	0
u_2	$-\lambda u_2$	0	0	0	0
u_3	$-\mu u_3$	$-u_1$	0	0	0

, $\lambda{=}-3/2, \mu{=}1/2$; $\lambda{=}-2/3, \mu{=}-1/3$; $\lambda{=}1/2, \mu{=}-3/2$;

3.20.25, $\mu{\le}0$	e_1	e_2	e_3	u_1	u_2	u_3
e_1	0	$(1{-}2\mu)e_2$	$(1{-}\mu)e_3$	u_1	$2\mu u_2$	μu_3
e_2	$(2\mu{-}1)e_2$	0	0	0	u_1	e_3
e_3	$(\mu{-}1)e_3$	0	0	0	0	u_1
u_1	$-u_1$	0	0	0	0	0
u_2	$-2\mu u_2$	$-u_1$	0	0	0	0
u_3	$-\mu u_3$	$-e_3$	$-u_1$	0	0	0

, $\mu{=}-1/3$.

The Ricci tensors are zero.

II. Any pair $(\bar{\mathfrak{g}}, \mathfrak{g})$*, allows nontrivial affine connections, the curvature and torsion tensors are only zero (i.e. if* $\bar{\mathfrak{g}}$ *is nonsolvable then* $d.n.m$ = 6.3.2, 5.9.2, 4.19.2, 4.21.11 ($\mu{\neq}0, 1{,}1/2$), 3.6.2, 3.12.2, 3.13.6 ($\mu{\neq}0, 1, -1, 1/2$), 3.28.2, 2.8.7 ($\lambda{\neq}0, 1, -1, 1/2$), *if* $\bar{\mathfrak{g}}$ *is solvable then* $d.n.m$ = 5.10.1 *(*$\lambda{=}1/2, \mu{=}0$*),* 4.8.1 *(*$\lambda{=}0, \mu{=}1/2$*),* 4.11.1 *(*$\mu{=}0, \lambda{=}1/2$*),* 4.11.5, 3.7.1 *(*$\lambda{=}1/2$*),* 3.8.1 *(*$\lambda{+}\mu{=}1/2, \mu{=}0, 1/2$*),* 3.14.1 *(*$\mu{\neq}0, 2$*),* 3.19.17, 3.20.1 *(*$\lambda{=}1/2$ ($\mu{\neq}0, 1/2$)*;* $\mu{=}1/2$ ($\lambda{\neq}0, 1/2$)*),* 3.20.25 *(*$\mu{\neq}0$*),* 3.20.26 *(*$\lambda{\neq}1/3, 1/4$*),* 3.23.1 *(*$\lambda{=}3/4$*),* 3.29.1 *(*$\mu{=}1/2$*),* 2.1.1 *(*$\lambda{=}1/2$*),* 2.8.1 *(*$\lambda{=}1/2$*),* 2.9.1 *(*$\lambda{=}1/2$ ($\mu{\neq}0, -1/2, 1/4, 1/2$)*;* $\lambda{=}2\mu$ ($\mu{\neq}0, 1/4, 1/3, 1$)*;* $\mu{=}1/2$ ($\lambda{\neq}1/2, 0, 1, 3/2$)*),* 2.19.1 *(*$\lambda{=}1/2$*),* 2.19.5, 2.21.1 *(*$\lambda{=}3/4$*),* 1.2.1 *(*$\mu{=}2\lambda$ ($\lambda{\neq}1/3, 1/4$)*;* $\mu{=}\lambda/2$ ($\lambda{\neq}-2$)*;* $\lambda{=}1/2$ ($\mu \neq 1/2$)*),* 1.7.1 *(*$\lambda{=}1/2$*), see* [2]*), admits locally equiaffine connections.*

Remark. In the cases 5.10.1 ($\lambda = 1/2, \mu = 0$), 3.8.1 ($\lambda = 0, \mu = 1/2$), 3.20.1 ($\lambda{=}1/2$ ($\mu{\neq}0, 1/2$), $\mu{=}1/2$ ($\lambda{\neq}0, 1/2$)), 3.23.1 ($\lambda = 3/4$), 3.29.1 ($\mu = 1/2$), 2.9.1 ($\mu{=}1/2$ ($\lambda{\neq}1/2, 0, 1, 3/2$)), 2.19.1 ($\lambda = 1/2$) the connection is trivial after basis replacement.

Proof. For the subalgebras $\mathfrak{g}$ of $\mathfrak{gl}(3,\mathbb{R})$ in [2] we find isotropy-faithful pairs $(\bar{\mathfrak{g}},\mathfrak{g})$ and choose pairs, allows nontrivial affine, equiaffine (locally equiaffine) connections, such that the curvature and torsion tensors are zero for all connections.

Let $\bar{\mathfrak{g}}$ is nonsolvable, for example, the pair $(\bar{\mathfrak{g}},\mathfrak{g})$ has the form 6.3.2 and

$$\Lambda(u_1)=\begin{pmatrix} p_{1,1} & p_{1,2} & p_{1,3} \\ p_{2,1} & p_{2,2} & p_{2,3} \\ p_{3,1} & p_{3,2} & p_{3,3} \end{pmatrix},\ \Lambda(u_2)=\begin{pmatrix} q_{1,1} & q_{1,2} & q_{1,3} \\ q_{2,1} & q_{2,2} & q_{2,3} \\ q_{3,1} & q_{3,2} & q_{3,3} \end{pmatrix},\ \Lambda(u_3)=\begin{pmatrix} r_{1,1} & r_{1,2} & r_{1,3} \\ r_{2,1} & r_{2,2} & r_{2,3} \\ r_{3,1} & r_{3,2} & r_{3,3} \end{pmatrix},$$

$p_{i,j}, q_{i,j}, r_{i,j} \in \mathbb{R}$ $(i,j=1,2,3)$. $\Lambda|_{\mathfrak{g}}$ is the isotropic representation of $\mathfrak{g}$, Λ is $\mathfrak{g}$-invariant $\Rightarrow [\Lambda(e_2),\Lambda(u_1)]=0$, $p_{3,1}=p_{3,2}=p_{1,2}=0$, $p_{3,3}=p_{2,2}$. $[\Lambda(e_1),\Lambda(u_1)]=\Lambda([e_1,u_1]) \Rightarrow p_{1,3}=p_{2,1}=p_{2,3}=0$. $[\Lambda(e_5),\Lambda(u_1)]=\Lambda([e_5,u_1]) \Rightarrow p_{2,2}=p_{1,1}$. If $[\Lambda(e_2),\Lambda(u_2)]=0$ then $q_{3,1}=q_{3,2}=q_{1,2}=0$, $q_{3,3}=q_{2,2}$. $[\Lambda(e_1),\Lambda(u_2)]=\Lambda(u_2)$, $q_{1,1}=q_{2,2}=q_{2,3}=0$. $[\Lambda(e_3),\Lambda(u_2)]=\Lambda(u_3)$, $r_{1,1}=r_{1,3}=r_{2,1}=r_{2,2}=r_{2,3}=r_{3,2}=r_{3,3}=0$, $r_{3,1}=q_{2,1}$, $r_{1,2}=-q_{1,3}$. If $[\Lambda(e_4),\Lambda(u_2)]=\Lambda(u_2)$ then $r_{1,2}=0$. $[\Lambda(e_5),\Lambda(u_2)]=\Lambda(u_1)+\Lambda(e_1)+3\Lambda(e_4)$, $p_{1,1}=r_{3,1}=-2$, $\operatorname{tr}\Lambda(3e_4+u_1)=0 \Rightarrow \operatorname{tr}\Lambda([x,y])=0$ for all $x,y\in\bar{\mathfrak{g}}$, the connection is locally equiaffine and has the form, presented in the table, the curvature and torsion tensors are zero. In this case Ricci tensor is equal to zero too. We have $\operatorname{tr}\Lambda(e_4)\neq 0 \Rightarrow$ the connection is not equiaffine. In the cases 3.13.6 ($\mu=-1$) and 2.8.7 ($\lambda=-1$) the connection is equiaffine, but admitting nonzero torsion tensor.

Similarly we obtain the results in the other cases:

Pair	Locally equiaffine connection
6.3.2	$\begin{pmatrix} -2 & 0 & 0 \\ 0 & -2 & 0 \\ 0 & 0 & -2 \end{pmatrix}, \begin{pmatrix} 0 & 0 & 0 \\ -2 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix}, \begin{pmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ -2 & 0 & 0 \end{pmatrix}$
5.9.2 3.12.2 3.13.6, $\mu\neq 0,1,-1,1/2$	$\begin{pmatrix} 0 & -1 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix}, \begin{pmatrix} 0 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{pmatrix}, \begin{pmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & -1 & 0 \end{pmatrix}$
4.19.2.	$\begin{pmatrix} 0 & 1 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix}, \begin{pmatrix} 0 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & -1 \end{pmatrix}, \begin{pmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 1 & 0 \end{pmatrix}$
4.21.11, $\mu\neq 0,1,1/2$	$\begin{pmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix}, \begin{pmatrix} 0 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & -1 \end{pmatrix}, \begin{pmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 1 & 0 \end{pmatrix}$
3.6.2 2.8.7, $\lambda\neq 0,1,-1,1/2$	$\begin{pmatrix} -1/2 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 1/2 \end{pmatrix}, \begin{pmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix}, \begin{pmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ -1/2 & 0 & 0 \end{pmatrix}$
3.28.2	$\begin{pmatrix} 0 & -1 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix}, \begin{pmatrix} 0 & -2 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & -1 \end{pmatrix}, \begin{pmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & -1 & 0 \end{pmatrix}$

The connection is equiaffine only in the case 4.21.11, $\mu=-1$.

Let $\bar{\mathfrak{g}}$ is solvable, for example, $(\bar{\mathfrak{g}},\mathfrak{g})$ is 5.10.1 ($\lambda=1/2$, $\mu=0$) then $\Lambda|_{\mathfrak{g}}$ is the isotropic representation of $\mathfrak{g}$. Λ is $\mathfrak{g}$-invariant $\Rightarrow \operatorname{tr}\Lambda([x,y])=0$ for all $x,y\in\bar{\mathfrak{g}}$ and locally equiaffine connection there exist and has the form, presented in the table, the Ricci tensor, curvature and torsion tensors are equal to zero. In this case $\operatorname{tr}\Lambda(e_1)\neq 0$ and the connection is not equiaffine. Similarly we obtain the results in the other cases:

Pair	Locally equiaffine connection
5.10.1, λ=1/2, μ=0 4.11.1, μ=0, λ=1/2 3.20.1, μ=1/2(λ≠0, 1/2) 3.23.1, λ=3/4 3.29.1, μ=1/2 3.8.1, λ=0, μ=1/2 2.9.1, μ=1/2(λ≠1/2, 0, 1, 3/2) 2.19.1, λ=1/2 2.21.1, λ=3/4	$\begin{pmatrix} 0&0&0\\0&0&0\\0&0&0 \end{pmatrix}, \begin{pmatrix} 0&0&0\\0&0&0\\0&0&0 \end{pmatrix}, \begin{pmatrix} 0&0&r_{1,3}\\0&0&0\\0&0&0 \end{pmatrix}$
4.8.1, λ=0, μ=1/2 3.8.1, λ=1/2, μ=0 2.8.1, λ=1/2 2.9.1, λ=2μ(μ≠0, 1/4, 1/3, 1/2, 1) 1.2.1, μ=λ/2(λ≠−2)	$\begin{pmatrix} 0&0&0\\0&0&0\\0&0&0 \end{pmatrix}, \begin{pmatrix} 0&0&0\\0&0&0\\0&0&0 \end{pmatrix}, \begin{pmatrix} 0&0&0\\0&0&r_{2,3}\\0&0&0 \end{pmatrix}$
4.11.5 3.19.17 3.20.25, $\mu \neq 0$	$\begin{pmatrix} 0&0&0\\0&0&0\\0&0&0 \end{pmatrix}, \begin{pmatrix} 0&0&0\\0&0&0\\0&0&0 \end{pmatrix}, \begin{pmatrix} 0&0&0\\0&0&1\\0&0&0 \end{pmatrix}$
3.20.1, λ=1/2(μ≠0, 1/2) 3.7.1, $\lambda = 1/2$ 2.1.1, λ=1/2 2.9.1,λ=1/2(μ≠0,–1/2, 1/4, 1/2) 1.2.1, λ=1/2(μ≠1/2, 1) 1.7.1, λ=1/2	$\begin{pmatrix} 0&0&0\\0&0&0\\0&0&0 \end{pmatrix}, \begin{pmatrix} 0&q_{1,2}&0\\0&0&0\\0&0&0 \end{pmatrix}, \begin{pmatrix} 0&0&0\\0&0&0\\0&0&0 \end{pmatrix}$
3.14.1, $\mu \neq 0, 2$ 2.9.1, $\lambda = 1, \mu = 1/2$	$\begin{pmatrix} 0&0&0\\0&0&0\\0&0&0 \end{pmatrix}, \begin{pmatrix} 0&0&0\\0&0&0\\0&0&0 \end{pmatrix}, \begin{pmatrix} 0&0&r_{1,3}\\0&0&r_{2,3}\\0&0&0 \end{pmatrix}$
3.20.26, $\lambda \neq 1/3, 1/4$ ($q_{1,2} = 0\ \lambda \neq 1/2$)	$\begin{pmatrix} 0&0&0\\0&0&0\\0&0&0 \end{pmatrix}, \begin{pmatrix} 0&q_{1,2}&0\\0&0&0\\0&1&0 \end{pmatrix}, \begin{pmatrix} 0&0&0\\0&0&0\\0&0&0 \end{pmatrix}$
2.19.5	$\begin{pmatrix} 0&0&0\\0&0&0\\0&0&0 \end{pmatrix}, \begin{pmatrix} 0&0&0\\0&0&0\\0&0&0 \end{pmatrix}, \begin{pmatrix} 0&0&r_{1,3}\\0&0&1\\0&0&0 \end{pmatrix}$
1.2.1, $\mu = 2\lambda$ ($\lambda \neq 1/3, 1/4$)	$\begin{pmatrix} 0&0&0\\0&0&0\\0&0&0 \end{pmatrix}, \begin{pmatrix} 0&0&0\\0&0&0\\0&q_{3,2}&0 \end{pmatrix}, \begin{pmatrix} 0&0&0\\0&0&0\\0&0&0 \end{pmatrix}$
1.2.1, $\lambda = 1/2, \mu = 1$	$\begin{pmatrix} 0&0&0\\0&0&0\\0&0&0 \end{pmatrix}, \begin{pmatrix} 0&q_{1,2}&0\\0&0&0\\0&q_{3,2}&0 \end{pmatrix}, \begin{pmatrix} 0&0&0\\0&0&0\\0&0&0 \end{pmatrix}$

We have equiaffine connections only in the cases 2.9.1, $\lambda = -3/2, \mu = 1/2$; 1.2.1, $\lambda = -2/3, \mu = -1/3$ and 2.9.1, $\lambda = -2/3, \mu = -1/3$; 3.20.25, $\mu = -1/3$; 2.9.1, $\lambda = 1/2, \mu = -3/2$ (respectively).

The Ricci tensors $\mathrm{Ric}(y, z) = \mathrm{tr}\{x \mapsto R(x, y)z\}$ are equal to zero.

□

2.2 The curvature tensor is not only zero

Theorem 2.2. *I. There are no pairs* $(\bar{\mathfrak{g}}, \mathfrak{g})$*, admitting nontrivial equiaffine connections with nonzero curvature tensor and only zero torsion tensor.*

II. Any pair $(\bar{\mathfrak{g}}, \mathfrak{g})$*, allows nontrivial affine connections, the curvature tensor is not only zero, the torsion tensor is only zero (i.e. if* $\bar{\mathfrak{g}}$ *is nonsolvable then* $d.n.m$*=4.21.11* (μ=1/2)*, 3.13.6* (μ=1/2)*, 2.8.7* (λ=1/2)*, if* $\bar{\mathfrak{g}}$ *is solvable then* $d.n.m$*=3.13.2* (μ=1/2, 1/4)*, 3.20.4* (λ=1/4)*, 3.20.26* (λ=1/4)*, 3.20.27, 2.9.1* (λ=1/2, μ=1/4)*, 2.9.3* (μ=1/4)*, 1.2.1* (λ=1/4, μ=1/2)*, see* [2]*), admits locally equiaffine connections. The Ricci tensors are zero.*

Proof. Just as earlier, in case, for example, 3.13.2 ($\mu = 1/2, 1/4$) we have $\operatorname{tr}\Lambda([x, y]) = 0$ for all $x, y \in \bar{\mathfrak{g}}$, the torsion tensor and Ricci tensor are zero and locally equiaffine connection has the form, presented in the table. The connection is equiaffine if $\operatorname{tr}\Lambda(e_1) = 0 \Rightarrow \mu = 2$, but in this case $0 < \mu < 1 \Rightarrow$ the pair does not allow equiaffine connections. In the case 3.20.4 the connection is equiaffine if $\lambda = 2$, but $\lambda < 1/3$. Similarly we obtain the results in other cases:

– $\bar{\mathfrak{g}}$ is solvable:

Pair	Locally equiaffine connection
3.13.2, $\mu = 1/4$	$\begin{pmatrix}0&0&0\\0&0&0\\0&0&0\end{pmatrix}, \begin{pmatrix}0&0&0\\0&0&0\\0&0&0\end{pmatrix}, \begin{pmatrix}0&0&0\\0&0&r_{2,3}\\0&0&0\end{pmatrix}$
3.13.2, $\mu = 1/2$ 3.20.4, $\lambda = 1/4$	$\begin{pmatrix}0&0&0\\0&0&0\\0&0&0\end{pmatrix}, \begin{pmatrix}0&0&0\\0&0&0\\0&0&0\end{pmatrix}, \begin{pmatrix}0&0&r_{1,3}\\0&0&0\\0&0&0\end{pmatrix}$
3.20.26, $\lambda = 1/4$	$\begin{pmatrix}0&0&0\\0&0&0\\0&0&0\end{pmatrix}, \begin{pmatrix}0&0&0\\0&0&0\\0&1&0\end{pmatrix}, \begin{pmatrix}0&0&r_{1,3}\\0&0&0\\0&0&0\end{pmatrix}$
3.20.27	$\begin{pmatrix}0&0&0\\0&0&0\\0&0&0\end{pmatrix}, \begin{pmatrix}0&0&0\\0&0&0\\0&1&0\end{pmatrix}, \begin{pmatrix}0&0&0\\0&0&0\\0&0&0\end{pmatrix}$
2.9.1, $\lambda = 1/2, \mu = 1/4$ 2.9.3, $\mu = 1/4$	$\begin{pmatrix}0&0&0\\0&0&0\\0&0&0\end{pmatrix}, \begin{pmatrix}0&q_{1,2}&0\\0&0&0\\0&0&0\end{pmatrix}, \begin{pmatrix}0&0&0\\0&0&r_{2,3}\\0&0&0\end{pmatrix}$
1.2.1, $\lambda = 1/4, \mu = 1/2$	$\begin{pmatrix}0&0&0\\0&0&0\\0&0&0\end{pmatrix}, \begin{pmatrix}0&0&0\\0&0&0\\0&q_{3,2}&0\end{pmatrix}, \begin{pmatrix}0&0&r_{1,3}\\0&0&0\\0&0&0\end{pmatrix}$

– $\bar{\mathfrak{g}}$ is nonsolvable:

Pair	Locally equiaffine connection
4.21.11, $\mu = 1/2$	$\begin{pmatrix}0&0&0\\0&0&0\\0&0&0\end{pmatrix}, \begin{pmatrix}0&0&0\\0&1&0\\0&0&-1\end{pmatrix}, \begin{pmatrix}0&0&r_{1,3}\\0&0&0\\0&1&0\end{pmatrix}$
3.13.6, $\mu = 1/2$	$\begin{pmatrix}0&-1&0\\0&0&0\\0&0&0\end{pmatrix}, \begin{pmatrix}0&0&0\\0&-1&0\\0&0&1\end{pmatrix}, \begin{pmatrix}0&0&r_{1,3}\\0&0&0\\0&-1&0\end{pmatrix}$
2.8.7, $\lambda = 1/2$	$\begin{pmatrix}-1/2&0&0\\0&0&0\\0&0&1/2\end{pmatrix}, \begin{pmatrix}0&0&0\\0&0&0\\0&0&0\end{pmatrix}, \begin{pmatrix}0&0&0\\0&0&r_{2,3}\\-1/2&0&0\end{pmatrix}$

In these cases, equiaffine connections does not exist.

The Ricci tensors are equal to zero. □

3 Pairs of Lie algebras with only trivial locally equiaffine connections

3.1 The curvature tensor is only zero

Theorem 3.1. *I. If the pair* $(\bar{\mathfrak{g}}, \mathfrak{g})$ *admits only trivial equiaffine connection, the curvature and torsion tensors are zero, then* $(\bar{\mathfrak{g}}, \mathfrak{g})$ *is equivalent to one of the pairs:*

– $\bar{\mathfrak{g}}$ *is nonsolvable:* $8.1.1(\mathfrak{sl}(3, \mathbb{R}))$;

6.2.1	e_1	e_2	e_3	e_4	e_5	e_6	u_1	u_2	u_3
e_1	0	0	0	$(\lambda-1)e_4$	0	$(\lambda-1)e_6$	λu_1	λu_2	u_3
e_2	0	0	$2e_3$	e_4	$-2e_5$	$-e_6$	u_1	$-u_2$	0
e_3	0	$-2e_3$	0	0	e_2	e_4	0	u_1	0
e_4	$(1-\lambda)e_4$	$-e_4$	0	0	$-e_6$	0	0	0	u_1
e_5	0	$2e_5$	$-e_2$	e_6	0	0	u_2	0	0
e_6	$(1-\lambda)e_6$	e_6	$-e_4$	0	0	0	0	0	u_2
u_1	$-\lambda u_1$	$-u_1$	0	0	$-u_2$	0	0	0	0
u_2	$-\lambda u_2$	u_2	$-u_1$	0	0	0	0	0	0
u_3	$-u_3$	0	0	$-u_1$	0	$-u_2$	0	0	0

, $\lambda = -1/2$;

6.4.1	e_1	e_2	e_3	e_4	e_5	e_6	u_1	u_2	u_3
e_1	0	0	0	0	$(1-\lambda)e_5$	$(1-\lambda)e_6$	u_1	λu_2	λu_3
e_2	0	0	$2e_3$	$-2e_4$	$-e_5$	e_6	0	u_2	$-u_3$
e_3	0	$-2e_3$	0	e_2	$-e_6$	0	0	0	u_2
e_4	0	$2e_4$	$-e_2$	0	0	$-e_5$	0	u_3	0
e_5	$(\lambda-1)e_5$	e_5	e_6	0	0	0	0	u_1	0
e_6	$(\lambda-1)e_6$	$-e_6$	0	e_5	0	0	0	0	u_1
u_1	$-u_1$	0	0	0	0	0	0	0	0
u_2	$-\lambda u_2$	$-u_2$	0	$-u_3$	$-u_1$	0	0	0	0
u_3	$-\lambda u_3$	u_3	$-u_2$	0	0	$-u_1$	0	0	0

, $\lambda = -1/2$;

4.2.1.	e_1	e_2	e_3	e_4	u_1	u_2	u_3
e_1	0	0	0	0	λu_1	λu_2	u_3
e_2	0	0	$2e_3$	$-2e_4$	u_1	$-u_2$	0
e_3	0	$-2e_3$	0	e_2	0	u_1	0
e_4	0	$2e_4$	$-e_2$	0	u_2	0	0
u_1	$-\lambda u_1$	$-u_1$	0	$-u_2$	0	0	0
u_2	$-\lambda u_2$	u_2	$-u_1$	0	0	0	0
u_3	$-u_3$	0	0	0	0	0	0

, $\lambda = -1/2$;

– $\bar{\mathfrak{g}}$ *is solvable:* 5.10.1 *(*$\lambda = \mu = -1$*),* 4.8.1 *(*$\lambda = \mu = -1$*),* 4.9.1 *(*$\lambda = 0, \mu = -2$*),* 4.11.1 *(*$\lambda = \mu = -1$*),* 4.14.1 *(*$\lambda = 0, \mu = -2$*),* 4.21.1 *(*$\mu = -1 - \lambda$ $(\lambda \neq -1, -3/2)$*),* 3.8.1 *(*$\lambda = \mu = -1$*),* 3.13.1 *(*$\lambda = -\mu - 1$ $(\mu \neq 0, 1/2, -1/3, -1)$*),* 3.16.1 *(*$\lambda = -2\mu$*),* 3.20.1 *(*$\lambda = -\mu - 1$ $(\lambda \neq 0, 1/2, -1, -3/2)$*),* 3.22.1 *(*$\lambda = -2\mu$ $(\lambda \neq 0)$*),* 3.23.1 *(*$\lambda = 0$*),* 3.27.1 *(*$\lambda = -1/2$*),* 3.29.1 *(*$\mu = -2$*),* 2.2.1 *(*$\lambda = \mu = -1$*),* 2.4.1 *(*$\lambda = 0, \mu = -2$*),* 2.9.1 *(*$\lambda = -\mu - 1$ $(\lambda \neq 1/2, 0, -1, -2/3, -3/2)$*),* 2.16.1 *(*$\lambda = -1/2$*),* 2.19.1 *(*$\lambda = -2$*),* 1.2.1 *(*$\lambda = -\mu - 1$ $(\mu \neq -1/3, -3/2, 0, -2/3)$*),* 1.4.1 *(*$\lambda = -2\mu$ $(\lambda \neq 0)$*),* 1.7.1 *(*$\lambda = -2$*). The Ricci tensors are zero.*

II. Any pair $(\bar{\mathfrak{g}}, \mathfrak{g})$ *that admits only trivial affine connection, the curvature and torsion tensors are zero (i.e. if* $\bar{\mathfrak{g}}$ *is nonsolvable then* $d.n.m$ $=$ 9.1.1, 8.1.1, 7.1.1, 7.2.1, 6.2.1, 6.3.1, 6.4.1($\lambda \neq 1/2$), 5.1.1, 4.2.1($\lambda \neq 1/2$), 4.3.1, 4.5.1, *if* $\bar{\mathfrak{g}}$ *is solvable then* $d.n.m = 6.5.1$, 5.4.1, 5.5.1, 5.6.1, 5.7.1, 5.8.1, 5.9.1, 5.10.1 *(*$\lambda^2 + \mu^2 \neq 0$, $(\lambda-1)^2 + (\mu+1)^2 \neq 0$, $(\lambda-1/2)^2 + \mu^2 \neq 0$*)*, 4.4.1, 4.6.1, 4.7.1, 4.8.1 *(*$(\lambda+1)^2 + (\mu-1)^2 \neq 0$, $\lambda^2 + (\mu-1/2)^2 \neq 0$, $\lambda^2 + \mu^2 \neq 0$*)*, 4.9.1 *(*$\lambda^2 + \mu^2 \neq 0$*)*, 4.11.1 *(*$\lambda^2 + \mu^2 \neq 0$, $(\mu+1)^2 + (\lambda-1)^2 \neq 0$, $\mu^2 + (\lambda - 1/2)^2 \neq 0$*)*, 4.12.1, 4.13.1, 4.14.1 *(*$(\mu-2)^2 + \lambda^2 \neq 0$*)*, 4.15.1, 4.16.1, 4.17.1, 4.18.1, 4.19.1, 4.20.1 *(*$\lambda \neq 0, -1$*)*, 4.21.1 *(*$\mu \neq 0$, $\mu \neq 1/2$, $\mu \neq 1-\lambda$*)*, 4.22.1, 3.1.1, 3.2.1, 3.6.1, 3.7.1 *(*$\lambda \neq 0, 1/2$*)*, 3.8.1 *(*$\lambda^2 + (\mu - 1/2)^2 \neq 0$, $\lambda^2 + \mu^2 \neq 0$, $(\lambda-1/2)^2 + \mu^2 \neq 0$, $(\lambda+1)^2 + (\mu-1)^2 \neq 0$, $(\lambda-1)^2 + (\mu+1)^2 \neq 0$*)*, 3.9.1, 3.10.1, 3.11.1, 3.12.1, 3.13.1 *(*$\mu \neq 0$, $\mu \neq 1-\lambda$, $\mu \neq 1/2$, $\mu \neq \lambda - 1$, $\mu \neq \lambda/2$*)*, 3.16.1, 3.17.1 *(*$\lambda \neq 0$*)*, 3.18.1, 3.19.1 *(*$\lambda \neq 0, -1$*)*, 3.20.1 *(*$\lambda \neq 0$, $\lambda \neq 1/2$, $\mu \neq 0$, $\mu \neq 1/2$, $\mu \neq 1-\lambda$*)*, 3.21.1 *(*$\lambda \neq 0$*)*, 3.22.1 *(*$\lambda \neq 2\mu$*)*, 3.23.1 *(*$\lambda \neq 2/3, 1/2, 3/4$, 3.24.1, 3.26.1, 3.27.1 *(*$\lambda \neq 0, 1/2$*)*, 3.28.1, 3.29.1 *(*$\mu \neq 0, 1/2$*)*, 3.30.1, 3.31.1, 2.1.1 *(*$\lambda \neq 0, 1/2$*)*, 2.2.1 *(*$(\lambda-1)^2 + (\mu-1)^2 \neq 0$*)*, 2.3.1, 2.4.1 *(*$\lambda^2 + \mu^2 \neq 0$, $\lambda^2 + (\mu-2)^2 \neq 0$*)*, 2.5.1, 2.6.1, 2.8.1 *(*$\lambda \neq 0, 1/2, 1, -1$*)*, 2.9.1 *(*$\lambda \neq 1/2$, $\lambda \neq 0$, $\lambda \neq 1-\mu$, $\lambda \neq 2\mu$, $\lambda \neq \mu+1$, $\mu \neq 0$, $\mu \neq 1/2$*)*, 2.10.1, 2.11.1, 2.12.1, 2.14.1, 2.16.1 *(*$\lambda \neq 0, 1/2$*)*, 2.19.1 *(*$\lambda \neq 0, 1/2$*)*, 2.21.1 *(*$\lambda \neq 0, 1/2, 2/3, 3/4$*)*, 2.22.1, 1.2.1 *(*$\mu \neq \lambda + 1$, $\mu \neq 2\lambda$, $\mu \neq 1-\lambda$, $\mu \neq \lambda/2$, $\lambda \neq 1/2$*)*, 1.4.1 *(*$\mu \neq 2\lambda$*)*, 1.7.1 *(*$\lambda \neq 0, 2, 1/2$*)*, 1.9.1, *see* [2]*)*, *admits the locally equiaffine connection.*

Proof. If, for example, $(\bar{\mathfrak{g}}, \mathfrak{g})$ is the space 8.1.1 ($\mathfrak{sl}(3,\mathbb{R})$), $\Lambda|_{\mathfrak{g}} = \lambda$, Λ is $\mathfrak{g}$-invariant $\Rightarrow$ $\Lambda(u_1)=\Lambda(u_2)=\Lambda(u_3)=0$, then the torsion and Ricci tensors are zero, $\operatorname{tr}\Lambda(e_i)=0$, $i = \overline{1,8}$, ($\Lambda(e_i) \in \mathfrak{sl}(3,\mathbb{R})$) $\Rightarrow$ the connection is equiaffine (and locally equiaffine). In the other cases are similarly. □

3.2 The curvature tensor is not zero for some connections

Theorem 3.2. *I. If the pair* $(\bar{\mathfrak{g}}, \mathfrak{g})$ *admits only trivial equiaffine connection, the curvature tensor is not zero, the torsion tensor is zero, then* $(\bar{\mathfrak{g}}, \mathfrak{g})$ *is equivalent to one and only one of the pairs*

4.21.2.	e_1	e_2	e_3	e_4	u_1	u_2	u_3
e_1	0	$(1-\lambda)e_2$	$(3\lambda-1)/2e_3$	$(1+\lambda)/2e_4$	u_1	λu_2	$(1-\lambda)/2u_3$
e_2	$(\lambda-1)e_2$	0	e_4	0	0	u_1	0
e_3	$(1-3\lambda)/2e_3$	$-e_4$	0	0	0	0	u_2
e_4	$-(1+\lambda)/2e_4$	0	0	0	0	0	u_1
u_1	$-u_1$	0	0	0	0	0	0
u_2	$-\lambda u_2$	$-u_1$	0	0	0	0	e_4
u_3	$(\lambda-1)/2u_3$	0	$-u_2$	$-u_1$	0	$-e_4$	0

, $\lambda = -3$;

3.13.4, $-1<\mu<0$	e_1	e_2	e_3	u_1	u_2	u_3
e_1	0	$(1+\mu)e_2$	$(1-\mu)e_3$	u_1	$(1+2\mu)u_2$	μu_3
e_2	$-(\mu+1)e_2$	0	0	0	0	u_2
e_3	$(\mu-1)e_3$	0	0	0	0	u_1
u_1	$-u_1$	0	0	0	0	e_2
u_2	$-(2\mu+1)u_2$	0	0	0	0	0
u_3	$-\mu u_3$	$-u_2$	$-u_1$	$-e_2$	0	0

, $\mu = -2/3$;

3.20.5, $\mu{\geq}1/3$	e_1	e_2	e_3	u_1	u_2	u_3
e_1	0	$2\mu e_2$	$(1{-}\mu)e_3$	u_1	$(1{-}2\mu)u_2$	μu_3
e_2	$-2\mu e_2$	0	0	0	u_1	0
e_3	$(\mu{-}1)e_3$	0	0	0	0	u_1
u_1	$-u_1$	0	0	0	0	0
u_2	$(2\mu{-}1)u_2$	$-u_1$	0	0	0	e_3
u_3	$-\mu u_3$	0	$-u_1$	0	$-e_3$	0

, $\mu = 2$;

2.9.3.	e_1	e_2	u_1	u_2	u_3
e_1	0	$(1-\mu)e_2$	u_1	$(1-2\mu)u_2$	μu_3
e_2	$(\mu-1)e_2$	0	0	0	u_1
u_1	$-u_1$	0	0	0	0
u_2	$(2\mu-1)u_2$	0	0	0	e_2
u_3	$-\mu u_3$	$-u_1$	0	$-e_2$	0

, $\mu = 2$.

In these cases $\bar{\mathfrak{g}}$ is solvable.

II. If the pair $(\bar{\mathfrak{g}}, \mathfrak{g})$, admitting only trivial affine connection (with nonzero curvature tensor and zero torsion tensor), does not admit locally equiaffine connection, then $(\bar{\mathfrak{g}}, \mathfrak{g})$ is equivalent to one of the pairs:

2.9.12.	e_1	e_2	u_1	u_2	u_3
e_1	0	$-e_2$	u_1	$-2u_2$	$2u_3$
e_2	e_2	0	0	0	u_1
u_1	$-u_1$	0	0	e_2	0
u_2	$2u_2$	0	$-e_2$	0	$-e_1$
u_3	$-2u_3$	$-u_1$	0	e_1	0

;

3.8.8.	e_1	e_2	e_3	u_1	u_2	u_3
e_1	0	0	e_3	u_1	0	0
e_2	0	0	e_3	0	u_2	$-u_3$
e_3	$-e_3$	$-e_3$	0	0	0	u_1
u_1	$-u_1$	0	0	0	e_3	0
u_2	0	$-u_2$	0	$-e_3$	0	$2e_2 - e_1$
u_3	0	u_3	$-u_1$	0	$e_1 - 2e_2$	0

.

III. Any pair $(\bar{\mathfrak{g}}, \mathfrak{g})$ that admits only trivial affine connection, the curvature tensor is not zero, the torsion tensor is zero, except 2.9.12 and 3.8.8 (i.e. if $\bar{\mathfrak{g}}$ is nonsolvable then $d.n.m = 4.11.2, 4.13.2, 4.13.3, 2.1.2, 2.3.2, 2.3.3$, if $\bar{\mathfrak{g}}$ is solvable then $d.n.m = 5.10.2$, 4.8.10, 4.11.4, 4.20.2, 4.21.2 ($\lambda \neq 1$), 3.8.9, 3.13.2 ($\mu \neq 0, 1/2, 1/4$), 3.13.4, 3.14.2, 3.19.16, 3.20.4 ($\lambda \neq 0, 1/4$), 3.20.5 ($\mu \neq 1/2$), 3.23.2, 3.27.2, 2.8.6, 2.9.3 ($\mu \neq 0, 1/2, 1/4$), 2.16.2, see [2]) admits the locally equiaffine connection.

The Ricci tensors has the form (in the other cases Ricci tensors are zero):

Pair	Ricci tensor	Pair	Ricci tensor	Pair	Ricci tensor
4.11.2	$\begin{pmatrix} 0 & 0 & 0 \\ 0 & 0 & -2 \\ 0 & -2 & 0 \end{pmatrix}$	4.13.2	$\begin{pmatrix} 0 & 0 & 0 \\ 0 & -2 & 0 \\ 0 & 0 & -2 \end{pmatrix}$	4.13.3	$\begin{pmatrix} 0 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 2 \end{pmatrix}$
2.1.2	$\begin{pmatrix} 0 & -1 & 0 \\ -1 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix}$	2.3.2	$\begin{pmatrix} -1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 0 \end{pmatrix}$	2.3.3	$\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 0 \end{pmatrix}$

Proof. In the case 2.9.12 we have Λ is $\mathfrak{g}$-invariant $\Rightarrow \Lambda(u_1) = \Lambda(u_2) = \Lambda(u_3) = 0$, Ricci tensor has the form

$$\begin{pmatrix} 0 & 0 & 0 \\ 0 & 0 & -3 \\ 0 & -2 & 0 \end{pmatrix}$$

and Ricci tensor is not symmetric. Also we have $\operatorname{tr}\Lambda(e_1) \neq 0 \Rightarrow$ the connection is not locally equiaffine (and equiaffine too). In the case 3.8.8 Ricci tensor as in the case 2.9.12, also we have $\operatorname{tr}\Lambda(e_1 - 2e_2) \neq 0 \Rightarrow$ the connection is not locally equiaffine (and equiaffine too). In other cases the connection is locally equiaffine ($\operatorname{tr}\Lambda([x, y]) = 0$ for all $x, y \in \bar{\mathfrak{g}}$), the Ricci tensors have the form, presented in the theorem, and Ricci tensors are symmetric. □

So for all three-dimensional homogeneous spaces, not admitting connections with nonzero torsion tensor, it is determined under what conditions the connection is equiaffine (locally equiaffine). In addition, equiaffine (locally equiaffine) connections and Ricci tensors are written out in explicit form. For example, there are only two spaces (not admitting connections with nonzero torsion tensor) that admit affine connections, but do not admit locally equiaffine connections. There are no pairs, admitting nontrivial equiaffine connections with nonzero curvature tensor and only zero torsion tensor. In this work we use the algebraic approach for description of connections, methods of the theory of Lie groups, Lie algebras and homogeneous spaces. The results can find applications in mathematics and physics, since many fundamental problems in these fields are reduced to the study of invariant objects on homogeneous spaces.

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Symmetrical 2-extensions of the 3-dimensional grid. I

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Abstract

For a positive integer d, a connected graph Γ is a symmetrical 2-extension of the d-dimensional grid Λ^d if there exists a vertex-transitive group G of automorphisms of Γ and its imprimitivity system σ with blocks of size 2 such that there exists an isomorphism φ of the quotient graph Γ/σ onto Λ^d. The tuple $(\Gamma, G, \sigma, \varphi)$ with specified components is called a realization of the symmetrical 2-extension Γ of the grid Λ^d. Two realizations $(\Gamma_1, G_1, \sigma_1, \varphi_1)$ and $(\Gamma_2, G_2, \sigma_2, \varphi_2)$ are called equivalent if there exists an isomorphism of the graph Γ_1 onto Γ_2 which maps σ_1 onto σ_2. V.I. Trofimov proved that, up to equivalence, there are only finitely many realizations of symmetrical 2-extensions of Λ^d for each positive integer d. E.A. Konovalchik and K.V. Kostousov found all, up to equivalence, realizations of symmetrical 2-extensions of the grid Λ^2. In this work we found all, up to equivalence, realizations $(\Gamma, G, \sigma, \varphi)$ of symmetrical 2-extensions of the grid Λ^3 for which only the trivial automorphism of Γ preserves all blocks of σ. Namely we prove that there are 5573 such realizations, and that among corresponding graphs Γ there are 5350 pairwise non-isomorphic.

Keywords: Symmetrical extensions of a graph, d-dimensional grid.

Math. Subj. Class.: 20H15

1 Introduction

Recall that, for a positive integer d, a d-dimensional grid Λ^d is a graph whose vertices are integer tuples $(a_1, \ldots a_d)$ and two vertices $(a'_1, \ldots, a'_d)$ and $(a''_1, \ldots, a''_d)$ are adjacent if and only if $|a'_1 - a''_1| + \ldots + |a'_d - a''_d| = 1$. According to [6] for a finite graph Δ, define

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a connected graph Γ to be *a symmetrical extension of* Λ^d *by* Δ if there exists a vertex-transitive group G of automorphisms of Γ and an imprimitivity system σ of G on $V(\Gamma)$ such that subgraphs of Γ generated by blocks of σ are isomorphic to Δ and there exists an isomorphism of Γ/σ (i.e., of factor-graph of Γ by partition σ of its vertex set) onto Λ^d. A tuple $(\Gamma, G, \sigma, \varphi)$ with specified components is called a *realization of symmetrical extension* Γ *of the grid* Λ^d *by the graph* Δ. For a positive integer q, a graph Γ is called *a symmetrical* q*-extension of the grid* Λ^d, if Γ is a symmetrical extension of the grid Λ^d by some graph Δ such that $|V(\Delta)| = q$. In this situation the tuple $(\Gamma, G, \sigma, \varphi)$ with specified components is called *a realization of the symmetrical* q*-extension* Γ of the grid Λ^d, and we say that Γ is a graph of this realization. Along with purely mathematical interest, symmetrical q-extensions of the grid Λ^d for small $d \geq 1$ and $q > 1$ are iteresting for crystallography and some physical theories (see [5]). For crystallography, symmetrical 2-extensions of grids Λ^d are of the most interest. They naturally arise when considering "molecular" crystals whose "molecules" consist of two "atoms" or, more generally, have a distinguished axis.

It is natural to consider realizations of symmetric q-extensions of the grid Λ^d up to equivalence defined as follows (see [5]). We call two such realizations $R_1 = (\Gamma_1, G_1, \sigma_1, \varphi_1)$ and $R_2 = (\Gamma_2, G_2, \sigma_2, \varphi_2)$ *equivalent* and write $R_1 \sim R_2$ if there exists an isomorphism of the graph Γ_1 to the graph Γ_2 which maps σ_1 onto σ_2. We say that the realization $(\Gamma, G, \sigma, \varphi)$ of the symmetrical q-extension of the grid Λ^d is *maximal* if $G = \mathrm{Aut}_\sigma(\Gamma)$ is the group of all automorphisms of the graph Γ which preserve the partition σ. It is clear that each realization of the symmetrical q-extension of the grid Λ^d has an equivalent maximal realization (unique up to equivalence). V.I. Trofimov proved that, up to equivalence, for an arbitrary positive integer d, there is only a finite number of realizations of symmetrical 2-extensions of d-dimensional grid (see [7, Theorem 2]). An algorithm for constructing these extensions is also proposed in [7].

Using this algorithm, in [3] and [4] were found all, up to equivalence, realizations of symmetrical 2-extensions of the grid Λ^2 (162 realizations). Among the graphs of these realizations, there are exactly 152 pairwise nonisomorphic graphs.

For an arbitrary realization $(\Gamma, G, \sigma, \varphi)$ of the symmetrical 2-extension of the grid Λ^d and an arbitrary pair of adjacent vertices B_1, B_2 of the graph Γ/σ, the set of edges of the graph Γ, one end of which lies in B_1 and the other in B_2, will be called a *connection*. The following types of connections are possible: *type* 1 means a single edge; *type* $2_{||}$ means two non-adjacent edges; *type* 2_V means two adjacent edges; *type* 3 means three edges; *type* 4 means full connection (4 edges). A realization that necessarily has connections of types not equal to $2_{||}$ and 4 will be called a *realization of class* I. A realization that have connections only of types $2_{||}$ and 4 (maybe only of one type) will called a *realizations of class* II. By Proposition 4 from [7], realizations of class I are exactly the realizations of symmetrical 2-extensions of the grid Λ^d such that only a trivial automorphism of their graph fixes all blocks.

All 162 realizations of symmetrical 2-extensions of the grid Λ^2 are distributed in classes I and II as follows: 87 realizations of class I (see [3]) and 75 realizations of class II (see [4]). This paper is devoted to the description of all, up to equivalence, realizations of symmetrical 2-extensions of the grid Λ^3 of class I.

A realization of symmetrical extension of the grid Λ^d by the graph K_2 (full graph on two vertices) will be called a it saturated realization of the symmetrical 2-extension of the grid Λ^d. Accordingly, a realization of symmetrical extension of the grid Λ^d by the graph complemented to K_2 will be call a it non-saturated realization of the symmetrical 2-extension of the grid Λ^d.

In this paper, we have proved that, up to equivalence, there are 5573 realizations of symmetrical 2-extensions of the grid Λ^3 of class I, among which 2872 are saturated and 2701 are non-saturated (see Theorem 1 and Corollary 1). Among the graphs of saturated realizations of symmetrical 2-extensions of the grid Λ^3 of class I there are exactly 2792 pairwise nonisomorphic; among the graphs of non-saturated realizations of class I there are exactly 2594 pairwise nonisomorphic; and among all graphs of realizations of class I there are 5350 pairwise nonisomorphic (see Corollary 2).

In Sec. 3, we give the description of all, up to equivalence, realizations of symmetrical 2-extensions of the grid Λ^3 of class I (Theorem 1 and Corollary 1). This is obtained using the approach from [7] implemented in GAP [2] (Algorithms 1 and 2 from [3]). Sec. 2 contains preliminary results.

2 Preliminaries

Using GAP [2], we have listed all conjugacy classes of vertex-transitive subgroups of the group $\mathrm{Aut}(\Lambda^3)$. It turned out that there are 786 such classes.

The details are as follows. Each vertex-transitive group of automorphisms of Λ^3 is generated by the stabilizer in this group of the vertex $(0,0,0)$ and six elements of this group that translate the vertex $(0,0,0)$ to the vertices adjacent to it. Let S_0 be a stabilizer of $(0,0,0)$ in $\mathrm{Aut}(\Lambda^3)$, $N_1 = S_0 t_x, N_2 = t_x^{-1}, N_3 = S_0 t_y, N_4 = t_x^{-1}, N_5 = S_0 t_z, N_6 = t_z^{-1}$, and $N = N_1 \cup N_2 \cup ... \cup N_6$. We look over all subgroups S of S_0, up to conjugation in S_0. For every S, using backtracking, we search for all minimal subsets N' of N such that $|N' \cap N_i| \leq 1$ for all $i = 1, ..., 6$ and $\langle S, N' \rangle \cap N_i \neq \emptyset$ for all $i = 1, ..., 6$. For every found N', if $\langle S, N' \rangle$ is a proper subgroup of $\mathrm{Aut}(\Lambda^3)$, then we put this group into the resulting list $\mathbf{H}$. At the end, we thin out the list L up to conjugation in $\mathrm{Aut}(\Lambda^3)$.

It turned out that $|\mathbf{H}| = 786$, $\mathbf{H} = \{H_1, \dots, H_{786}\}$. These groups are given in Table 2 below by their generating systems. The following notation is used for certain automorphisms of the grid Λ^3:

$$\begin{aligned}
r_x &: (x,y,z) \mapsto (x,-z,y), & r_y &: (x,y,z) \mapsto (z,y,-x),\\
r_z &: (x,y,z) \mapsto (y,-x,z), & m_x &: (x,y,z) \mapsto (-x,y,z),\\
m_y &: (x,y,z) \mapsto (x,-y,z), & m_z &: (x,y,z) \mapsto (x,y,-z),\\
i &: (x,y,z) \mapsto (-x,-y,-z), & t_x &: (x,y,z) \mapsto (x+1,y,z),\\
t_y &: (x,y,z) \mapsto (x,y+1,z), & t_z &: (x,y,z) \mapsto (x,y,z+1),
\end{aligned}$$

where $x, y, z \in \mathbb{Z}$.

Remark 2.1. In the natural embedding of the grid Λ^3 in the Euclidean space $\mathbb{R}^3$, each automorphism $g \in \mathrm{Aut}(\Lambda^3)$ is induced by the only isometry $\tilde{g}$ of this space. The isometries that induce the above automorphisms of Λ^3 have the following geometric meaning: $\tilde{r_x}, \tilde{r_y}, \tilde{r_z}$ are rotations by the angle $\frac{\pi}{2}$ around coordinate axes x, y, and z respectively, $\tilde{m_x}, \tilde{m_y}, \tilde{m_z}$ are reflections relative coordinate planes, $\tilde{i}$ — central symmetry about the origin, $\tilde{t_x}, \tilde{t_y}, \tilde{t_z}$ are translations by 1 along axes x, y, and z respectively.

Using GAP, we constructed and tested 786 stabilizers $\{H_{(0,0,0)} : H \in \mathbf{H}\}$ for conjugacy in $\mathrm{Aut}(\Lambda^3)_{(0,0,0)}$. It turned out that, up to conjugation, there are only 33 such stabilizers. We give them in Table 1 by their generators indicated in column 3. For each of the 33 groups, the abstract group structure is given in column 2.

Table 1

Stabilizers of vertex $(0,0,0)$ in vertex-transitive subgroups of $\mathrm{Aut}(\Lambda^3)$ up to conjugation in $\mathrm{Aut}(\Lambda^3)_{(0,0,0)}$

№	Group structure	Generators
1	1	1
2	C_2	$\langle i\rangle$
3	C_2	$\langle m_z\rangle$
4	C_2	$\langle r_z^2 r_x\rangle$
5	C_2	$\langle r_z^2\rangle$
6	C_2	$\langle m_z r_x\rangle$
7	C_3	$\langle r_y^{-1} r_z^{-1}\rangle$
8	$C_2\times C_2$	$\langle r_y^2, r_z^2\rangle$
9	$C_2\times C_2$	$\langle i, r_z^2\rangle$
10	$C_2\times C_2$	$\langle m_z r_x^{-1}, r_x^2\rangle$
11	$C_2\times C_2$	$\langle m_x, r_y^2 r_x\rangle$
12	$C_2\times C_2$	$\langle i, r_z^2 r_x\rangle$
13	$C_2\times C_2$	$\langle r_y^2 r_x, r_z^2 r_x\rangle$
14	$C_2\times C_2$	$\langle m_x, r_z^2\rangle$
15	C_4	$\langle r_x^{-1}, r_x^2\rangle$
16	C_4	$\langle m_x r_x^{-1}\rangle$
17	C_6	$\langle i, m_x r_y^{-1} r_x^{-1}\rangle$
18	S_3	$\langle m_x r_y, r_y^{-1} r_z^{-1}\rangle$
19	S_3	$\langle r_y^2 r_z, r_z^2 r_x\rangle$
20	$C_2\times C_2\times C_2$	$\langle i, r_y^2 r_x, r_z^2 r_x\rangle$
21	$C_2\times C_2\times C_2$	$\langle i, r_y^2, r_z^2\rangle$
22	$C_4\times C_2$	$\langle i, m_x r_x^{-1}\rangle$
23	D_8	$\langle m_x r_x^{-1}, r_z^2 r_x\rangle$
24	D_8	$\langle r_z^2, r_z^2 r_x\rangle$
25	D_8	$\langle m_y, m_z r_x^{-1}, r_x^2\rangle$
26	D_8	$\langle m_x r_x^{-1}, r_z^2\rangle$
27	A_4	$\langle r_y r_x^{-1}, r_y^2, r_z^2\rangle$
28	D_{12}	$\langle i, r_y^2 r_z, r_z^2 r_x\rangle$
29	$C_2\times D_8$	$\langle i, r_z^2, r_z^2 r_x\rangle$
30	$C_2\times A_4$	$\langle i, m_x r_y^{-1} r_x^{-1}, r_y^2, r_z^2\rangle$
31	S_4	$\langle m_x r_x^{-1}, m_x r_z, r_z^2\rangle$
32	S_4	$\langle r_y^2 r_z, r_z^2, r_z^2 r_x\rangle$
33	$C_2\times S_4$	$\langle i, r_y^2 r_z, r_z^2, r_z^2 r_x\rangle$

Each group $H \in \mathbf{H}$ is identified with some space group and, therefore, has a point group $\mathrm{P}(H)$ and a translation basis (see [1]). Using GAP, we verified that the set of point groups $\{\mathrm{P}(H) : H \in \mathbf{H}\}$ is equal, up to conjugation in $\mathrm{P}(\mathrm{Aut}(\Lambda^3))$, to the set of 33 stabilizers given in Table 1. In column 1 of Table 2 below, we give the set of groups $\mathbf{H}$ defined by their generators. In column 2, for each group $H \in \mathbf{H}$, we give the № of the group from Table 1 conjugate to the stabilizer $H_{(0,0,0)}$ in $\mathrm{Aut}(\Lambda^3)_{(0,0,0)}$. In column 3, for each group $H \in \mathbf{H}$, we give the № of the group from Table 1 conjugate to the point group $\mathrm{P}(H)$ in $\mathrm{P}(\mathrm{Aut}(\Lambda^3))$. In column 4, for each group $H \in \mathbf{H}$, we give its translation basis. The groups in Table 2 are sorted lexicographically first by № in column 2 and then by № in column 3.

Table 2

Representatives of conjugacy classes for vertex-transitive subgroups of $\mathrm{Aut}(\Lambda^3)$

H	$H_{0,0,0}$	$P(H)$	Translation basis of H
$H_1 = \langle t_x, t_y^{-1}, t_z^{-1} \rangle$	1	1	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_2 = \langle it_z, it_z^{-1}, t_x, t_y^{-1} \rangle$	1	2	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_3 = \langle it_y, it_y^{-1}, it_z, it_z^{-1}, t_x \rangle$	1	2	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_4 = \langle it_x, it_x^{-1}, it_y, it_y^{-1}, it_z, it_z^{-1} \rangle$	1	2	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_5 = \langle m_x t_y^{-1}, t_x, t_z^{-1} \rangle$	1	3	[[1, 0, 0], [0, 2, 0], [0, 0, 1]]
$H_6 = \langle m_y t_y, m_y t_y^{-1}, t_x, t_z^{-1} \rangle$	1	3	[[1, 0, 0], [0, 2, 0], [0, 0, 1]]
$H_7 = \langle m_y t_y, m_y t_y^{-1}, m_y t_z^{-1}, t_x \rangle$	1	3	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_8 = \langle m_y t_x, m_y t_z^{-1}, t_y^{-1} \rangle$	1	3	[[1, 0, 1], [0, 1, 0], [0, 0, 2]]
$H_9 = \langle m_y t_x, m_y t_y, m_y t_y^{-1}, m_y t_z^{-1} \rangle$	1	3	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{10} = \langle r_x^2 r_y t_y, r_x^2 r_y t_y^{-1}, t_x, t_z^{-1} \rangle$	1	4	[[1, 0, 0], [0, 2, 0], [0, 0, 1]]
$H_{11} = \langle r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z, t_x \rangle$	1	4	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{12} = \langle r_y r_x^2 t_x, r_y r_x^2 t_x^{-1}, r_y r_x^2 t_y, r_y r_x^2 t_y^{-1} \rangle$	1	4	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{13} = \langle r_x^2 t_y, r_x^2 t_y^{-1}, t_x, t_z^{-1} \rangle$	1	5	[[1, 0, 0], [0, 2, 0], [0, 0, 1]]
$H_{14} = \langle r_z^2 t_z^{-1}, t_x, t_y^{-1} \rangle$	1	5	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{15} = \langle r_x^2 t_y, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, t_x \rangle$	1	5	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{16} = \langle r_z^2 t_y, r_z^2 t_y^{-1}, r_z^2 t_z^{-1}, t_x \rangle$	1	5	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{17} = \langle r_y^2 t_x, r_y^2 t_x^{-1}, r_y^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1} \rangle$	1	5	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{18} = \langle m_x r_y^{-1} t_y^{-1}, t_x, t_z^{-1} \rangle$	1	6	[[1, 0, 0], [0, 2, 0], [0, 0, 1]]
$H_{19} = \langle m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, t_x \rangle$	1	6	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{20} = \langle m_z r_x^{-1} t_x, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z \rangle$	1	6	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{21} = \langle r_y r_x t_x^{-1}, r_y r_x t_z^{-1}, r_y^{-1} r_z^{-1} t_x \rangle$	1	7	[[1, 0, 2], [0, 1, 2], [0, 0, 3]]
$H_{22} = \langle r_x^2 t_y^{-1}, r_z^2 t_y, t_x, t_z^{-1} \rangle$	1	8	[[1, 0, 0], [0, 4, 0], [0, 0, 1]]
$H_{23} = \langle r_x^2 t_y, r_x^2 t_y^{-1}, r_z^2 t_z^{-1}, t_x \rangle$	1	8	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{24} = \langle r_x^2 t_y, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, t_x \rangle$	1	8	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{25} = \langle r_x^2 t_y, r_x^2 t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, t_z^{-1} \rangle$	1	8	[[2, 0, 0], [0, 2, 0], [0, 0, 1]]
$H_{26} = \langle r_y^2 t_y^{-1}, r_z^2 t_z^{-1}, t_x \rangle$	1	8	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{27} = \langle r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2 t_y, t_x \rangle$	1	8	[[1, 0, 0], [0, 2, 1], [0, 0, 2]]
$H_{28} = \langle r_x^2 t_y, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	8	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{29} = \langle r_y^2 t_x, r_y^2 t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	1	8	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{30} = \langle r_y^2 t_x, r_y^2 t_x^{-1}, r_y^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	1	8	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{31} = \langle r_x^2 t_y, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_x, r_z^2 t_x^{-1} \rangle$	1	8	[[2, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{32} = \langle r_x^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1} \rangle$	1	8	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{33} = \langle r_x^2 t_y, r_x^2 t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, r_z^2 t_z^{-1} \rangle$	1	8	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{34} = \langle r_x^2 t_x, r_y^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	1	8	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{35} = \langle it_y, r_x^2 t_y^{-1}, t_x, t_z^{-1} \rangle$	1	9	[[1, 0, 0], [0, 4, 0], [0, 0, 1]]
$H_{36} = \langle it_y, m_y t_y^{-1}, t_x, t_z^{-1} \rangle$	1	9	[[1, 0, 0], [0, 4, 0], [0, 0, 1]]
$H_{37} = \langle it_y, it_z^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, t_x \rangle$	1	9	[[1, 0, 0], [0, 1, 1], [0, 0, 4]]
$H_{38} = \langle it_z^{-1}, m_y t_y, m_y t_y^{-1}, r_y^2 t_z, t_x \rangle$	1	9	[[1, 0, 0], [0, 1, 2], [0, 0, 4]]
$H_{39} = \langle m_x t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, t_x \rangle$	1	9	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{40} = \langle it_z, it_z^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, t_x \rangle$	1	9	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{41} = \langle it_z, it_z^{-1}, m_y t_y, m_y t_y^{-1}, t_x \rangle$	1	9	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{42} = \langle m_y t_y, m_y t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, t_x \rangle$	1	9	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{43} = \langle it_z, it_z^{-1}, m_z t_y^{-1}, t_x \rangle$	1	9	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{44} = \langle m_z t_y^{-1}, r_z^2 t_z^{-1}, t_x \rangle$	1	9	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{45} = \langle it_z, it_z^{-1}, m_y t_x, t_y^{-1} \rangle$	1	9	[[2, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{46} = \langle it_y, it_y^{-1}, r_z^2 t_z^{-1}, t_x \rangle$	1	9	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{47} = \langle it_y, it_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, t_x \rangle$	1	9	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{48} = \langle it_y, m_x t_z^{-1}, r_x^2 t_y^{-1}, t_x \rangle$	1	9	[[1, 0, 0], [0, 2, 1], [0, 0, 2]]
$H_{49} = \langle it_y, m_y t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, t_x \rangle$	1	9	[[1, 0, 0], [0, 2, 1], [0, 0, 2]]
$H_{50} = \langle m_y t_y, m_y t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, r_y^2 t_z, r_y^2 t_z^{-1} \rangle$	1	9	[[1, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{51} = \langle m_y t_y, m_y t_y^{-1}, m_y t_z^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	9	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{52} = \langle it_z, it_z^{-1}, m_y t_x, m_y t_y, m_y t_y^{-1} \rangle$	1	9	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{53} = \langle it_y, it_y^{-1}, it_z, it_z^{-1}, m_z t_x \rangle$	1	9	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{54} = \langle m_z t_x, r_z^2 t_y, r_z^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	1	9	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{55} = \langle it_z, it_z^{-1}, m_z t_x, m_z t_y^{-1} \rangle$	1	9	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{56} = \langle m_z t_x, m_z t_y^{-1}, r_z^2 t_z^{-1} \rangle$	1	9	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{57} = \langle it_x, it_x^{-1}, it_y, it_y^{-1}, r_z^2 t_z^{-1} \rangle$	1	9	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]

H	$H_{0,0,0}$	$P(H)$	Translation basis of H
$H_{58} = \langle it_x, it_x^{-1}, it_y, it_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1} \rangle$	1	9	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{59} = \langle it_x, it_x^{-1}, it_y, it_y^{-1}, m_z t_z, m_z t_z^{-1} \rangle$	1	9	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{60} = \langle it_x, it_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	1	9	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{61} = \langle it_x, it_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1} \rangle$	1	9	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{62} = \langle it_x, it_y^{-1}, m_z t_z, m_z t_z^{-1}, r_z^2 t_x^{-1}, r_z^2 t_y \rangle$	1	9	[[1, 1, 0], [0, 2, 1], [0, 0, 2]]
$H_{63} = \langle it_y, m_y t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, r_y^2 t_z, r_y^2 t_z^{-1} \rangle$	1	9	[[1, 0, 1], [0, 2, 1], [0, 0, 2]]
$H_{64} = \langle it_z^{-1}, m_y t_x, m_y t_y, m_y t_y^{-1}, r_y^2 t_z \rangle$	1	9	[[1, 0, 2], [0, 1, 2], [0, 0, 4]]
$H_{65} = \langle it_z, it_z^{-1}, m_y t_y, m_y t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	9	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{66} = \langle it_y, it_y^{-1}, m_z t_x, r_z^2 t_z^{-1} \rangle$	1	9	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{67} = \langle it_z, it_z^{-1}, m_z t_x, r_z^2 t_y, r_z^2 t_y^{-1} \rangle$	1	9	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{68} = \langle m_z r_x^{-1} t_z, r_x^2 t_y^{-1}, r_x^2 t_z^{-1}, t_x \rangle$	1	10	[[1, 0, 0], [0, 1, 3], [0, 0, 4]]
$H_{69} = \langle m_z r_x^{-1} t_x, r_x^2 t_y, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1} \rangle$	1	10	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{70} = \langle m_z r_x t_y^{-1}, m_z r_x t_z^{-1}, m_z r_x^{-1} t_x \rangle$	1	10	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{71} = \langle m_x r_y t_x, m_x r_y t_x^{-1}, r_y^2 t_y^{-1} \rangle$	1	10	[[1, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{72} = \langle m_x r_y t_y^{-1}, m_x r_y^{-1} t_x^{-1}, r_y^2 t_x, r_y^2 t_z \rangle$	1	10	[[1, 0, 3], [0, 1, 2], [0, 0, 4]]
$H_{73} = \langle m_y t_y, r_x^2 r_y t_y^{-1}, t_x, t_z^{-1} \rangle$	1	11	[[1, 0, 0], [0, 4, 0], [0, 0, 1]]
$H_{74} = \langle m_z r_x^{-1} t_y^{-1}, r_z^2 r_x t_z, t_x \rangle$	1	11	[[1, 0, 0], [0, 1, 3], [0, 0, 4]]
$H_{75} = \langle m_z r_x^{-1} t_x, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z \rangle$	1	11	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{76} = \langle m_x t_y^{-1}, m_x t_z^{-1}, m_z r_x^{-1} t_x \rangle$	1	11	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{77} = \langle m_z t_x, m_z t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1} \rangle$	1	11	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{78} = \langle m_x t_x, m_x t_x^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z \rangle$	1	11	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{79} = \langle m_x r_y t_x, m_x r_y t_x^{-1}, r_y r_x^2 t_y, r_y r_x^2 t_y^{-1} \rangle$	1	11	[[1, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{80} = \langle m_x r_y t_x, m_x r_y t_x^{-1}, m_y t_y, m_y t_y^{-1} \rangle$	1	11	[[1, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{81} = \langle m_x t_x, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, r_z^2 r_x t_x^{-1} \rangle$	1	11	[[2, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{82} = \langle m_x t_x, m_x t_x^{-1}, m_z r_x^{-1} t_z, r_z^2 r_x t_y^{-1} \rangle$	1	11	[[1, 0, 2], [0, 1, 3], [0, 0, 4]]
$H_{83} = \langle it_y, r_x^2 r_y t_y^{-1}, t_x, t_z^{-1} \rangle$	1	12	[[1, 0, 0], [0, 4, 0], [0, 0, 1]]
$H_{84} = \langle it_y, it_z, m_z r_x^{-1} t_y^{-1}, t_x \rangle$	1	12	[[1, 0, 0], [0, 1, 3], [0, 0, 4]]
$H_{85} = \langle it_y^{-1}, it_z^{-1}, r_z^2 r_x t_z, t_x \rangle$	1	12	[[1, 0, 0], [0, 1, 3], [0, 0, 4]]
$H_{86} = \langle it_y^{-1}, it_z, m_z r_x^{-1} t_x, r_y^2 r_x t_z^{-1} \rangle$	1	12	[[1, 0, 2], [0, 1, 1], [0, 0, 4]]
$H_{87} = \langle it_x, it_y^{-1}, it_z^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 r_x t_z \rangle$	1	12	[[1, 0, 1], [0, 1, 3], [0, 0, 4]]
$H_{88} = \langle it_y, it_y^{-1}, it_z, it_z^{-1}, m_z r_x^{-1} t_x \rangle$	1	12	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{89} = \langle m_z r_x^{-1} t_x, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z^{-1} \rangle$	1	12	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{90} = \langle it_x, it_x^{-1}, it_y, it_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1} \rangle$	1	12	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{91} = \langle it_x, it_x^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z \rangle$	1	12	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{92} = \langle it_x, it_x^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z \rangle$	1	12	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{93} = \langle m_x r_y t_x, m_x r_y t_x^{-1}, r_x^2 r_y t_y, r_x^2 r_y t_y^{-1} \rangle$	1	12	[[1, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{94} = \langle it_x, m_z r_x t_y^{-1}, m_z r_x t_z^{-1}, r_z^2 r_x t_x^{-1} \rangle$	1	12	[[2, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{95} = \langle it_x, it_y, m_x r_z t_x^{-1}, r_x^2 r_z t_z, r_x^2 r_z t_z^{-1} \rangle$	1	12	[[1, 1, 1], [0, 2, 1], [0, 0, 2]]
$H_{96} = \langle r_x^2 r_y t_y^{-1}, r_y r_x^2 t_y, t_x, t_z^{-1} \rangle$	1	13	[[1, 0, 0], [0, 4, 0], [0, 0, 1]]
$H_{97} = \langle r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 r_x t_z^{-1}, t_x \rangle$	1	13	[[1, 0, 0], [0, 1, 1], [0, 0, 4]]
$H_{98} = \langle r_y r_x^2 t_x, r_y r_x^2 t_x^{-1}, r_y^2 t_y^{-1} \rangle$	1	13	[[1, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{99} = \langle r_x^2 r_y t_y, r_x^2 r_y t_y^{-1}, r_y r_x^2 t_x, r_y r_x^2 t_x^{-1} \rangle$	1	13	[[1, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{100} = \langle r_x^2 t_y, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_y^2 r_x t_x, r_y^2 r_x t_x^{-1} \rangle$	1	13	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{101} = \langle r_x^2 r_y t_y^{-1}, r_y r_x^2 t_y, r_y^2 t_x, r_y^2 t_x^{-1}, r_y^2 t_z, r_y^2 t_z^{-1} \rangle$	1	13	[[1, 0, 1], [0, 2, 1], [0, 0, 2]]
$H_{102} = \langle r_x^2 r_y t_x^{-1}, r_y r_x^2 t_y, r_y r_x^2 t_y^{-1}, r_y^2 t_x, r_y^2 t_z \rangle$	1	13	[[1, 0, 3], [0, 1, 2], [0, 0, 4]]
$H_{103} = \langle m_y t_y, r_x^2 t_y^{-1}, t_x, t_z^{-1} \rangle$	1	14	[[1, 0, 0], [0, 4, 0], [0, 0, 1]]
$H_{104} = \langle m_x t_y^{-1}, m_z t_z^{-1}, r_y^2 t_z, t_x \rangle$	1	14	[[1, 0, 0], [0, 1, 2], [0, 0, 4]]
$H_{105} = \langle m_x t_y^{-1}, m_y t_z^{-1}, t_x \rangle$	1	14	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{106} = \langle m_x t_y^{-1}, m_z t_z, m_z t_z^{-1}, t_x \rangle$	1	14	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{107} = \langle m_y t_z^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, t_x \rangle$	1	14	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{108} = \langle m_z t_z, m_z t_z^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, t_x \rangle$	1	14	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{109} = \langle m_y t_y, m_y t_y^{-1}, r_z^2 t_z^{-1}, t_x \rangle$	1	14	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{110} = \langle m_y t_y, m_y t_y^{-1}, m_z t_z, m_z t_z^{-1}, t_x \rangle$	1	14	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{111} = \langle m_z t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, t_x \rangle$	1	14	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{112} = \langle m_y t_z^{-1}, m_z t_y^{-1}, t_x \rangle$	1	14	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{113} = \langle m_z t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, t_z^{-1} \rangle$	1	14	[[2, 0, 0], [0, 2, 0], [0, 0, 1]]
$H_{114} = \langle m_y t_x, r_z^2 t_z^{-1}, t_y^{-1} \rangle$	1	14	[[2, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{115} = \langle m_y t_y, m_z t_z, m_z t_z^{-1}, r_x^2 t_y^{-1}, t_x \rangle$	1	14	[[1, 0, 0], [0, 2, 1], [0, 0, 2]]
$H_{116} = \langle m_z t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, r_y^2 t_z, r_y^2 t_z^{-1} \rangle$	1	14	[[1, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{117} = \langle m_z t_y^{-1}, m_z t_z, m_z t_z^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	14	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{118} = \langle m_y t_x, m_y t_y, m_y t_y^{-1}, r_z^2 t_z^{-1} \rangle$	1	14	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{119} = \langle m_x t_z^{-1}, m_y t_x, m_y t_y, m_y t_y^{-1} \rangle$	1	14	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{120} = \langle m_y t_x, m_y t_y, m_y t_y^{-1}, m_z t_z, m_z t_z^{-1} \rangle$	1	14	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{121} = \langle m_y t_x, m_y t_z^{-1}, m_z t_y^{-1} \rangle$	1	14	[[1, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{122} = \langle m_z t_x, r_y^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1} \rangle$	1	14	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{123} = \langle m_z t_x, m_z t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1} \rangle$	1	14	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{124} = \langle m_x t_x, m_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	1	14	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]

H	$H_{0,0,0}$	$P(H)$	Translation basis of H
$H_{125} = \langle m_x t_x^{-1}, m_z t_y^{-1}, m_z t_z, m_z t_z^{-1}, r_y^2 t_x \rangle$	1	14	[[2, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{126} = \langle m_x t_z^{-1}, m_z t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	14	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{127} = \langle m_x t_z^{-1}, m_z t_x, r_y^2 t_y^{-1} \rangle$	1	14	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{128} = \langle m_y t_y, m_y t_y^{-1}, m_z t_x, r_x^2 t_z, r_x^2 t_z^{-1} \rangle$	1	14	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{129} = \langle m_x t_x, m_x t_x^{-1}, m_z t_z, m_z t_z^{-1}, r_y^2 t_y^{-1} \rangle$	1	14	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{130} = \langle r_y t_y^{-1}, t_x, t_z^{-1} \rangle$	1	15	[[1, 0, 0], [0, 4, 0], [0, 0, 1]]
$H_{131} = \langle r_x t_z^{-1}, r_x^{-1} t_y^{-1}, t_x \rangle$	1	15	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{132} = \langle r_x^{-1} t_x, r_x^2 t_y, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1} \rangle$	1	15	[[2, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{133} = \langle r_y^{-1} t_x, r_y^{-1} t_x^{-1}, r_y^2 t_y^{-1} \rangle$	1	15	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{134} = \langle m_x r_x t_z^{-1}, m_x r_x^{-1} t_y^{-1}, t_x \rangle$	1	16	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{135} = \langle m_z r_z t_x, m_z r_z t_x^{-1}, r_z^2 t_z^{-1} \rangle$	1	16	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{136} = \langle r_y r_x^2 t_x, r_y r_x^2 t_y, r_y^2 r_z t_x^{-1}, r_y^2 r_z t_z \rangle$	1	19	[[1, 0, 1], [0, 1, 1], [0, 0, 6]]
$H_{137} = \langle i t_y^{-1}, i t_z, m_z r_x^{-1} t_x, r_x^2 t_y, r_x^2 t_z^{-1} \rangle$	1	20	[[2, 0, 0], [0, 1, 1], [0, 0, 4]]
$H_{138} = \langle i t_y^{-1}, i t_z, m_z r_x t_z^{-1}, m_z r_x^{-1} t_x \rangle$	1	20	[[2, 0, 0], [0, 1, 1], [0, 0, 4]]
$H_{139} = \langle m_z r_x t_z^{-1}, m_z r_x^{-1} t_x, r_y^2 r_x t_y^{-1} \rangle$	1	20	[[2, 0, 0], [0, 1, 1], [0, 0, 4]]
$H_{140} = \langle i t_x, i t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_z^2 t_x^{-1}, r_z^2 t_y \rangle$	1	20	[[1, 1, 0], [0, 4, 0], [0, 0, 2]]
$H_{141} = \langle m_x r_y t_x^{-1}, r_x^2 r_y t_y, r_x^2 r_y t_y^{-1}, r_y r_x^2 t_x \rangle$	1	20	[[1, 0, 1], [0, 2, 0], [0, 0, 4]]
$H_{142} = \langle m_y t_y^{-1}, r_x^2 r_y t_y, r_y^2 t_x, r_y^2 t_x^{-1}, r_y^2 t_z, r_y^2 t_z^{-1} \rangle$	1	20	[[1, 0, 1], [0, 4, 0], [0, 0, 2]]
$H_{143} = \langle i t_x^{-1}, m_x t_x, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z \rangle$	1	20	[[4, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{144} = \langle m_x t_x, m_z r_x t_y^{-1}, m_z r_x t_z^{-1}, r_z^2 r_x t_x^{-1} \rangle$	1	20	[[4, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{145} = \langle i t_x, r_x^2 t_y, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_z^2 r_x t_x^{-1} \rangle$	1	20	[[4, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{146} = \langle i t_x, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, r_z^2 r_x t_x^{-1} \rangle$	1	20	[[4, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{147} = \langle m_x r_y t_x, m_x r_y t_x^{-1}, r_x^2 r_y t_y^{-1}, r_y r_x^2 t_y \rangle$	1	20	[[1, 0, 1], [0, 4, 0], [0, 0, 2]]
$H_{148} = \langle m_x r_y t_y^{-1}, r_x^2 r_y t_x^{-1}, r_y^2 t_x, r_y^2 t_z \rangle$	1	20	[[1, 0, 3], [0, 2, 0], [0, 0, 4]]
$H_{149} = \langle m_y t_y, m_y t_y^{-1}, r_x^2 r_y t_x^{-1}, r_y^2 t_x, r_y^2 t_z \rangle$	1	20	[[1, 0, 3], [0, 2, 0], [0, 0, 4]]
$H_{150} = \langle m_x r_y^{-1} t_x^{-1}, r_y r_x^2 t_y, r_y r_x^2 t_y^{-1}, r_y^2 t_x, r_y^2 t_z \rangle$	1	20	[[1, 0, 3], [0, 2, 0], [0, 0, 4]]
$H_{151} = \langle m_x r_y^{-1} t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_y^2 t_x, r_y^2 t_z \rangle$	1	20	[[1, 0, 3], [0, 2, 0], [0, 0, 4]]
$H_{152} = \langle i t_x, i t_y, r_x^2 r_z t_z, r_x^2 r_z t_z^{-1}, r_y^2 r_z t_x^{-1} \rangle$	1	20	[[1, 3, 0], [0, 4, 0], [0, 0, 2]]
$H_{153} = \langle i t_x, i t_y, m_z t_z, m_z t_z^{-1}, r_y^2 r_z t_x^{-1} \rangle$	1	20	[[1, 3, 0], [0, 4, 0], [0, 0, 2]]
$H_{154} = \langle i t_x, i t_y, m_x r_z t_x^{-1}, m_z t_z, m_z t_z^{-1} \rangle$	1	20	[[1, 3, 0], [0, 4, 0], [0, 0, 2]]
$H_{155} = \langle m_x r_y^{-1} t_x^{-1}, m_y t_y, r_y r_x^2 t_y^{-1}, r_y^2 t_x, r_y^2 t_z \rangle$	1	20	[[1, 0, 3], [0, 2, 2], [0, 0, 4]]
$H_{156} = \langle i t_y, i t_y^{-1}, m_z t_x, r_x^2 r_z t_z, r_y^2 r_z t_z^{-1} \rangle$	1	20	[[1, 1, 2], [0, 2, 0], [0, 0, 4]]
$H_{157} = \langle m_x t_y^{-1}, m_z t_z, r_x^2 t_z^{-1}, t_x \rangle$	1	21	[[1, 0, 0], [0, 2, 0], [0, 0, 4]]
$H_{158} = \langle i t_z, m_x t_y^{-1}, m_z t_z^{-1}, t_x \rangle$	1	21	[[1, 0, 0], [0, 2, 0], [0, 0, 4]]
$H_{159} = \langle i t_y, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, t_x \rangle$	1	21	[[1, 0, 0], [0, 4, 0], [0, 0, 2]]
$H_{160} = \langle m_y t_y, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, t_x \rangle$	1	21	[[1, 0, 0], [0, 4, 0], [0, 0, 2]]
$H_{161} = \langle m_x t_z^{-1}, r_x^2 t_y^{-1}, r_z^2 t_y, t_x \rangle$	1	21	[[1, 0, 0], [0, 4, 0], [0, 0, 2]]
$H_{162} = \langle i t_y, m_z t_z, m_z t_z^{-1}, r_x^2 t_y^{-1}, t_x \rangle$	1	21	[[1, 0, 0], [0, 4, 0], [0, 0, 2]]
$H_{163} = \langle m_z t_z, m_z t_z^{-1}, r_x^2 t_y^{-1}, r_z^2 t_y, t_x \rangle$	1	21	[[1, 0, 0], [0, 4, 0], [0, 0, 2]]
$H_{164} = \langle i t_z^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z, t_x \rangle$	1	21	[[1, 0, 0], [0, 2, 0], [0, 0, 4]]
$H_{165} = \langle m_y t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2 t_y, t_x \rangle$	1	21	[[1, 0, 0], [0, 4, 0], [0, 0, 2]]
$H_{166} = \langle m_y t_y, m_y t_y^{-1}, m_z t_z, r_y^2 t_z^{-1}, t_x \rangle$	1	21	[[1, 0, 0], [0, 2, 0], [0, 0, 4]]
$H_{167} = \langle i t_y, r_x^2 t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, t_z^{-1} \rangle$	1	21	[[2, 0, 0], [0, 4, 0], [0, 0, 1]]
$H_{168} = \langle i t_z^{-1}, m_y t_x, r_x^2 t_z, t_y^{-1} \rangle$	1	21	[[2, 0, 0], [0, 1, 0], [0, 0, 4]]
$H_{169} = \langle m_y t_y^{-1}, m_z t_z, r_y^2 t_z^{-1}, r_z^2 t_y, t_x \rangle$	1	21	[[1, 0, 0], [0, 2, 2], [0, 0, 4]]
$H_{170} = \langle m_y t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2 t_y \rangle$	1	21	[[1, 0, 1], [0, 4, 0], [0, 0, 2]]
$H_{171} = \langle m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_y t_z^{-1}, r_y^2 t_x \rangle$	1	21	[[4, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{172} = \langle i t_x^{-1}, m_x t_x, m_y t_y, m_y t_y^{-1}, m_y t_z^{-1} \rangle$	1	21	[[4, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{173} = \langle i t_z^{-1}, m_y t_x, m_y t_y, m_y t_y^{-1}, r_x^2 t_z \rangle$	1	21	[[1, 1, 0], [0, 2, 0], [0, 0, 4]]
$H_{174} = \langle m_y t_x, m_y t_y, m_y t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1} \rangle$	1	21	[[1, 1, 0], [0, 2, 0], [0, 0, 4]]
$H_{175} = \langle i t_x, r_x^2 t_y, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_z^2 t_x^{-1} \rangle$	1	21	[[4, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{176} = \langle m_z t_z, m_z t_z^{-1}, r_x^2 t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, r_z^2 t_y \rangle$	1	21	[[1, 2, 0], [0, 4, 0], [0, 0, 2]]
$H_{177} = \langle i t_y, m_x t_z^{-1}, m_y t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	21	[[1, 2, 0], [0, 4, 0], [0, 0, 2]]
$H_{178} = \langle i t_y, m_y t_y^{-1}, m_z t_z, m_z t_z^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	21	[[1, 2, 0], [0, 4, 0], [0, 0, 2]]
$H_{179} = \langle i t_y^{-1}, m_z t_x, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2 t_y \rangle$	1	21	[[1, 2, 0], [0, 4, 0], [0, 0, 2]]
$H_{180} = \langle i t_y^{-1}, m_x t_z^{-1}, m_z t_x, r_z^2 t_y \rangle$	1	21	[[1, 2, 0], [0, 4, 0], [0, 0, 2]]
$H_{181} = \langle i t_y, m_z t_z, m_z t_z^{-1}, r_x^2 t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	21	[[1, 2, 1], [0, 4, 0], [0, 0, 2]]
$H_{182} = \langle m_x t_z^{-1}, m_y t_y^{-1}, r_x^2 t_y, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	21	[[1, 2, 1], [0, 4, 0], [0, 0, 2]]
$H_{183} = \langle m_y t_y^{-1}, m_z t_z, m_z t_z^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, r_z^2 t_y \rangle$	1	21	[[1, 2, 1], [0, 4, 0], [0, 0, 2]]
$H_{184} = \langle i t_y^{-1}, m_z t_x, r_x^2 t_y, r_y^2 t_z, r_y^2 t_z^{-1} \rangle$	1	21	[[1, 2, 1], [0, 4, 0], [0, 0, 2]]
$H_{185} = \langle m_x t_z^{-1}, m_z t_x, r_x^2 t_y, r_z^2 t_y^{-1} \rangle$	1	21	[[1, 2, 1], [0, 4, 0], [0, 0, 2]]
$H_{186} = \langle m_x t_x, m_x t_x^{-1}, m_z t_z, m_z t_z^{-1}, r_x^2 t_y, r_z^2 t_y^{-1} \rangle$	1	21	[[1, 2, 1], [0, 4, 0], [0, 0, 2]]
$H_{187} = \langle m_y t_z^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{188} = \langle m_z t_z, m_z t_z^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{189} = \langle m_y t_y, m_y t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, r_z^2 t_z^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{190} = \langle m_x t_z^{-1}, m_y t_y, m_y t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{191} = \langle m_y t_y, m_y t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]

H	$H_{0,0,0}$	$P(H)$	Translation basis of H
$H_{192} = \langle m_y t_y, m_y t_y^{-1}, m_z t_z, m_z t_z^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{193} = \langle i t_z, i t_z^{-1}, m_z t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{194} = \langle m_z t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, r_z^2 t_z^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{195} = \langle m_z t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{196} = \langle m_y t_z^{-1}, m_z t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{197} = \langle i t_z, i t_z^{-1}, m_y t_x, m_z t_y^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{198} = \langle m_y t_x, m_z t_y^{-1}, r_z^2 t_z^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{199} = \langle m_y t_x, m_z t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{200} = \langle m_x t_z^{-1}, m_y t_x, m_z t_y^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{201} = \langle i t_y, i t_y^{-1}, m_z t_x, r_y^2 t_z, r_y^2 t_z^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{202} = \langle i t_y, i t_y^{-1}, m_x t_z^{-1}, m_z t_x \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{203} = \langle i t_y, i t_y^{-1}, m_z t_x, r_x^2 t_z, r_x^2 t_z^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{204} = \langle m_z t_x, r_x^2 t_z, r_x^2 t_z^{-1}, r_z^2 t_y, r_z^2 t_y^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{205} = \langle i t_z, i t_z^{-1}, m_z t_x, r_y^2 t_y^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{206} = \langle m_z t_x, r_y^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{207} = \langle m_z t_x, r_x^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_y^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{208} = \langle i t_z, i t_z^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_x \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{209} = \langle m_y t_y, m_y t_y^{-1}, m_z t_x, r_z^2 t_z^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{210} = \langle m_x t_z^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_x \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{211} = \langle i t_x, i t_x^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2 t_y, r_z^2 t_y^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{212} = \langle i t_x, i t_x^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_z^2 t_y, r_z^2 t_y^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{213} = \langle i t_x, i t_x^{-1}, r_y^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{214} = \langle i t_x, i t_x^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_y^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{215} = \langle i t_x, i t_x^{-1}, m_z t_z, m_z t_z^{-1}, r_y^2 t_y^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{216} = \langle i t_x, i t_x^{-1}, m_z t_z, m_z t_z^{-1}, r_x^2 t_y, r_x^2 t_y^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{217} = \langle i t_x, i t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z, m_z t_z^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{218} = \langle m_x t_x, m_x t_x^{-1}, r_y^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{219} = \langle m_x t_x, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z, m_z t_z^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{220} = \langle m_y t_y, m_z t_z, m_z t_z^{-1}, r_x^2 t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 1], [0, 0, 2]]
$H_{221} = \langle m_x t_z^{-1}, m_y t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, r_z^2 t_y \rangle$	1	21	[[2, 0, 0], [0, 2, 1], [0, 0, 2]]
$H_{222} = \langle m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z, m_z t_z^{-1}, r_y^2 t_x \rangle$	1	21	[[2, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{223} = \langle m_x t_x^{-1}, m_y t_z^{-1}, m_z t_y^{-1}, r_y^2 t_x \rangle$	1	21	[[2, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{224} = \langle m_z t_x, r_x^2 t_y, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2 t_y^{-1} \rangle$	1	21	[[2, 0, 0], [0, 2, 1], [0, 0, 2]]
$H_{225} = \langle i t_x, m_z t_z, m_z t_z^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, r_z^2 t_x^{-1} \rangle$	1	21	[[2, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{226} = \langle i t_x, m_y t_y, m_y t_y^{-1}, m_z t_z, m_z t_z^{-1}, r_z^2 t_x^{-1} \rangle$	1	21	[[2, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{227} = \langle i t_x^{-1}, m_x t_x, m_y t_y, m_y t_y^{-1}, m_z t_z, m_z t_z^{-1} \rangle$	1	21	[[2, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{228} = \langle i t_x^{-1}, m_x t_x, m_y t_z^{-1}, m_z t_y^{-1} \rangle$	1	21	[[2, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{229} = \langle m_x t_x^{-1}, m_y t_y, m_z t_z, m_z t_z^{-1}, r_x^2 t_y^{-1}, r_y^2 t_x \rangle$	1	21	[[2, 0, 1], [0, 2, 1], [0, 0, 2]]
$H_{230} = \langle m_x r_x t_z^{-1}, r_x^{-1} t_y^{-1}, t_x \rangle$	1	22	[[1, 0, 0], [0, 2, 2], [0, 0, 4]]
$H_{231} = \langle m_x r_x^{-1} t_y^{-1}, m_x t_x, m_x t_x^{-1}, r_x t_z^{-1} \rangle$	1	22	[[1, 0, 2], [0, 2, 2], [0, 0, 4]]
$H_{232} = \langle i t_x, i t_x^{-1}, m_x r_x t_z^{-1}, m_x r_x^{-1} t_y^{-1} \rangle$	1	22	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{233} = \langle i t_x, i t_x^{-1}, r_x t_z^{-1}, r_x^{-1} t_y^{-1} \rangle$	1	22	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{234} = \langle m_x r_x t_z^{-1}, m_x r_x^{-1} t_y^{-1}, m_x t_x, m_x t_x^{-1} \rangle$	1	22	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{235} = \langle m_y t_y, m_y t_y^{-1}, r_y^{-1} t_x, r_y^{-1} t_x^{-1} \rangle$	1	22	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{236} = \langle i t_x^{-1}, m_x t_x, r_x t_z^{-1}, r_x^{-1} t_y^{-1} \rangle$	1	22	[[2, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{237} = \langle i t_y, i t_y^{-1}, m_x t_z^{-1}, r_x^{-1} t_x \rangle$	1	22	[[2, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{238} = \langle m_x r_x t_z^{-1}, m_x r_x^{-1} t_y^{-1}, r_x^{-1} t_x \rangle$	1	22	[[2, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{239} = \langle m_x r_x t_z^{-1}, m_y t_y^{-1}, m_z t_z, t_x \rangle$	1	23	[[1, 0, 0], [0, 2, 2], [0, 0, 4]]
$H_{240} = \langle m_x t_z^{-1}, m_z t_x, r_x^2 r_y t_y^{-1}, r_y r_x^2 t_y \rangle$	1	23	[[1, 2, 1], [0, 4, 0], [0, 0, 2]]
$H_{241} = \langle m_x t_x, m_x t_x^{-1}, m_z t_z, m_z t_z^{-1}, r_x^2 r_y t_y^{-1}, r_y r_x^2 t_y \rangle$	1	23	[[1, 2, 1], [0, 4, 0], [0, 0, 2]]
$H_{242} = \langle m_x t_z^{-1}, m_z t_x, r_x^2 r_y t_y, r_x^2 r_y t_y^{-1} \rangle$	1	23	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{243} = \langle m_x t_x, m_x t_x^{-1}, m_z t_z, m_z t_z^{-1}, r_x^2 r_y t_y, r_x^2 r_y t_y^{-1} \rangle$	1	23	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{244} = \langle m_z r_z t_x, m_z r_z t_x^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1} \rangle$	1	23	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{245} = \langle m_z r_z t_x, m_z r_z t_x^{-1}, r_x^2 r_z t_z, r_x^2 r_z t_z^{-1} \rangle$	1	23	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{246} = \langle m_x t_x^{-1}, m_y t_y^{-1}, m_z r_z t_x, r_x^2 r_z t_z, r_x^2 r_z t_z^{-1} \rangle$	1	23	[[2, 0, 1], [0, 2, 1], [0, 0, 2]]
$H_{247} = \langle r_x^2 r_y t_y^{-1}, r_z^2 t_y, t_x, t_z^{-1} \rangle$	1	24	[[1, 0, 0], [0, 8, 0], [0, 0, 1]]
$H_{248} = \langle r_x^{-1} t_y^{-1}, r_y^2 t_z^{-1}, r_z^2 t_y, t_x \rangle$	1	24	[[1, 0, 0], [0, 2, 2], [0, 0, 4]]
$H_{249} = \langle r_x^{-1} t_x, r_z^2 t_y, r_z^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	1	24	[[4, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{250} = \langle r_x^{-1} t_x, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z \rangle$	1	24	[[4, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{251} = \langle r_x^2 t_y, r_y r_x^2 t_x, r_y r_x^2 t_x^{-1}, r_z^2 t_y^{-1} \rangle$	1	24	[[1, 0, 1], [0, 4, 0], [0, 0, 2]]
$H_{252} = \langle r_x^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, r_y^2 t_y^{-1} \rangle$	1	24	[[1, 1, 0], [0, 2, 0], [0, 0, 4]]
$H_{253} = \langle r_x^2 t_y, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_y^2 r_x t_x, r_y^2 t_x^{-1} \rangle$	1	24	[[4, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{254} = \langle r_x^2 r_y t_y^{-1}, r_y r_x^2 t_y, r_y^{-1} t_x, r_y^{-1} t_x^{-1} \rangle$	1	24	[[1, 2, 1], [0, 4, 0], [0, 0, 2]]
$H_{255} = \langle r_x^2 t_y, r_x^2 t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	24	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{256} = \langle r_x^2 r_y t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} t_x, r_y^{-1} t_x^{-1} \rangle$	1	24	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{257} = \langle r_y r_x^2 t_y, r_y r_x^2 t_y^{-1}, r_y^{-1} t_x, r_y^{-1} t_x^{-1} \rangle$	1	24	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{258} = \langle r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_y^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	1	24	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]

H	$H_{0,0,0}$	$P(H)$	Translation basis of H
$H_{259} = \langle r_x^2 t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_y^2 t_x, r_z^{-1} t_x^{-1} \rangle$	1	24	[[2, 0, 1], [0, 2, 1], [0, 0, 2]]
$H_{260} = \langle m_y t_y^{-1}, m_z t_z, r_x t_z^{-1}, t_x \rangle$	1	25	[[1, 0, 0], [0, 2, 2], [0, 0, 4]]
$H_{261} = \langle m_y t_y^{-1}, m_z r_x^{-1} t_x, m_z t_z, r_x t_z^{-1} \rangle$	1	25	[[1, 0, 2], [0, 2, 2], [0, 0, 4]]
$H_{262} = \langle m_y t_y, m_y t_y^{-1}, m_z r_x^{-1} t_x, m_z t_z, m_z t_z^{-1} \rangle$	1	25	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{263} = \langle m_z r_x^{-1} t_x, r_x t_z^{-1}, r_x^{-1} t_y^{-1} \rangle$	1	25	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{264} = \langle m_z r_x^{-1} t_x, r_x t_y^{-1}, r_x^{-1} t_z \rangle$	1	25	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{265} = \langle m_y t_z^{-1}, m_z r_x^{-1} t_x, m_z t_y^{-1} \rangle$	1	25	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{266} = \langle m_y t_y, m_y t_y^{-1}, m_z t_z, m_z t_z^{-1}, r_x^{-1} t_x \rangle$	1	25	[[2, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{267} = \langle m_y t_z^{-1}, m_z t_y^{-1}, r_x^{-1} t_x \rangle$	1	25	[[2, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{268} = \langle m_z r_z^{-1} t_x^{-1}, r_x^2 t_y^{-1}, r_y^2 t_x, t_z^{-1} \rangle$	1	26	[[2, 2, 0], [0, 4, 0], [0, 0, 1]]
$H_{269} = \langle m_z r_z t_x, m_z r_z t_x^{-1}, r_x^2 t_z, r_y^2 t_z^{-1} \rangle$	1	26	[[1, 1, 2], [0, 2, 0], [0, 0, 4]]
$H_{270} = \langle m_x r_z t_z^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	1	26	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{271} = \langle m_x r_x t_z^{-1}, m_x r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_x \rangle$	1	26	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{272} = \langle m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_z r_x^{-1} t_x \rangle$	1	26	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{273} = \langle m_z r_x^{-1} t_x, r_y^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	1	26	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{274} = \langle m_x r_z t_z^{-1}, m_z r_z^{-1} t_x^{-1}, r_x^2 t_y^{-1}, r_y^2 t_x \rangle$	1	26	[[2, 0, 1], [0, 2, 1], [0, 0, 2]]
$H_{275} = \langle m_x t_z^{-1}, m_z t_x, r_x^2 r_y t_y, r_z^2 t_y^{-1} \rangle$	1	29	[[1, 4, 1], [0, 8, 0], [0, 0, 2]]
$H_{276} = \langle m_x t_x, m_x t_x^{-1}, m_z t_z, m_z t_z^{-1}, r_x^2 r_y t_y, r_z^2 t_y^{-1} \rangle$	1	29	[[1, 4, 1], [0, 8, 0], [0, 0, 2]]
$H_{277} = \langle m_x t_x, m_y t_y, m_y t_y^{-1}, m_z t_z, m_z t_z^{-1}, r_z^2 r_x t_x^{-1} \rangle$	1	29	[[4, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{278} = \langle m_x t_x, r_x t_z^{-1}, r_x^{-1} t_y^{-1}, r_z^2 r_x t_x^{-1} \rangle$	1	29	[[4, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{279} = \langle m_x t_x, r_x t_y^{-1}, r_x^{-1} t_z, r_z^2 r_x t_x^{-1} \rangle$	1	29	[[4, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{280} = \langle m_x t_x, m_y t_z^{-1}, m_z t_y^{-1}, r_z^2 r_x t_x^{-1} \rangle$	1	29	[[4, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{281} = \langle i t_y^{-1}, m_x t_z^{-1}, m_z t_x, r_x^2 r_y t_y \rangle$	1	29	[[2, 0, 0], [0, 4, 0], [0, 0, 2]]
$H_{282} = \langle i t_x, m_y t_y, m_y t_y^{-1}, m_z t_z, m_z t_z^{-1}, r_z^2 r_x t_x^{-1} \rangle$	1	29	[[4, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{283} = \langle i t_x, r_x t_z^{-1}, r_x^{-1} t_y^{-1}, r_z^2 r_x t_x^{-1} \rangle$	1	29	[[4, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{284} = \langle i t_x, r_x t_y^{-1}, r_x^{-1} t_z, r_z^2 r_x t_x^{-1} \rangle$	1	29	[[4, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{285} = \langle m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_y^2 t_x \rangle$	1	29	[[2, 2, 0], [0, 4, 0], [0, 0, 2]]
$H_{286} = \langle m_x r_z t_z^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, r_y^2 t_x \rangle$	1	29	[[2, 2, 0], [0, 4, 0], [0, 0, 2]]
$H_{287} = \langle m_z r_z^{-1} t_x^{-1}, r_x^2 t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_y^2 t_x \rangle$	1	29	[[2, 2, 0], [0, 4, 0], [0, 0, 2]]
$H_{288} = \langle m_z r_z^{-1} t_x^{-1}, m_z t_z, m_z t_z^{-1}, r_x^2 t_y^{-1}, r_y^2 t_x \rangle$	1	29	[[2, 2, 0], [0, 4, 0], [0, 0, 2]]
$H_{289} = \langle m_x r_z t_z^{-1}, r_x^2 t_y^{-1}, r_y^2 t_x, r_z^{-1} t_x^{-1} \rangle$	1	29	[[2, 2, 0], [0, 4, 0], [0, 0, 2]]
$H_{290} = \langle m_z t_z, m_z t_z^{-1}, r_x^2 t_y^{-1}, r_y^2 t_x, r_z^{-1} t_x^{-1} \rangle$	1	29	[[2, 2, 0], [0, 4, 0], [0, 0, 2]]
$H_{291} = \langle m_x r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_x, r_x t_z^{-1} \rangle$	1	29	[[2, 0, 0], [0, 2, 2], [0, 0, 4]]
$H_{292} = \langle m_x r_x^{-1} t_y^{-1}, m_y t_y, m_z r_x^{-1} t_x, m_z t_z^{-1} \rangle$	1	29	[[2, 0, 0], [0, 2, 2], [0, 0, 4]]
$H_{293} = \langle m_x r_x^{-1} t_y^{-1}, m_x t_x, m_x t_x^{-1}, m_y t_y, m_z t_z^{-1} \rangle$	1	29	[[2, 0, 0], [0, 2, 2], [0, 0, 4]]
$H_{294} = \langle m_x t_x^{-1}, m_z t_z^{-1}, r_y r_x^2 t_y, r_y r_x^2 t_y^{-1}, r_y^{-1} t_x \rangle$	1	29	[[2, 0, 2], [0, 2, 0], [0, 0, 4]]
$H_{295} = \langle m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}, r_y^{-1} t_x \rangle$	1	29	[[2, 0, 2], [0, 2, 0], [0, 0, 4]]
$H_{296} = \langle r_y r_x^2 t_y, r_y r_x^2 t_y^{-1}, r_y^{-1} m_y t_x^{-1}, r_y^{-1} t_x \rangle$	1	29	[[2, 0, 2], [0, 2, 0], [0, 0, 4]]
$H_{297} = \langle i t_z^{-1}, m_z r_z^{-1} t_x^{-1}, r_x^2 r_z t_z, r_x^2 t_y^{-1}, r_y^2 t_x \rangle$	1	29	[[2, 0, 2], [0, 2, 2], [0, 0, 4]]
$H_{298} = \langle m_x t_x, m_y t_y^{-1}, m_z t_z, r_x t_z^{-1}, r_z^2 r_x t_x^{-1} \rangle$	1	29	[[2, 0, 2], [0, 2, 2], [0, 0, 4]]
$H_{299} = \langle i, i t_x, i t_y^{-1}, i t_z^{-1} \rangle$	2	2	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{300} = \langle i, i t_x, i t_y^{-1}, r_z^2 t_z^{-1} \rangle$	2	9	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{301} = \langle i, i t_x, i t_y^{-1}, r_y^2 t_z^{-1} \rangle$	2	9	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{302} = \langle i, i t_x, r_z^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	2	9	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{303} = \langle i, i t_x, m_x t_y^{-1}, m_x t_z^{-1} \rangle$	2	9	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{304} = \langle i, r_z^2 t_x, r_z^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	2	9	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{305} = \langle i, i t_x, i t_y^{-1}, r_y^2 r_z t_z^{-1} \rangle$	2	12	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{306} = \langle i, i t_x, r_z^2 r_x t_y^{-1} \rangle$	2	12	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{307} = \langle i, r_z^2 r_x t_x, r_z^2 r_x t_y^{-1} \rangle$	2	12	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{308} = \langle i, r_y^2 r_z t_z^{-1}, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	2	20	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{309} = \langle i, r_y^2 r_x t_y^{-1}, r_z^2 r_x t_x \rangle$	2	20	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{310} = \langle i, m_x t_x, r_z^2 r_x t_y^{-1} \rangle$	2	20	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{311} = \langle i, i t_x, r_y^2 t_z^{-1}, r_z^2 t_y^{-1} \rangle$	2	21	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{312} = \langle i, i t_x, m_x t_z^{-1}, r_z^2 t_y^{-1} \rangle$	2	21	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{313} = \langle i, i t_x, r_y^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	2	21	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{314} = \langle i, i t_x, m_x t_z^{-1}, r_y^2 t_y^{-1} \rangle$	2	21	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{315} = \langle i, r_y^2 t_z^{-1}, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	2	21	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{316} = \langle i, r_y^2 t_y^{-1}, r_z^2 t_x, r_z^2 t_z^{-1} \rangle$	2	21	[[1, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{317} = \langle i, r_y^2 t_y^{-1}, r_y^2 t_z^{-1}, r_z^2 t_x \rangle$	2	21	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{318} = \langle i, m_x t_z^{-1}, r_y^2 t_y^{-1}, r_z^2 t_x \rangle$	2	21	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{319} = \langle i, m_x t_y^{-1}, r_y^2 t_z^{-1}, r_z^2 t_x \rangle$	2	21	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{320} = \langle i, m_x t_x, r_y^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	2	21	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{321} = \langle i, i t_x, m_x r_x^{-1} t_y^{-1} \rangle$	2	22	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{322} = \langle i, m_x r_x^{-1} t_y^{-1}, m_x t_x \rangle$	2	22	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{323} = \langle i, m_x t_z^{-1}, r_x^2 r_y t_y^{-1}, r_z^2 t_x \rangle$	2	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{324} = \langle i, m_x r_x^{-1} t_y^{-1}, r_z^2 r_x t_x \rangle$	2	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{325} = \langle i, m_x r_x t_y^{-1}, r_z^2 r_x t_x \rangle$	2	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]

H	$H_{0,0,0}$	$P(H)$	Translation basis of H
$H_{326} = \langle i, r_y^2 t_y^{-1}, r_z^2 r_x t_x, r_z^2 t_z^{-1} \rangle$	2	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{327} = \langle m_z, m_z t_x, m_z t_y^{-1}, m_z t_z^{-1} \rangle$	3	3	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{328} = \langle it_x, it_x^{-1}, m_z, m_z t_y^{-1}, m_z t_z^{-1} \rangle$	3	9	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{329} = \langle it_z^{-1}, m_z, m_z t_x, m_z t_y^{-1} \rangle$	3	9	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{330} = \langle it_x, it_x^{-1}, it_y, it_y^{-1}, m_z, m_z t_z^{-1} \rangle$	3	9	[[1, 1, 0], [0, 2, 0], [0, 0, 1]]
$H_{331} = \langle it_x, it_x^{-1}, it_z^{-1}, m_z, m_z t_y^{-1} \rangle$	3	9	[[1, 0, 1], [0, 1, 0], [0, 0, 2]]
$H_{332} = \langle it_x, it_x^{-1}, it_y, it_y^{-1}, it_z^{-1}, m_z \rangle$	3	9	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{333} = \langle m_z, m_z t_x, m_z t_y^{-1}, r_y^2 r_z t_z^{-1} \rangle$	3	11	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{334} = \langle m_z, m_z t_z^{-1}, r_y^2 r_z t_x, r_y^2 r_z t_x^{-1} \rangle$	3	11	[[1, 1, 0], [0, 2, 0], [0, 0, 1]]
$H_{335} = \langle m_z, r_y^2 r_z t_x, r_y^2 r_z t_x^{-1}, r_y^2 r_z t_z^{-1} \rangle$	3	11	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{336} = \langle m_z, m_z t_y^{-1}, m_z t_z^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	3	14	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{337} = \langle m_z, m_z t_y^{-1}, m_z t_z^{-1}, r_x^2 t_x \rangle$	3	14	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{338} = \langle m_z, m_z t_x, m_z t_y^{-1}, r_y^2 t_z^{-1} \rangle$	3	14	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{339} = \langle m_z, m_z t_z^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, r_y^2 t_y^{-1} \rangle$	3	14	[[1, 1, 0], [0, 2, 0], [0, 0, 1]]
$H_{340} = \langle m_z, m_z t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, r_y^2 t_z^{-1} \rangle$	3	14	[[1, 0, 1], [0, 1, 0], [0, 0, 2]]
$H_{341} = \langle m_z, m_z t_y^{-1}, r_x^2 t_x, r_x^2 t_z^{-1} \rangle$	3	14	[[1, 0, 1], [0, 1, 0], [0, 0, 2]]
$H_{342} = \langle m_z, r_y^2 t_x, r_y^2 t_x^{-1}, r_y^2 t_y^{-1}, r_y^2 t_z^{-1} \rangle$	3	14	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{343} = \langle it_x, it_y, m_z, m_z t_z^{-1}, r_y^2 r_z t_x^{-1} \rangle$	3	20	[[1, 3, 0], [0, 4, 0], [0, 0, 1]]
$H_{344} = \langle it_x, it_x^{-1}, it_y, it_y^{-1}, m_z, r_y^2 r_z t_z^{-1} \rangle$	3	20	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{345} = \langle it_z^{-1}, m_z, r_y^2 r_z t_x, r_y^2 r_z t_x^{-1} \rangle$	3	20	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{346} = \langle m_z, r_x^2 r_z t_z^{-1}, r_y^2 r_z t_x, r_y^2 r_z t_x^{-1} \rangle$	3	20	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{347} = \langle it_x, it_y, m_z, r_x^2 r_z t_z^{-1}, r_y^2 r_z t_x^{-1} \rangle$	3	20	[[1, 1, 1], [0, 2, 1], [0, 0, 2]]
$H_{348} = \langle it_x, m_z, m_z t_y^{-1}, m_z t_z^{-1}, r_y^2 t_x^{-1} \rangle$	3	21	[[4, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{349} = \langle it_x, it_x^{-1}, m_z, m_z t_z^{-1}, r_y^2 t_y^{-1} \rangle$	3	21	[[2, 0, 0], [0, 2, 0], [0, 0, 1]]
$H_{350} = \langle it_x, it_x^{-1}, m_z, m_z t_z^{-1}, r_x^2 t_y, r_x^2 t_y^{-1} \rangle$	3	21	[[2, 0, 0], [0, 2, 0], [0, 0, 1]]
$H_{351} = \langle it_x, it_x^{-1}, m_z, m_z t_y^{-1}, r_y^2 t_z^{-1} \rangle$	3	21	[[2, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{352} = \langle it_x, it_x^{-1}, m_z, m_z t_y^{-1}, r_x^2 t_z^{-1} \rangle$	3	21	[[2, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{353} = \langle m_z, m_z t_z^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	3	21	[[2, 0, 0], [0, 2, 0], [0, 0, 1]]
$H_{354} = \langle it_z^{-1}, m_z, m_z t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	3	21	[[2, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{355} = \langle m_z, m_z t_y^{-1}, r_x^2 t_z^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	3	21	[[2, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{356} = \langle m_z, m_z t_z^{-1}, r_x^2 t_x, r_y^2 t_y^{-1} \rangle$	3	21	[[2, 0, 0], [0, 2, 0], [0, 0, 1]]
$H_{357} = \langle it_z^{-1}, m_z, m_z t_y^{-1}, r_x^2 t_x \rangle$	3	21	[[2, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{358} = \langle m_z, m_z t_y^{-1}, r_x^2 t_x, r_y^2 t_z^{-1} \rangle$	3	21	[[2, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{359} = \langle it_x, m_z, m_z t_z^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, r_y^2 t_x^{-1} \rangle$	3	21	[[2, 1, 0], [0, 2, 0], [0, 0, 1]]
$H_{360} = \langle it_x, m_z, m_z t_y^{-1}, r_x^2 t_z^{-1}, r_y^2 t_x^{-1} \rangle$	3	21	[[2, 0, 1], [0, 1, 0], [0, 0, 2]]
$H_{361} = \langle it_x, it_x^{-1}, it_y, it_y^{-1}, m_z, r_y^2 t_z^{-1} \rangle$	3	21	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{362} = \langle it_x, it_x^{-1}, it_z^{-1}, m_z, r_y^2 t_y^{-1} \rangle$	3	21	[[1, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{363} = \langle it_x, it_x^{-1}, m_z, r_y^2 t_y^{-1}, r_y^2 t_z^{-1} \rangle$	3	21	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{364} = \langle it_x, it_x^{-1}, it_z^{-1}, m_z, r_x^2 t_y, r_x^2 t_y^{-1} \rangle$	3	21	[[1, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{365} = \langle it_x, it_x^{-1}, m_z, r_x^2 t_y, r_x^2 t_y^{-1}, r_x^2 t_z^{-1} \rangle$	3	21	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{366} = \langle it_z^{-1}, m_z, r_y^2 t_x, r_y^2 t_x^{-1}, r_y^2 t_y^{-1} \rangle$	3	21	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{367} = \langle m_z, r_x^2 t_z^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, r_y^2 t_y^{-1} \rangle$	3	21	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{368} = \langle m_z, r_x^2 t_y, r_x^2 t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1}, r_y^2 t_z^{-1} \rangle$	3	21	[[1, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{369} = \langle m_z, r_x^2 t_x, r_y^2 t_y^{-1}, r_y^2 t_z^{-1} \rangle$	3	21	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{370} = \langle it_x, m_z, r_x^2 t_y, r_x^2 t_y^{-1}, r_x^2 t_z^{-1}, r_y^2 t_x^{-1} \rangle$	3	21	[[2, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{371} = \langle it_x, it_x^{-1}, m_z, r_x^2 t_z^{-1}, r_y^2 t_y^{-1} \rangle$	3	21	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{372} = \langle it_x, it_x^{-1}, m_z, r_x^2 t_y, r_x^2 t_y^{-1}, r_y^2 t_z^{-1} \rangle$	3	21	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{373} = \langle it_z^{-1}, m_z, r_x^2 t_y, r_x^2 t_y^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	3	21	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{374} = \langle it_z^{-1}, m_z, r_x^2 t_x, r_y^2 t_y^{-1} \rangle$	3	21	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{375} = \langle m_z, m_z r_z^{-1} t_x, m_z r_z^{-1} t_x^{-1}, m_z t_z^{-1} \rangle$	3	22	[[2, 0, 0], [0, 2, 0], [0, 0, 1]]
$H_{376} = \langle it_z^{-1}, m_z, m_z r_z^{-1} t_x, m_z r_z^{-1} t_x^{-1} \rangle$	3	22	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{377} = \langle m_z, m_z r_z^{-1} t_x^{-1}, m_z t_z^{-1}, r_x^2 t_y^{-1}, r_y^2 t_x \rangle$	3	29	[[2, 2, 0], [0, 4, 0], [0, 0, 1]]
$H_{378} = \langle m_z, r_x^2 t_y, r_x^2 t_y^{-1}, r_y^2 r_z t_z^{-1}, r_y^2 t_x, r_y^2 t_x^{-1} \rangle$	3	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{379} = \langle m_z, m_z r_z^{-1} t_x, m_z r_z^{-1} t_x^{-1}, r_y^2 r_z t_z^{-1} \rangle$	3	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{380} = \langle m_z, m_z r_z^{-1} t_x, m_z r_z^{-1} t_x^{-1}, r_x^2 r_z t_z^{-1} \rangle$	3	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{381} = \langle m_z, r_x^2 t_x, r_y^2 r_z t_z^{-1}, r_y^2 t_y^{-1} \rangle$	3	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{382} = \langle m_z, m_z r_z^{-1} t_x^{-1}, r_x^2 t_y^{-1}, r_y^2 r_z t_z^{-1}, r_y^2 t_x \rangle$	3	29	[[2, 0, 1], [0, 2, 1], [0, 0, 2]]
$H_{383} = \langle r_z^2 r_x, r_z^2 r_x t_x, r_z^2 r_x t_y^{-1} \rangle$	4	4	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{384} = \langle m_x t_x, r_z^2 r_x, r_z^2 r_x t_y^{-1} \rangle$	4	11	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{385} = \langle m_x t_y^{-1}, r_z^2 r_x, r_z^2 r_x t_x \rangle$	4	11	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{386} = \langle m_x t_x, m_x t_y^{-1}, r_z^2 r_x \rangle$	4	11	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{387} = \langle it_x, r_z^2 r_x, r_z^2 r_x t_y^{-1} \rangle$	4	12	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{388} = \langle it_y^{-1}, it_z^{-1}, r_z^2 r_x, r_z^2 r_x t_x \rangle$	4	12	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{389} = \langle it_x, it_y^{-1}, it_z^{-1}, r_z^2 r_x \rangle$	4	12	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{390} = \langle r_y^2 r_x t_x, r_z^2 r_x, r_z^2 r_x t_y^{-1} \rangle$	4	13	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{391} = \langle r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z^{-1}, r_z^2 r_x, r_z^2 r_x t_x \rangle$	4	13	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{392} = \langle r_y^2 r_x t_x, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z^{-1}, r_z^2 r_x \rangle$	4	13	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]

H	$H_{0,0,0}$	$P(H)$	Translation basis of H
$H_{393} = \langle r_x^2 r_y t_y^{-1}, r_y^2 r_z t_x, r_z^2 r_x \rangle$	4	19	[[1, 0, 2], [0, 1, 2], [0, 0, 3]]
$H_{394} = \langle it_y^{-1}, r_y^2 r_x t_z^{-1}, r_z^2 r_x, r_z^2 r_x t_x \rangle$	4	20	[[1, 0, 0], [0, 1, 1], [0, 0, 4]]
$H_{395} = \langle it_y^{-1}, m_x t_x, r_y^2 r_x t_z^{-1}, r_z^2 r_x \rangle$	4	20	[[1, 0, 2], [0, 1, 1], [0, 0, 4]]
$H_{396} = \langle it_x, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z^{-1}, r_z^2 r_x \rangle$	4	20	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{397} = \langle it_x, m_x t_y^{-1}, r_z^2 r_x \rangle$	4	20	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{398} = \langle it_y^{-1}, it_z^{-1}, r_y^2 r_x t_x, r_z^2 r_x \rangle$	4	20	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{399} = \langle m_x t_y^{-1}, r_y^2 r_x t_x, r_z^2 r_x \rangle$	4	20	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{400} = \langle it_y^{-1}, it_z^{-1}, m_x t_x, r_z^2 r_x \rangle$	4	20	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{401} = \langle m_x t_x, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z^{-1}, r_z^2 r_x \rangle$	4	20	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{402} = \langle m_x r_x t_z^{-1}, m_x r_x^{-1} t_y^{-1}, r_z^2 r_x, r_z^2 r_x t_x \rangle$	4	23	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{403} = \langle m_x r_x t_y^{-1}, r_z^2 r_x, r_z^2 r_x t_x \rangle$	4	23	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{404} = \langle m_x r_x t_z^{-1}, m_x r_x^{-1} t_y^{-1}, r_y^2 r_x t_x, r_z^2 r_x \rangle$	4	23	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{405} = \langle m_x r_x t_y^{-1}, r_y^2 r_x t_x, r_z^2 r_x \rangle$	4	23	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{406} = \langle r_z^2 r_x, r_z^2 r_x t_y^{-1}, r_z^2 t_x \rangle$	4	24	[[4, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{407} = \langle r_y^2 t_z^{-1}, r_z^2 r_x, r_z^2 r_x t_x, r_z^2 t_y^{-1} \rangle$	4	24	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{408} = \langle r_y^2 t_y^{-1}, r_z^2 r_x, r_z^2 r_x t_x \rangle$	4	24	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{409} = \langle r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z^{-1}, r_z^2 r_x, r_z^2 t_x \rangle$	4	24	[[2, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{410} = \langle r_y^2 r_x t_x, r_y^2 t_z^{-1}, r_z^2 r_x, r_z^2 t_y^{-1} \rangle$	4	24	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{411} = \langle r_y^2 r_x t_x, r_y^2 t_y^{-1}, r_z^2 r_x \rangle$	4	24	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{412} = \langle m_x r_x t_z^{-1}, r_z^2 r_x, r_z^2 r_x t_x, r_z^2 t_y^{-1} \rangle$	4	29	[[1, 0, 0], [0, 2, 2], [0, 0, 4]]
$H_{413} = \langle m_x r_x t_z^{-1}, m_x t_x, r_z^2 r_x, r_z^2 t_y^{-1} \rangle$	4	29	[[1, 0, 2], [0, 2, 2], [0, 0, 4]]
$H_{414} = \langle it_x, r_y^2 t_z^{-1}, r_z^2 r_x, r_z^2 t_y^{-1} \rangle$	4	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{415} = \langle it_x, m_x r_x t_z^{-1}, m_x r_x^{-1} t_y^{-1}, r_z^2 r_x \rangle$	4	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{416} = \langle it_x, m_x r_x t_y^{-1}, r_z^2 r_x \rangle$	4	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{417} = \langle it_x, r_y^2 t_y^{-1}, r_z^2 r_x \rangle$	4	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{418} = \langle m_x t_x, r_y^2 t_z^{-1}, r_z^2 r_x, r_z^2 t_y^{-1} \rangle$	4	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{419} = \langle m_x r_x t_z^{-1}, m_x r_x^{-1} t_y^{-1}, m_x t_x, r_z^2 r_x \rangle$	4	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{420} = \langle m_x r_x t_y^{-1}, m_x t_x, r_z^2 r_x \rangle$	4	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{421} = \langle m_x t_x, r_y^2 t_y^{-1}, r_z^2 r_x \rangle$	4	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{422} = \langle m_x r_x t_z^{-1}, m_x r_x^{-1} t_y^{-1}, r_z^2 r_x, r_z^2 t_x \rangle$	4	29	[[2, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{423} = \langle m_x r_x t_y^{-1}, r_z^2 r_x, r_z^2 t_x \rangle$	4	29	[[2, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{424} = \langle r_z^2, r_z^2 t_x, r_z^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	5	5	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{425} = \langle r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	5	8	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{426} = \langle r_y^2 t_y^{-1}, r_z^2, r_z^2 t_x, r_z^2 t_z^{-1} \rangle$	5	8	[[1, 0, 0], [0, 2, 0], [0, 0, 1]]
$H_{427} = \langle r_y^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2, r_z^2 t_x \rangle$	5	8	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{428} = \langle r_y^2 t_x, r_y^2 t_y^{-1}, r_z^2, r_z^2 t_z^{-1} \rangle$	5	8	[[1, 1, 0], [0, 2, 0], [0, 0, 1]]
$H_{429} = \langle r_y^2 t_x, r_y^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2 \rangle$	5	8	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{430} = \langle it_x, r_z^2, r_z^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	5	9	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{431} = \langle it_z, it_z^{-1}, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	5	9	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{432} = \langle it_x, it_y^{-1}, r_z^2, r_z^2 t_z^{-1} \rangle$	5	9	[[1, 1, 0], [0, 2, 0], [0, 0, 1]]
$H_{433} = \langle it_x, it_z, it_z^{-1}, r_z^2, r_z^2 t_y^{-1} \rangle$	5	9	[[1, 0, 1], [0, 1, 0], [0, 0, 2]]
$H_{434} = \langle it_x, it_y^{-1}, it_z, it_z^{-1}, r_z^2 \rangle$	5	9	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{435} = \langle m_x r_z t_z^{-1}, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	5	10	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{436} = \langle m_x r_z t_x, r_z^2, r_z^2 t_z^{-1} \rangle$	5	10	[[1, 1, 0], [0, 2, 0], [0, 0, 1]]
$H_{437} = \langle m_x r_z t_x, m_x r_z t_z^{-1}, r_z^2 \rangle$	5	10	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{438} = \langle r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	5	13	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{439} = \langle r_y^2 r_z t_x, r_z^2, r_z^2 t_z^{-1} \rangle$	5	13	[[1, 1, 0], [0, 2, 0], [0, 0, 1]]
$H_{440} = \langle r_y^2 r_z t_x, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_z^2 \rangle$	5	13	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{441} = \langle m_x t_z^{-1}, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	5	14	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{442} = \langle m_x t_y^{-1}, r_z^2, r_z^2 t_x, r_z^2 t_z^{-1} \rangle$	5	14	[[1, 0, 0], [0, 2, 0], [0, 0, 1]]
$H_{443} = \langle m_x t_y^{-1}, m_x t_z^{-1}, r_z^2, r_z^2 t_x \rangle$	5	14	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{444} = \langle m_x t_x, m_x t_y^{-1}, r_z^2, r_z^2 t_z^{-1} \rangle$	5	14	[[1, 1, 0], [0, 2, 0], [0, 0, 1]]
$H_{445} = \langle m_x t_x, m_x t_y^{-1}, m_x t_z^{-1}, r_z^2 \rangle$	5	14	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{446} = \langle r_z^{-1} t_z^{-1}, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	5	15	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{447} = \langle r_z^{-1} t_x, r_z^2, r_z^2 t_z^{-1} \rangle$	5	15	[[1, 1, 0], [0, 2, 0], [0, 0, 1]]
$H_{448} = \langle r_z^{-1} t_x, r_z^{-1} t_z^{-1}, r_z^2 \rangle$	5	15	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{449} = \langle m_z r_z^{-1} t_z, m_z r_z^{-1} t_z^{-1}, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	5	16	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{450} = \langle m_z r_z^{-1} t_x, r_z^2, r_z^2 t_z^{-1} \rangle$	5	16	[[1, 1, 0], [0, 2, 0], [0, 0, 1]]
$H_{451} = \langle m_z r_z^{-1} t_x, m_z r_z^{-1} t_z, m_z r_z^{-1} t_z^{-1}, r_z^2 \rangle$	5	16	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{452} = \langle it_z^{-1}, r_y^2 r_z t_z, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	5	20	[[1, 0, 0], [0, 1, 0], [0, 0, 4]]
$H_{453} = \langle it_x, it_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_z^2 \rangle$	5	20	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{454} = \langle it_x, it_y^{-1}, m_x r_z t_z^{-1}, r_z^2 \rangle$	5	20	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{455} = \langle it_z, it_z^{-1}, r_y^2 r_z t_x, r_z^2 \rangle$	5	20	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{456} = \langle m_x r_z t_z^{-1}, r_y^2 r_z t_x, r_z^2 \rangle$	5	20	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{457} = \langle it_z, it_z^{-1}, m_x r_z t_x, r_z^2 \rangle$	5	20	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{458} = \langle m_x r_z t_x, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_z^2 \rangle$	5	20	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{459} = \langle it_z^{-1}, m_x r_z t_x, r_y^2 r_z t_z, r_z^2 \rangle$	5	20	[[1, 0, 2], [0, 1, 2], [0, 0, 4]]
$H_{460} = \langle it_z^{-1}, r_y^2 t_z, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	5	21	[[1, 0, 0], [0, 1, 0], [0, 0, 4]]

H	$H_{0,0,0}$	$P(H)$	Translation basis of H
$H_{461} = \langle it_z^{-1}, m_x t_y^{-1}, r_y^2 t_z, r_z^2, r_z^2 t_x \rangle$	5	21	[[1, 0, 0], [0, 1, 2], [0, 0, 4]]
$H_{462} = \langle it_x, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2, r_z^2 t_y^{-1} \rangle$	5	21	[[2, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{463} = \langle it_x, m_x t_z^{-1}, r_z^2, r_z^2 t_y^{-1} \rangle$	5	21	[[2, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{464} = \langle it_x, r_y^2 t_y^{-1}, r_z^2, r_z^2 t_z^{-1} \rangle$	5	21	[[2, 0, 0], [0, 2, 0], [0, 0, 1]]
$H_{465} = \langle it_x, m_x t_y^{-1}, r_z^2, r_z^2 t_z^{-1} \rangle$	5	21	[[2, 0, 0], [0, 2, 0], [0, 0, 1]]
$H_{466} = \langle it_z, it_z^{-1}, r_y^2 t_y^{-1}, r_z^2, r_z^2 t_x \rangle$	5	21	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{467} = \langle m_x t_z^{-1}, r_y^2 t_y^{-1}, r_z^2, r_z^2 t_x \rangle$	5	21	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{468} = \langle it_z, it_z^{-1}, m_x t_y^{-1}, r_z^2, r_z^2 t_x \rangle$	5	21	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{469} = \langle m_x t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2, r_z^2 t_x \rangle$	5	21	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{470} = \langle m_x t_y^{-1}, r_y^2 t_x, r_z^2, r_z^2 t_z^{-1} \rangle$	5	21	[[2, 0, 0], [0, 2, 0], [0, 0, 1]]
$H_{471} = \langle it_x, it_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2 \rangle$	5	21	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{472} = \langle it_x, it_y^{-1}, m_x t_z^{-1}, r_z^2 \rangle$	5	21	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{473} = \langle it_x, it_z, it_z^{-1}, r_y^2 t_y^{-1}, r_z^2 \rangle$	5	21	[[1, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{474} = \langle it_x, r_y^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2 \rangle$	5	21	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{475} = \langle it_x, it_z, it_z^{-1}, m_x t_y^{-1}, r_z^2 \rangle$	5	21	[[1, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{476} = \langle it_x, m_x t_y^{-1}, m_x t_z^{-1}, r_z^2 \rangle$	5	21	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{477} = \langle it_z, it_z^{-1}, r_y^2 t_x, r_y^2 t_y^{-1}, r_z^2 \rangle$	5	21	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{478} = \langle m_x t_z^{-1}, r_y^2 t_x, r_y^2 t_y^{-1}, r_z^2 \rangle$	5	21	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{479} = \langle m_x t_y^{-1}, r_y^2 t_x, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2 \rangle$	5	21	[[1, 0, 1], [0, 2, 0], [0, 0, 2]]
$H_{480} = \langle m_x t_y^{-1}, m_x t_z^{-1}, r_y^2 t_x, r_z^2 \rangle$	5	21	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{481} = \langle it_z, it_z^{-1}, m_x t_x, m_x t_y^{-1}, r_z^2 \rangle$	5	21	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{482} = \langle m_x t_x, m_x t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2 \rangle$	5	21	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{483} = \langle it_z^{-1}, m_x t_x, m_x t_y^{-1}, r_y^2 t_z, r_z^2 \rangle$	5	21	[[1, 0, 2], [0, 1, 2], [0, 0, 4]]
$H_{484} = \langle it_x, m_x t_z^{-1}, r_y^2 t_y^{-1}, r_z^2 \rangle$	5	21	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{485} = \langle it_x, m_x t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2 \rangle$	5	21	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{486} = \langle it_z, it_z^{-1}, m_x t_y^{-1}, r_y^2 t_x, r_z^2 \rangle$	5	21	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{487} = \langle it_z^{-1}, m_z r_z^{-1} t_z, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	5	22	[[1, 0, 0], [0, 1, 0], [0, 0, 4]]
$H_{488} = \langle it_x, it_y^{-1}, m_z r_z^{-1} t_z, m_z r_z^{-1} t_z^{-1}, r_z^2 \rangle$	5	22	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{489} = \langle it_x, it_y^{-1}, r_z^{-1} t_z^{-1}, r_z^2 \rangle$	5	22	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{490} = \langle it_z, it_z^{-1}, m_z r_z^{-1} t_x, r_z^2 \rangle$	5	22	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{491} = \langle m_z r_z^{-1} t_x, r_z^{-1} t_z^{-1}, r_z^2 \rangle$	5	22	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{492} = \langle it_z, it_z^{-1}, r_z^{-1} t_x, r_z^2 \rangle$	5	22	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{493} = \langle m_z r_z^{-1} t_z, m_z r_z^{-1} t_z^{-1}, r_z^{-1} t_x, r_z^2 \rangle$	5	22	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{494} = \langle it_z^{-1}, m_z r_z^{-1} t_z, r_z^{-1} t_x, r_z^2 \rangle$	5	22	[[1, 0, 2], [0, 1, 2], [0, 0, 4]]
$H_{495} = \langle m_z r_z^{-1} t_z, r_y^2 r_z t_z^{-1}, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	5	23	[[1, 0, 0], [0, 1, 0], [0, 0, 4]]
$H_{496} = \langle m_x t_x, m_x t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_z^2 \rangle$	5	23	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{497} = \langle m_x t_x, m_x t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z^{-1} t_z^{-1}, r_z^2 \rangle$	5	23	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{498} = \langle m_x t_z^{-1}, r_y^2 r_z t_x, r_z^2 \rangle$	5	23	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{499} = \langle m_z r_z^{-1} t_z, m_z r_z^{-1} t_z^{-1}, r_y^2 r_z t_x, r_z^2 \rangle$	5	23	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{500} = \langle m_x t_z^{-1}, m_z r_z^{-1} t_x, r_z^2 \rangle$	5	23	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{501} = \langle m_z r_z^{-1} t_x, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_z^2 \rangle$	5	23	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{502} = \langle m_x t_x, m_x t_y^{-1}, m_z r_z^{-1} t_z, r_y^2 r_z t_z^{-1}, r_z^2 \rangle$	5	23	[[1, 0, 2], [0, 1, 2], [0, 0, 4]]
$H_{503} = \langle r_y^2 r_z t_z, r_y^2 t_z^{-1}, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	5	24	[[1, 0, 0], [0, 1, 0], [0, 0, 4]]
$H_{504} = \langle r_x^2 r_y t_y^{-1}, r_z^2, r_z^2 t_x, r_z^2 t_z^{-1} \rangle$	5	24	[[1, 0, 0], [0, 4, 0], [0, 0, 1]]
$H_{505} = \langle r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_y^2 t_x, r_y^2 t_y^{-1}, r_z^2 \rangle$	5	24	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{506} = \langle r_y^2 t_x, r_y^2 t_y^{-1}, r_z^{-1} t_z^{-1}, r_z^2 \rangle$	5	24	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{507} = \langle r_y^2 r_z t_x, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2 \rangle$	5	24	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{508} = \langle r_y^2 r_z t_x, r_z^{-1} t_z^{-1}, r_z^2 \rangle$	5	24	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{509} = \langle r_y^2 t_z, r_y^2 t_z^{-1}, r_z^{-1} t_x, r_z^2 \rangle$	5	24	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{510} = \langle r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_z^{-1} t_x, r_z^2 \rangle$	5	24	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{511} = \langle r_y^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2, r_z^2 r_x t_x \rangle$	5	24	[[2, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{512} = \langle r_y^2 r_z t_z, r_y^2 t_z^{-1}, r_z^{-1} t_x, r_z^2 \rangle$	5	24	[[1, 0, 2], [0, 1, 2], [0, 0, 4]]
$H_{513} = \langle m_x r_z t_z^{-1}, m_x t_x, m_x t_y^{-1}, r_z^2 \rangle$	5	25	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{514} = \langle m_x t_x, m_x t_y^{-1}, r_z^{-1} t_z^{-1}, r_z^2 \rangle$	5	25	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{515} = \langle m_x r_z t_x, m_x t_z^{-1}, r_z^2 \rangle$	5	25	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{516} = \langle m_x r_z t_x, r_z^{-1} t_z^{-1}, r_z^2 \rangle$	5	25	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{517} = \langle m_x t_z^{-1}, r_z^{-1} t_x, r_z^2 \rangle$	5	25	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{518} = \langle m_x r_z t_z^{-1}, r_z^{-1} t_x, r_z^2 \rangle$	5	25	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{519} = \langle m_z r_z^{-1} t_z, r_y^2 t_z^{-1}, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	5	26	[[1, 0, 0], [0, 1, 0], [0, 0, 4]]
$H_{520} = \langle m_x r_z t_z^{-1}, r_y^2 t_x, r_y^2 t_y^{-1}, r_z^2 \rangle$	5	26	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{521} = \langle m_z r_z^{-1} t_z, m_z r_z^{-1} t_z^{-1}, r_y^2 t_x, r_y^2 t_y^{-1}, r_z^2 \rangle$	5	26	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{522} = \langle m_x r_z t_x, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2 \rangle$	5	26	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{523} = \langle m_x r_z t_x, m_z r_z^{-1} t_z, m_z r_z^{-1} t_z^{-1}, r_z^2 \rangle$	5	26	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{524} = \langle m_z r_z^{-1} t_x, r_y^2 t_z, r_y^2 t_z^{-1}, r_z^2 \rangle$	5	26	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{525} = \langle m_x r_z t_z^{-1}, m_z r_z^{-1} t_x, r_z^2 \rangle$	5	26	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{526} = \langle m_x r_z t_x, m_z r_z^{-1} t_z, r_y^2 t_z^{-1}, r_z^2 \rangle$	5	26	[[1, 0, 2], [0, 1, 2], [0, 0, 4]]
$H_{527} = \langle it_z^{-1}, m_x t_x, m_x t_y^{-1}, r_y^2 r_z t_z, r_z^2 \rangle$	5	29	[[1, 1, 0], [0, 2, 0], [0, 0, 4]]
$H_{528} = \langle it_z^{-1}, m_x t_x, m_x t_y^{-1}, m_z r_z^{-1} t_z, r_z^2 \rangle$	5	29	[[1, 1, 0], [0, 2, 0], [0, 0, 4]]

H	$H_{0,0,0}$	$P(H)$	Translation basis of H
$H_{529} = \langle m_x t_x, m_x t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}, r_z^2 \rangle$	5	29	[[1, 1, 0], [0, 2, 0], [0, 0, 4]]
$H_{530} = \langle m_x t_x, m_x t_y^{-1}, m_z r_z^{-1} t_z, r_y^2 t_z^{-1}, r_z^2 \rangle$	5	29	[[1, 1, 0], [0, 2, 0], [0, 0, 4]]
$H_{531} = \langle it_z^{-1}, m_x r_z t_x, r_y^2 t_z, r_z^2 \rangle$	5	29	[[1, 1, 0], [0, 2, 0], [0, 0, 4]]
$H_{532} = \langle it_z^{-1}, m_x r_z t_x, m_z r_z^{-1} t_z, r_z^2 \rangle$	5	29	[[1, 1, 0], [0, 2, 0], [0, 0, 4]]
$H_{533} = \langle m_x r_z t_x, r_y^2 r_z t_z, r_y^2 t_z^{-1}, r_z^2 \rangle$	5	29	[[1, 1, 0], [0, 2, 0], [0, 0, 4]]
$H_{534} = \langle m_x r_z t_x, m_z r_z^{-1} t_z, r_y^2 r_z t_z^{-1}, r_z^2 \rangle$	5	29	[[1, 1, 0], [0, 2, 0], [0, 0, 4]]
$H_{535} = \langle it_z^{-1}, r_y^2 t_z, r_z^{-1} t_x, r_z^2 \rangle$	5	29	[[1, 1, 0], [0, 2, 0], [0, 0, 4]]
$H_{536} = \langle it_z^{-1}, r_y^2 r_z t_z, r_z^{-1} t_x, r_z^2 \rangle$	5	29	[[1, 1, 0], [0, 2, 0], [0, 0, 4]]
$H_{537} = \langle m_z r_z^{-1} t_z, r_y^2 t_z^{-1}, r_z^{-1} t_x, r_z^2 \rangle$	5	29	[[1, 1, 0], [0, 2, 0], [0, 0, 4]]
$H_{538} = \langle m_z r_z^{-1} t_z, r_y^2 r_z t_z^{-1}, r_z^{-1} t_x, r_z^2 \rangle$	5	29	[[1, 1, 0], [0, 2, 0], [0, 0, 4]]
$H_{539} = \langle it_x, m_z r_z^{-1} t_z, r_y^2 r_z t_z^{-1}, r_y^2 t_y^{-1}, r_z^2 \rangle$	5	29	[[1, 1, 2], [0, 2, 0], [0, 0, 4]]
$H_{540} = \langle it_x, m_x t_z^{-1}, r_x^2 r_y t_y^{-1}, r_z^2 \rangle$	5	29	[[1, 2, 1], [0, 4, 0], [0, 0, 2]]
$H_{541} = \langle it_z, it_z^{-1}, m_x t_y^{-1}, r_z^2, r_z^2 r_x t_x \rangle$	5	29	[[2, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{542} = \langle m_z r_x, m_z r_x t_x, m_z r_x t_y^{-1} \rangle$	6	6	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{543} = \langle m_z r_x, m_z r_x t_y^{-1}, r_x^2 t_x \rangle$	6	10	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{544} = \langle m_z r_x, m_z r_x t_x, r_x^2 t_y^{-1}, r_x^2 t_z \rangle$	6	10	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{545} = \langle m_z r_x, r_x^2 t_x, r_x^2 t_y^{-1}, r_x^2 t_z \rangle$	6	10	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{546} = \langle m_z r_x, m_z r_x t_y^{-1}, r_y^2 r_x t_x, r_y^2 r_x t_x^{-1} \rangle$	6	11	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{547} = \langle m_z r_x, m_z r_x t_x, r_y^2 r_x t_y^{-1} \rangle$	6	11	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{548} = \langle m_z r_x, r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_y^2 r_x t_y^{-1} \rangle$	6	11	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{549} = \langle it_x, it_x^{-1}, m_z r_x, m_z r_x t_y^{-1} \rangle$	6	12	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{550} = \langle it_y^{-1}, it_z, m_z r_x, m_z r_x t_x \rangle$	6	12	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{551} = \langle it_x, it_x^{-1}, it_y^{-1}, it_z, m_z r_x \rangle$	6	12	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{552} = \langle it_x, m_z r_x, m_z r_x t_y^{-1}, r_y^2 r_x t_x^{-1} \rangle$	6	20	[[4, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{553} = \langle it_y^{-1}, m_z r_x, m_z r_x t_x, r_x^2 t_z \rangle$	6	20	[[1, 0, 0], [0, 1, 3], [0, 0, 4]]
$H_{554} = \langle it_x, it_x^{-1}, m_z r_x, r_y^2 r_x t_y^{-1} \rangle$	6	20	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{555} = \langle it_x, it_x^{-1}, m_z r_x, r_x^2 t_y^{-1}, r_x^2 t_z \rangle$	6	20	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{556} = \langle it_y^{-1}, it_z, m_z r_x, r_y^2 r_x t_x, r_y^2 r_x t_x^{-1} \rangle$	6	20	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{557} = \langle m_z r_x, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 r_x t_x, r_y^2 r_x t_x^{-1} \rangle$	6	20	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{558} = \langle it_y^{-1}, it_z, m_z r_x, r_x^2 t_x \rangle$	6	20	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{559} = \langle m_z r_x, r_x^2 t_x, r_y^2 r_x t_y^{-1} \rangle$	6	20	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{560} = \langle it_x, m_z r_x, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 r_x t_x^{-1} \rangle$	6	20	[[2, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{561} = \langle it_y^{-1}, m_z r_x, r_x^2 t_z, r_y^2 r_x t_x, r_y^2 r_x t_x^{-1} \rangle$	6	20	[[1, 0, 2], [0, 1, 3], [0, 0, 4]]
$H_{562} = \langle m_y t_y^{-1}, m_z r_x, m_z r_x t_x, r_x^{-1} t_z \rangle$	6	25	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{563} = \langle m_z r_x, m_z r_x t_x, r_x^{-1} t_y^{-1} \rangle$	6	25	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{564} = \langle m_y t_y^{-1}, m_z r_x, r_x^{-1} t_z, r_x^2 t_x \rangle$	6	25	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{565} = \langle m_z r_x, r_x^{-1} t_y^{-1}, r_x^2 t_x \rangle$	6	25	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{566} = \langle m_x r_x^{-1} t_z, m_z r_x, m_z r_x t_x, r_z^2 t_y^{-1} \rangle$	6	26	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{567} = \langle m_x r_x^{-1} t_y^{-1}, m_z r_x, m_z r_x t_x \rangle$	6	26	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{568} = \langle m_x r_x^{-1} t_z, m_z r_x, r_x^2 t_x, r_z^2 t_y^{-1} \rangle$	6	26	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{569} = \langle m_x r_x^{-1} t_y^{-1}, m_z r_x, r_x^2 t_x \rangle$	6	26	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{570} = \langle m_z r_x, m_z r_x t_x, r_x^{-1} t_z, r_z^2 t_y^{-1} \rangle$	6	29	[[1, 0, 0], [0, 2, 2], [0, 0, 4]]
$H_{571} = \langle m_z r_x, r_x^{-1} t_z, r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 t_y^{-1} \rangle$	6	29	[[1, 0, 2], [0, 2, 2], [0, 0, 4]]
$H_{572} = \langle it_x, it_x^{-1}, m_x r_x^{-1} t_z, m_z r_x, r_z^2 t_y^{-1} \rangle$	6	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{573} = \langle it_x, it_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_z r_x \rangle$	6	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{574} = \langle it_x, it_x^{-1}, m_y t_y^{-1}, m_z r_x, r_x^{-1} t_z \rangle$	6	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{575} = \langle it_x, it_x^{-1}, m_z r_x, r_x^{-1} t_y^{-1} \rangle$	6	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{576} = \langle m_x r_x^{-1} t_z, m_z r_x, r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 t_y^{-1} \rangle$	6	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{577} = \langle m_x r_x^{-1} t_y^{-1}, m_z r_x, r_y^2 r_x t_x, r_y^2 r_x t_x^{-1} \rangle$	6	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{578} = \langle m_y t_y^{-1}, m_z r_x, r_x^{-1} t_z, r_y^2 r_x t_x, r_y^2 r_x t_x^{-1} \rangle$	6	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{579} = \langle m_z r_x, r_x^{-1} t_y^{-1}, r_y^2 r_x t_x, r_y^2 r_x t_x^{-1} \rangle$	6	29	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{580} = \langle it_x, m_y t_y^{-1}, m_z r_x, r_x^{-1} t_z, r_y^2 r_x t_x^{-1} \rangle$	6	29	[[2, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{581} = \langle it_x, m_z r_x, r_x^{-1} t_y^{-1}, r_y^2 r_x t_x^{-1} \rangle$	6	29	[[2, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{582} = \langle r_y r_x, r_y^{-1} r_z^{-1} t_x \rangle$	7	7	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{583} = \langle it_x, it_x^{-1}, r_y r_x \rangle$	7	17	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{584} = \langle m_x r_y t_x, r_y r_x \rangle$	7	18	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{585} = \langle r_y r_x, r_z^2 r_x t_x, r_z^2 r_x t_x^{-1} \rangle$	7	19	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{586} = \langle r_y r_x, r_z^2 t_x, r_z^2 t_x^{-1} \rangle$	7	27	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{587} = \langle r_y r_x, r_y r_x^{-1} t_x \rangle$	7	27	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{588} = \langle it_x, r_y r_x, r_z^2 r_x t_x^{-1} \rangle$	7	28	[[1, 0, 3], [0, 1, 3], [0, 0, 4]]
$H_{589} = \langle m_x t_x, m_x t_x^{-1}, r_y r_x \rangle$	7	30	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{590} = \langle m_x r_y r_x t_x, r_y r_x \rangle$	7	30	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{591} = \langle m_z r_z^{-1} t_x, r_y r_x \rangle$	7	31	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{592} = \langle r_y r_x, r_y^2 r_x t_x, r_y^2 r_x t_x^{-1} \rangle$	7	32	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{593} = \langle m_x t_x^{-1}, r_y r_x, r_y^2 r_x t_x \rangle$	7	33	[[2, 0, 2], [0, 2, 2], [0, 0, 4]]
$H_{594} = \langle r_x^2, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	8	8	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{595} = \langle it_x, r_x^2, r_z^2, r_z^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	8	21	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{596} = \langle it_x, it_y^{-1}, r_x^2, r_z^2, r_z^2 t_z^{-1} \rangle$	8	21	[[1, 1, 0], [0, 2, 0], [0, 0, 1]]

H	$H_{0,0,0}$	$P(H)$	Translation basis of H
$H_{597} = \langle it_x, it_y^{-1}, it_z^{-1}, r_x^2, r_z^2 \rangle$	8	21	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{598} = \langle r_x^2, r_y^2 r_z t_z^{-1}, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	8	24	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{599} = \langle r_x^2, r_z^2, r_z^2 r_x t_y^{-1}, r_z^2 t_x \rangle$	8	24	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{600} = \langle r_x^2, r_z^2, r_z^2 r_x t_x, r_z^2 r_x t_y^{-1} \rangle$	8	24	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{601} = \langle m_x r_z t_z^{-1}, r_x^2, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	8	26	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{602} = \langle m_x r_x^{-1} t_y^{-1}, r_x^2, r_z^2, r_z^2 t_x \rangle$	8	26	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{603} = \langle m_x r_x^{-1} t_x, m_x r_x^{-1} t_y^{-1}, r_x^2, r_z^2 \rangle$	8	26	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{604} = \langle it_x, it_y^{-1}, r_x^2, r_y^2 r_z t_z^{-1}, r_z^2 \rangle$	8	29	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{605} = \langle it_x, it_y^{-1}, m_x r_z t_z^{-1}, r_x^2, r_z^2 \rangle$	8	29	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{606} = \langle it_x, r_x^2, r_z^2, r_z^2 r_x t_y^{-1} \rangle$	8	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{607} = \langle it_x, m_x r_x^{-1} t_y^{-1}, r_x^2, r_z^2 \rangle$	8	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{608} = \langle m_x r_x^{-1} t_y^{-1}, r_x^2, r_z^2, r_z^2 r_x t_x \rangle$	8	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{609} = \langle m_x r_x^{-1} t_x, r_x^2, r_z^2, r_z^2 r_x t_y^{-1} \rangle$	8	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{610} = \langle i, it_x, it_y^{-1}, it_z^{-1}, r_z^2 \rangle$	9	9	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{611} = \langle i, it_x, it_y^{-1}, r_y^2 r_z t_z^{-1}, r_z^2 \rangle$	9	20	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{612} = \langle i, it_z^{-1}, r_y^2 r_z t_x, r_z^2 \rangle$	9	20	[[1, 1, 0], [0, 2, 0], [0, 0, 1]]
$H_{613} = \langle i, r_y^2 r_z t_x, r_y^2 r_z t_z^{-1}, r_z^2 \rangle$	9	20	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{614} = \langle i, it_x, it_y^{-1}, r_y^2 t_z^{-1}, r_z^2 \rangle$	9	21	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{615} = \langle i, it_x, it_z^{-1}, r_y^2 t_y^{-1}, r_z^2 \rangle$	9	21	[[1, 0, 0], [0, 2, 0], [0, 0, 1]]
$H_{616} = \langle i, it_x, r_y^2 t_y^{-1}, r_y^2 t_z^{-1}, r_z^2 \rangle$	9	21	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{617} = \langle i, it_z^{-1}, r_y^2 t_x, r_y^2 t_y^{-1}, r_z^2 \rangle$	9	21	[[1, 1, 0], [0, 2, 0], [0, 0, 1]]
$H_{618} = \langle i, r_y^2 t_x, r_y^2 t_y^{-1}, r_y^2 t_z^{-1}, r_z^2 \rangle$	9	21	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{619} = \langle i, it_x, it_y^{-1}, m_z r_z^{-1} t_z^{-1}, r_z^2 \rangle$	9	22	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{620} = \langle i, it_z^{-1}, m_z r_z^{-1} t_x, r_z^2 \rangle$	9	22	[[1, 1, 0], [0, 2, 0], [0, 0, 1]]
$H_{621} = \langle i, m_z r_z^{-1} t_x, m_z r_z^{-1} t_z^{-1}, r_z^2 \rangle$	9	22	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{622} = \langle i, r_y^2 r_z t_z^{-1}, r_y^2 t_x, r_y^2 t_y^{-1}, r_z^2 \rangle$	9	29	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{623} = \langle i, m_z r_z^{-1} t_z^{-1}, r_y^2 t_x, r_y^2 t_y^{-1}, r_z^2 \rangle$	9	29	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{624} = \langle i, r_y^2 r_z t_x, r_y^2 t_z^{-1}, r_z^2 \rangle$	9	29	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{625} = \langle i, m_z r_z^{-1} t_z^{-1}, r_y^2 r_z t_x, r_z^2 \rangle$	9	29	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{626} = \langle i, m_z r_z^{-1} t_x, r_y^2 t_z^{-1}, r_z^2 \rangle$	9	29	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{627} = \langle i, m_z r_z^{-1} t_x, r_y^2 r_z t_z^{-1}, r_z^2 \rangle$	9	29	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{628} = \langle m_z r_x, r_x^2, r_x^2 t_x, r_x^2 t_y^{-1} \rangle$	10	10	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{629} = \langle it_x, it_x^{-1}, m_z r_x, r_x^2, r_x^2 t_y^{-1} \rangle$	10	20	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{630} = \langle it_y^{-1}, m_z r_x, r_x^2, r_x^2 t_x \rangle$	10	20	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{631} = \langle it_x, it_x^{-1}, it_y^{-1}, m_z r_x, r_x^2 \rangle$	10	20	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{632} = \langle m_y t_x, m_z r_x, r_x^2, r_x^2 t_y^{-1} \rangle$	10	25	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{633} = \langle m_y t_y^{-1}, m_z r_x, r_x^2, r_x^2 t_x \rangle$	10	25	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{634} = \langle m_y t_x, m_y t_y^{-1}, m_z r_x, r_x^2 \rangle$	10	25	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{635} = \langle m_z r_x, r_x^2, r_x^2 t_y^{-1}, r_z^2 t_x, r_z^2 t_x^{-1} \rangle$	10	26	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{636} = \langle m_z r_x, r_x^2, r_x^2 t_x, r_z^2 t_y^{-1} \rangle$	10	26	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{637} = \langle m_z r_x, r_x^2, r_z^2 t_x, r_z^2 t_x^{-1}, r_z^2 t_y^{-1} \rangle$	10	26	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{638} = \langle it_x, m_z r_x, r_x^2, r_x^2 t_y^{-1}, r_z^2 t_x^{-1} \rangle$	10	29	[[4, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{639} = \langle it_x, it_x^{-1}, m_z r_x, r_x^2, r_z^2 t_y^{-1} \rangle$	10	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{640} = \langle it_x, it_x^{-1}, m_y t_y^{-1}, m_z r_x, r_x^2 \rangle$	10	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{641} = \langle it_y^{-1}, m_z r_x, r_x^2, r_z^2 t_x, r_z^2 t_x^{-1} \rangle$	10	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{642} = \langle m_y t_y^{-1}, m_z r_x, r_x^2, r_z^2 t_x, r_z^2 t_x^{-1} \rangle$	10	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{643} = \langle it_y^{-1}, m_y t_x, m_z r_x, r_x^2 \rangle$	10	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{644} = \langle m_y t_x, m_z r_x, r_x^2, r_z^2 t_y^{-1} \rangle$	10	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{645} = \langle it_x, m_y t_y^{-1}, m_z r_x, r_x^2, r_z^2 t_x^{-1} \rangle$	10	29	[[2, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{646} = \langle m_x, m_z r_x, r_y^2 r_x t_x, r_y^2 r_x t_y^{-1} \rangle$	11	11	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{647} = \langle it_x, m_x, m_z r_x, r_y^2 r_x t_y^{-1} \rangle$	11	20	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{648} = \langle it_y^{-1}, it_z, m_x, m_z r_x, r_y^2 r_x t_x \rangle$	11	20	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{649} = \langle it_x, it_y^{-1}, it_z, m_x, m_z r_x \rangle$	11	20	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{650} = \langle m_x, m_x r_x^{-1} t_z, m_z r_x, r_y^2 r_x t_x, r_z^2 t_y^{-1} \rangle$	11	29	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{651} = \langle m_x, m_x r_x^{-1} t_y^{-1}, m_z r_x, r_y^2 r_x t_x \rangle$	11	29	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{652} = \langle it_x, m_x, m_x r_x^{-1} t_z, m_z r_x, r_z^2 t_y^{-1} \rangle$	11	29	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{653} = \langle it_x, m_x, m_x r_x^{-1} t_y^{-1}, m_z r_x \rangle$	11	29	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{654} = \langle i, it_x, it_y^{-1}, m_z r_x \rangle$	12	12	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{655} = \langle i, it_y^{-1}, m_z r_x, r_y^2 r_x t_x \rangle$	12	20	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{656} = \langle i, it_x, m_z r_x, r_y^2 r_x t_y^{-1} \rangle$	12	20	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{657} = \langle i, m_z r_x, r_y^2 r_x t_x, r_y^2 r_x t_y^{-1} \rangle$	12	20	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{658} = \langle i, it_x, m_z r_x, r_z^2 t_y^{-1} \rangle$	12	29	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{659} = \langle i, it_x, m_x r_x^{-1} t_y^{-1}, m_z r_x \rangle$	12	29	[[1, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{660} = \langle i, m_z r_x, r_y^2 r_x t_x, r_z^2 t_y^{-1} \rangle$	12	29	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{661} = \langle i, m_x r_x^{-1} t_y^{-1}, m_z r_x, r_y^2 r_x t_x \rangle$	12	29	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{662} = \langle r_x^2, r_z^2 r_x, r_z^2 r_x t_x, r_z^2 r_x t_y^{-1} \rangle$	13	13	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{663} = \langle it_x, r_x^2, r_z^2 r_x, r_z^2 r_x t_y^{-1} \rangle$	13	20	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]

H	$H_{0,0,0}$	$P(H)$	Translation basis of H
$H_{664} = \langle it_y^{-1}, r_x^2, r_z^2 r_x, r_z^2 r_x t_x \rangle$	13	20	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{665} = \langle it_x, it_y^{-1}, r_x^2, r_z^2 r_x \rangle$	13	20	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{666} = \langle m_x r_x^{-1} t_x, r_x^2, r_z^2 r_x, r_z^2 r_x t_y^{-1} \rangle$	13	23	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{667} = \langle m_x r_x^{-1} t_y^{-1}, r_x^2, r_z^2 r_x, r_z^2 r_x t_x \rangle$	13	23	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{668} = \langle m_x r_x^{-1} t_x, m_x r_x^{-1} t_y^{-1}, r_x^2, r_z^2 r_x \rangle$	13	23	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{669} = \langle r_x^2, r_z^2 r_x, r_z^2 r_x t_y^{-1}, r_z^2 t_x \rangle$	13	24	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{670} = \langle r_x^2, r_z^2 r_x, r_z^2 r_x t_x, r_z^2 t_y^{-1} \rangle$	13	24	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{671} = \langle r_x^2, r_z^2 r_x, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	13	24	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{672} = \langle it_x, r_x^2, r_z^2 r_x, r_z^2 t_y^{-1} \rangle$	13	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{673} = \langle it_x, m_x r_x^{-1} t_y^{-1}, r_x^2, r_z^2 r_x \rangle$	13	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{674} = \langle it_y^{-1}, r_x^2, r_z^2 r_x, r_z^2 t_x \rangle$	13	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{675} = \langle m_x r_x^{-1} t_y^{-1}, r_x^2, r_z^2 r_x, r_z^2 t_x \rangle$	13	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{676} = \langle it_y^{-1}, m_x r_x^{-1} t_x, r_x^2, r_z^2 r_x \rangle$	13	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{677} = \langle m_x r_x^{-1} t_x, r_x^2, r_z^2 r_x, r_z^2 t_y^{-1} \rangle$	13	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{678} = \langle m_x, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	14	14	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{679} = \langle it_x, m_x, r_z^2, r_z^2 t_y^{-1}, r_z^2 t_z^{-1} \rangle$	14	21	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{680} = \langle it_z, it_z^{-1}, m_x, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	14	21	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{681} = \langle it_x, it_y^{-1}, m_x, r_z^2, r_z^2 t_z^{-1} \rangle$	14	21	[[1, 1, 0], [0, 2, 0], [0, 0, 1]]
$H_{682} = \langle it_x, it_z, it_z^{-1}, m_x, r_z^2, r_z^2 t_y^{-1} \rangle$	14	21	[[1, 0, 1], [0, 1, 0], [0, 0, 2]]
$H_{683} = \langle it_x, it_y^{-1}, it_z, it_z^{-1}, m_x, r_z^2 \rangle$	14	21	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{684} = \langle m_x, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	14	23	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{685} = \langle m_x, r_y^2 r_z t_x, r_z^2, r_z^2 t_z^{-1} \rangle$	14	23	[[1, 1, 0], [0, 2, 0], [0, 0, 1]]
$H_{686} = \langle m_x, r_y^2 r_z t_x, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_z^2 \rangle$	14	23	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{687} = \langle m_x, m_x r_z t_z^{-1}, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	14	25	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{688} = \langle m_x, m_x r_z t_x, r_z^2, r_z^2 t_z^{-1} \rangle$	14	25	[[1, 1, 0], [0, 2, 0], [0, 0, 1]]
$H_{689} = \langle m_x, m_x r_z t_x, m_x r_z t_z^{-1}, r_z^2 \rangle$	14	25	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{690} = \langle it_z^{-1}, m_x, r_y^2 r_z t_z, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	14	29	[[1, 0, 0], [0, 1, 0], [0, 0, 4]]
$H_{691} = \langle it_x, it_y^{-1}, m_x, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_z^2 \rangle$	14	29	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{692} = \langle it_x, it_y^{-1}, m_x, m_x r_z t_z^{-1}, r_z^2 \rangle$	14	29	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{693} = \langle it_z, it_z^{-1}, m_x, r_y^2 r_z t_x, r_z^2 \rangle$	14	29	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{694} = \langle m_x, m_x r_z t_z^{-1}, r_y^2 r_z t_x, r_z^2 \rangle$	14	29	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{695} = \langle it_z, it_z^{-1}, m_x, m_x r_z t_x, r_z^2 \rangle$	14	29	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{696} = \langle m_x, m_x r_z t_x, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_z^2 \rangle$	14	29	[[1, 1, 0], [0, 2, 0], [0, 0, 2]]
$H_{697} = \langle it_z^{-1}, m_x, m_x r_z t_x, r_y^2 r_z t_z, r_z^2 \rangle$	14	29	[[1, 0, 2], [0, 1, 2], [0, 0, 4]]
$H_{698} = \langle r_x^{-1}, r_x^2, r_x^2 t_x, r_x^2 t_y^{-1} \rangle$	15	15	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{699} = \langle it_x, it_x^{-1}, r_x^{-1}, r_x^2, r_x^2 t_y^{-1} \rangle$	15	22	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{700} = \langle it_y^{-1}, r_x^{-1}, r_x^2, r_x^2 t_x \rangle$	15	22	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{701} = \langle it_x, it_x^{-1}, it_y^{-1}, r_x^{-1}, r_x^2 \rangle$	15	22	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{702} = \langle r_x^{-1}, r_x^2, r_x^2 t_y^{-1}, r_z^2 t_x, r_z^2 t_x^{-1} \rangle$	15	24	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{703} = \langle r_x^{-1}, r_x^2, r_x^2 t_x, r_z^2 t_y^{-1} \rangle$	15	24	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{704} = \langle r_x^{-1}, r_x^2, r_z^2 t_x, r_z^2 t_x^{-1}, r_z^2 t_y^{-1} \rangle$	15	24	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{705} = \langle m_y t_x, r_x^{-1}, r_x^2, r_x^2 t_y^{-1} \rangle$	15	25	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{706} = \langle m_y t_y^{-1}, r_x^{-1}, r_x^2, r_x^2 t_x \rangle$	15	25	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{707} = \langle m_y t_x, m_y t_y^{-1}, r_x^{-1}, r_x^2 \rangle$	15	25	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{708} = \langle it_x, r_x^{-1}, r_x^2, r_x^2 t_y^{-1}, r_z^2 t_x^{-1} \rangle$	15	29	[[4, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{709} = \langle it_x, it_x^{-1}, r_x^{-1}, r_x^2, r_z^2 t_y^{-1} \rangle$	15	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{710} = \langle it_x, it_x^{-1}, m_y t_y^{-1}, r_x^{-1}, r_x^2 \rangle$	15	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{711} = \langle it_y^{-1}, r_x^{-1}, r_x^2, r_z^2 t_x, r_z^2 t_x^{-1} \rangle$	15	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{712} = \langle m_y t_y^{-1}, r_x^{-1}, r_x^2, r_z^2 t_x, r_z^2 t_x^{-1} \rangle$	15	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{713} = \langle it_y^{-1}, m_y t_x, r_x^{-1}, r_x^2 \rangle$	15	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{714} = \langle m_y t_x, r_x^{-1}, r_x^2, r_z^2 t_y^{-1} \rangle$	15	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{715} = \langle it_x, m_y t_y^{-1}, r_x^{-1}, r_x^2, r_z^2 t_x^{-1} \rangle$	15	29	[[2, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{716} = \langle m_x r_x, m_x r_x^{-1} t_x, m_x r_x^{-1} t_y^{-1}, r_x^2 \rangle$	16	16	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{717} = \langle it_x, m_x r_x, m_x r_x^{-1} t_y^{-1}, r_x^2 \rangle$	16	22	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{718} = \langle it_y^{-1}, m_x r_x, m_x r_x^{-1} t_x, r_x^2 \rangle$	16	22	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{719} = \langle it_x, it_y^{-1}, m_x r_x, r_x^2 \rangle$	16	22	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{720} = \langle m_x r_x, m_x r_x^{-1} t_y^{-1}, r_x^2, r_z^2 r_x t_x \rangle$	16	23	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{721} = \langle m_x r_x, m_x r_x^{-1} t_x, r_x^2, r_z^2 r_x t_y^{-1} \rangle$	16	23	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{722} = \langle m_x r_x, r_x^2, r_z^2 r_x t_x, r_z^2 r_x t_y^{-1} \rangle$	16	23	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{723} = \langle m_x r_x, m_x r_x^{-1} t_y^{-1}, r_x^2, r_z^2 t_x \rangle$	16	26	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{724} = \langle m_x r_x, m_x r_x^{-1} t_x, r_x^2, r_z^2 t_y^{-1} \rangle$	16	26	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{725} = \langle m_x r_x, r_x^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	16	26	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{726} = \langle it_x, m_x r_x, r_x^2, r_z^2 t_y^{-1} \rangle$	16	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{727} = \langle it_x, m_x r_x, r_x^2, r_z^2 r_x t_y^{-1} \rangle$	16	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{728} = \langle it_y^{-1}, m_x r_x, r_x^2, r_z^2 t_x \rangle$	16	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{729} = \langle m_x r_x, r_x^2, r_z^2 r_x t_y^{-1}, r_z^2 t_x \rangle$	16	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{730} = \langle it_y^{-1}, m_x r_x, r_x^2, r_z^2 r_x t_x \rangle$	16	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]

H	$H_{0,0,0}$	$P(H)$	Translation basis of H
$H_{731} = \langle m_x r_x, r_x^2, r_z^2 r_x t_x, r_z^2 t_y^{-1} \rangle$	16	29	[[2, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{732} = \langle i, it_x, r_y r_x \rangle$	17	17	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{733} = \langle i, r_y r_x, r_z^2 r_x t_x \rangle$	17	28	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{734} = \langle i, r_y r_x, r_z^2 t_x \rangle$	17	30	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{735} = \langle i, m_x t_x, r_y r_x \rangle$	17	30	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{736} = \langle i, r_y r_x, r_y^2 r_x t_x \rangle$	17	33	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{737} = \langle m_x r_y t_x, m_z r_x, r_y r_x \rangle$	18	18	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{738} = \langle it_x, it_x^{-1}, m_z r_x, r_y r_x \rangle$	18	28	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{739} = \langle m_z r_x, r_y r_x, r_y r_x^{-1} t_x \rangle$	18	31	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{740} = \langle m_z r_x, r_y r_x, r_y^2 r_x t_x, r_y^2 r_x t_x^{-1} \rangle$	18	33	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{741} = \langle r_y r_x, r_z^2 r_x, r_z^2 r_x t_x \rangle$	19	19	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{742} = \langle it_x, r_y r_x, r_z^2 r_x \rangle$	19	28	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{743} = \langle r_y r_x, r_y^2 r_x t_x, r_z^2 r_x \rangle$	19	32	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{744} = \langle m_x t_x, r_y r_x, r_z^2 r_x \rangle$	19	33	[[2, 0, 0], [0, 2, 0], [0, 0, 2]]
$H_{745} = \langle i, it_x, it_y^{-1}, m_z r_x, r_x^2 \rangle$	20	20	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{746} = \langle i, it_y^{-1}, m_z r_x, r_x^2, r_z^2 t_x \rangle$	20	29	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{747} = \langle i, it_x, m_z r_x, r_x^2, r_z^2 t_y^{-1} \rangle$	20	29	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{748} = \langle i, m_z r_x, r_x^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	20	29	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{749} = \langle i, it_x, it_y^{-1}, it_z^{-1}, r_x^2, r_z^2 \rangle$	21	21	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{750} = \langle i, it_x, it_y^{-1}, r_x^2, r_y^2 r_z t_z^{-1}, r_z^2 \rangle$	21	29	[[1, 0, 0], [0, 1, 0], [0, 0, 2]]
$H_{751} = \langle i, it_x, r_x^2, r_z^2, r_z^2 r_x t_y^{-1} \rangle$	21	29	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{752} = \langle i, r_x^2, r_z^2, r_z^2 r_x t_x, r_z^2 r_x t_y^{-1} \rangle$	21	29	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{753} = \langle i, it_x, it_y^{-1}, m_x r_x, r_x^2 \rangle$	22	22	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{754} = \langle i, it_y^{-1}, m_x r_x, r_x^2, r_z^2 t_x \rangle$	22	29	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{755} = \langle i, it_x, m_x r_x, r_x^2, r_z^2 t_y^{-1} \rangle$	22	29	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{756} = \langle i, m_x r_x, r_x^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	22	29	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{757} = \langle m_x r_x, m_z, r_x^2, r_z^2 r_x t_x, r_z^2 r_x t_y^{-1} \rangle$	23	23	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{758} = \langle it_x, m_x r_x, m_z, r_x^2, r_z^2 r_x t_y^{-1} \rangle$	23	29	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{759} = \langle it_y^{-1}, m_x r_x, m_z, r_x^2, r_z^2 r_x t_x \rangle$	23	29	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{760} = \langle it_x, it_y^{-1}, m_x r_x, m_z, r_x^2 \rangle$	23	29	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{761} = \langle r_x^2, r_z^2, r_z^2 r_x, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	24	24	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{762} = \langle it_x, r_x^2, r_z^2, r_z^2 r_x, r_z^2 t_y^{-1} \rangle$	24	29	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{763} = \langle it_y^{-1}, r_x^2, r_z^2, r_z^2 r_x, r_z^2 t_x \rangle$	24	29	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{764} = \langle it_x, it_y^{-1}, r_x^2, r_z^2, r_z^2 r_x \rangle$	24	29	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{765} = \langle m_z, m_z r_x, r_x^2, r_x^2 t_x, r_x^2 t_y^{-1} \rangle$	25	25	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{766} = \langle it_x, it_x^{-1}, m_z, m_z r_x, r_x^2, r_x^2 t_y^{-1} \rangle$	25	29	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{767} = \langle it_y^{-1}, m_z, m_z r_x, r_x^2, r_x^2 t_x \rangle$	25	29	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{768} = \langle it_x, it_x^{-1}, it_y^{-1}, m_z, m_z r_x, r_x^2 \rangle$	25	29	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{769} = \langle m_z r_x, r_x^2, r_z^2, r_z^2 t_x, r_z^2 t_y^{-1} \rangle$	26	26	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{770} = \langle it_x, m_z r_x, r_x^2, r_z^2, r_z^2 t_y^{-1} \rangle$	26	29	[[2, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{771} = \langle it_y^{-1}, m_z r_x, r_x^2, r_z^2, r_z^2 t_x \rangle$	26	29	[[1, 0, 0], [0, 1, 1], [0, 0, 2]]
$H_{772} = \langle it_x, it_y^{-1}, m_z r_x, r_x^2, r_z^2 \rangle$	26	29	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{773} = \langle r_x^2, r_y r_x, r_z^2, r_z^2 t_x \rangle$	27	27	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{774} = \langle it_x, r_x^2, r_y r_x, r_z^2 \rangle$	27	30	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{775} = \langle m_x r_x^{-1} t_x, r_x^2, r_y r_x, r_z^2 \rangle$	27	31	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{776} = \langle r_x^2, r_y r_x, r_z^2, r_z^2 r_x t_x \rangle$	27	32	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{777} = \langle i, it_x, m_z r_x, r_y r_x \rangle$	28	28	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{778} = \langle i, m_z r_x, r_y r_x, r_y^2 r_x t_x \rangle$	28	33	[[1, 1, 1], [0, 2, 0], [0, 0, 2]]
$H_{779} = \langle i, it_x, it_y^{-1}, m_z r_x, r_x^2, r_z^2 \rangle$	29	29	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{780} = \langle i, it_x, r_x^2, r_y r_x, r_z^2 \rangle$	30	30	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{781} = \langle i, r_x^2, r_y r_x, r_z^2, r_z^2 r_x t_x \rangle$	30	33	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{782} = \langle m_z r_x, r_x^2, r_y r_x, r_z^2, r_z^2 t_x \rangle$	31	31	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{783} = \langle it_x, m_z r_x, r_x^2, r_y r_x, r_z^2 \rangle$	31	33	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{784} = \langle r_x^2, r_y r_x, r_z^2, r_z^2 r_x, r_z^2 t_x \rangle$	32	32	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]
$H_{785} = \langle it_x, r_x^2, r_y r_x, r_z^2, r_z^2 r_x \rangle$	32	33	[[1, 0, 1], [0, 1, 1], [0, 0, 2]]
$H_{786} = \langle i, it_x, m_z r_x, r_x^2, r_y r_x, r_z^2 \rangle$	33	33	[[1, 0, 0], [0, 1, 0], [0, 0, 1]]

According to [5], we say that the realization $R = (\Gamma, G, \sigma, \varphi)$ of symmetrical 2-extension of Λ^3 *satisfies the* $[p_x, p_y, p_z]$*-periodicity condition*, where p_x, p_y, p_z are positive integers, if there exist $g_1, g_2, g_3 \in \mathrm{A}ut_\sigma(\Gamma)$ such that $[g_1, g_2] = 1, [g_2, g_3] = 1, [g_1, g_3] = 1$ and $\varphi g_1^\sigma \varphi^{-1} = t_x^{p_x}$, $\varphi g_2^\sigma \varphi^{-1} = t_y^{p_y}$, $\varphi g_3^\sigma \varphi^{-1} = t_z^{p_z}$.

3 Main result

We have done a computer implementation of the proposed in [7] approach, which can be called a coordinatization of symmetrical extensions of graphs. According to it, the realization of symmetrical 2-extension of the grid Λ^3 of class I can be defined by a triple H, L, X, where H is a vertex-transitive subgroup of $\mathrm{Aut}(\Lambda^3)$, L is subgroup of index 2 of the stabilizer of the vertex $(0,0,0)$ in H, and X is some subset of elements of H mapping the vertex $(0,0,0)$ of Λ^3 to some its adjacent vertices (see [3]for details).

Below we give adaptations of Algorithm 1 and Algorithm 2 from [3] to Λ^3:

Algorithm 1. *Generation of all saturated realizations of symmetrical 2-extensions of* Λ^3.
Output: *A list of realizations* $R_{H_i,L_i,\mathcal{P}_i}$, $i = 1, ..., n$.

Description. Look over all groups H from $\mathbf{H}_{\mathrm{I}}$. For each such group let $K = H_{(0,0)}$. Choose elements $h_1, ..., h_6 \in H$ such that $\{h_1(0,0,0), ..., h_6(0,0,0)\} = \{(1,0,0), (-1,0,0), (0,1,0), (0,-1,0), (0,0,1), (0,0,-1)\}$. Look over all subgroups L of K of index 2. For each such group L, choose $g \in K$, such that $K = L \cup gL$. Look over all subsets N of the set $\{h_1L, ..., h_6L, h_1gL, ..., h_6gL\}$ such that N is invariant relative left multiplication by elements from L and such that $hL \in N$ imply $h^{-1}L \in N$. For each of such set N let $\mathcal{P} = \{\{L, gL\} \cup \{\{L, L_1\} : L_1 \in N\}\}$ and we obtain the graph $\Gamma_{H,L,\mathcal{P}}$. If between the block $\{L, gL\}$ and the blocks $\{h_jL, h_jgL\}$, $j = 1, ..., 6$, there are connections of a type non-equal to $2_{||}$ or 4, then the realization $(\Gamma_{H,L,\mathcal{P}}, \lambda_{H/L}(H), \sigma_{H,K,L}, \tilde{\varphi}_{H,K,L})$ is of type I, and we put it into the output list.

Let $R_{H_i,L_i,\mathcal{P}_i}$, $i = 1, 2$, be two realizations generated by the Algorithm 1. Further we describe an algorithm which tests them for equivalency. Let $K_i = (H_i)_{(0,0)}$ for $i = 1, 2$. Sets of cosets H_1/K_1 and H_2/K_2 are essentially identified with the grid Λ^2. If the realizations are equivalent, then there exists an isomorphism ψ between them which preserves blocks, and therefore, can be extended to some automorphism $g \in \mathrm{Aut}(\Lambda^2)$. Vertex symmetry of the extension $\Gamma_{H_2,L_2,\mathcal{P}_2}$ implies that ψ can be multiplied by some automorphism of the extension $\Gamma_{H_2,L_2,\mathcal{P}_2}$, which preserves blocks, in such a way that the resulting isomorphism between $\Gamma_{H_1,L_1,\mathcal{P}_1}$ and $\Gamma_{H_2,L_2,\mathcal{P}_2}$, while mapping H_1/K_1 onto H_2/K_2, will give some element $\tilde{g}$ already from $\mathrm{Aut}(\Lambda^2)_{(0,0)}$. An element $\tilde{g}$ takes one of 48 possible values. Algorithm 2, described below, allows to check whether two realizations are equivalent or not, under the assumption that $\tilde{g} = 1$. In general case, to test two realizations $R_{H_i,L_i,\mathcal{P}_i}$, $i = 1, 2$, for equivalency we must look over all $\tilde{g} \in \mathrm{Aut}(\Lambda^2)_{(0,0)}$, and for each $\tilde{g}$ execute algorithm 2 to check realizations $R_{H_1,L_1,\mathcal{P}_1}$ and $\tilde{g}^{-1}(R_{H_2,L_2,\mathcal{P}_2})$ for equivalence.

Algorithm 2. *Test two realizations for equivalency, under assumption* $\tilde{g} = 1$.
Input: *Realizations* $R_{H_i,L_i,\mathcal{P}_i} = (\Gamma_{H_i,L_i,\mathcal{P}_i}, G_i, \sigma_i, \varphi_i)$, $i = 1, 2$.
Output: *Test result ('yes' or 'no').*

Description. Let (n_1, n_2, n_3) be the lexicographically minimal triple of positive integers such that both implementations satisfy the condition $[n_1, n_2]$ - periodicity.

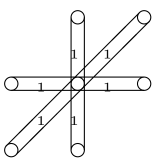
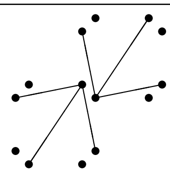
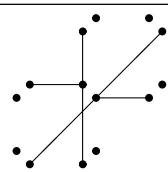
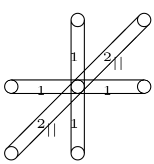
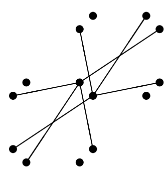
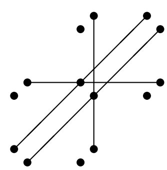
Let F_i, $i = 1, 2$, be a subgraph of $\Gamma_{H_i,L_i,\mathcal{P}_i}$ generated by the vertex set $\varphi_i^{-1}(0,0,0) \cup ... \cup \varphi_i^{-1}(n_1-1,0,0) \cup ... \cup \varphi_i^{-1}(0,n_2-1,0) \cup ... \cup \varphi_i^{-1}(n_1-1,n_2-1,0) \cup ... \cup \varphi_i^{-1}(0,0,n_3-1) \cup ... \cup \varphi_i^{-1}(n_1-1,0,n_3-1) \cup ... \cup \varphi_i^{-1}(0,n_2-1,n_3-1) \cup ... \cup \varphi_i^{-1}(n_1-1,n_2-1,n_3-1)$ of Λ^3. Comparing the blocks $\varphi_1^{-1}(k,l,m)$ and $\varphi_2^{-1}(k,l,m)$ for all $k \in \{0, ..., n_1\}, l \in \{0, ..., n_2\}, m \in \{0, ..., n_3\}$, we can construct $2^{n_1 n_2 n_3}$ correspondences of the vertices of the subgraphs F_1 and F_2. If among them there is a correspondence defining an isomorphism of the subgraphs F_1 and F_2 with additional matching on the boundary, so that this correspondence in periodicity can be extended to an isomorphism of the graphs $\Gamma_{H_i,L_i,\mathcal{P}_i}$, $i = 1, 2$, then these realizations are equivalent, and if not, then nonequivalent. Looking over $2^{n_1 n_2 n_3}$ correspondences of the vertices of subgraphs is accelerated by using a backtracking.

We applied these algorithms and get the following results. A list of saturated realizations generated by Algorithm 1 and thinned out by Algorithm 2, contains 2872 realizations given in Table 4 below. When executing Algorithm 2, the realization with maximal by inclusion group H_i was selected in each class of equivalent realizations. Due to this, the realizations in the resulting list are maximal.

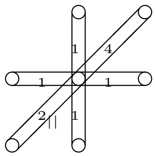
We split the set of all realizations of the symmetrical 2-extensions of Λ^3 of the class I into subclasses defined by the types of connections in the neighborhood of vertex. In the first column of Table 3 below, we give all occurring combinations of connection types in the neighborhood of vertex (59 combinations). Combinations are of the form $x_1x_2\_y_1y_2\_z_1z_2$, where x_1 is the type of the first connection by the first direction (the grid Λ^3, and therefore a 2-extension, has three directions along coordinate axes), x_2 is the type of the second connection by the first direction, y_1 is the type of the first connection by the second direction, y_2 is the type of the second connection by the second direction, z_1 is the type of the first connection by the third direction, z_2 is the type of the second connection by the third direction. Here, for each extension, the numbering of directions and connections within the direction is performed so that the combination turned out to be lexicographically minimal. In the pictures of combinations in the first column of Table 3 the first direction is shown horizontally (first connection to the left, second to the right), the second direction is shown vertically (bottom connection is first, top connection is second), the third direction is shown diagonally (bottom-left connection is first, top-right connection is second). For each combination of connection types, the remaining columns in Table 3 contain pictures of all found corresponding extensions of vertex neighborhood up to equivalence. In these pictures, the edges in blocks are not shown because we use these types of vertex neighborhood both for saturated and non-saturated realizations.

Table 3

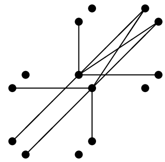
Vertex neighborhood extensions for
2-extensions of Λ^3 of class I

Connection types	Vertex neighborhood extensions	
 11_11_11	 1A	 1B
 $11\_11\_2_{\|\|}2_{\|\|}$	 2A	 2B

Connection types | Vertex neighborhood extensions



11_11_2$_{||}$4



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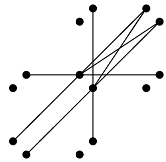
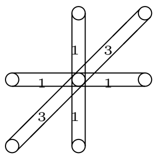
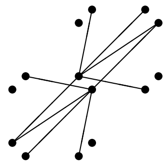


3B



11_11_33



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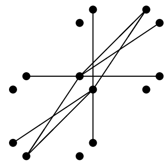

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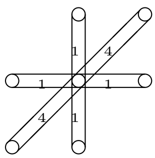

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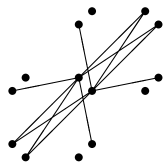
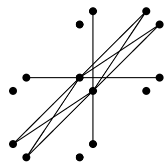
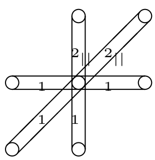


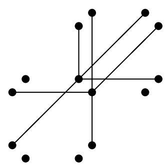
5A



5B



11_12$_{||}$_12$_{||}$



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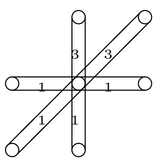
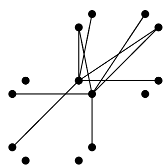
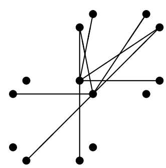


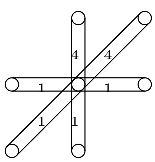
11_13_13



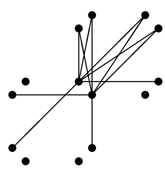
7A



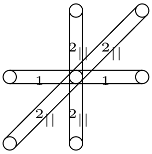
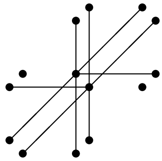
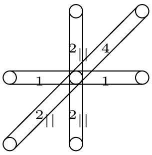
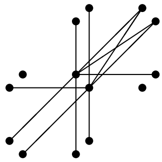
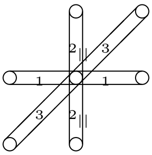
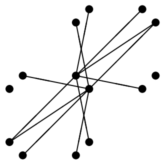
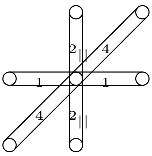
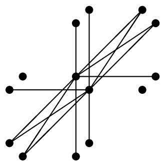
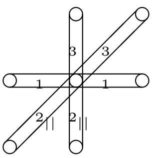
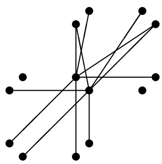
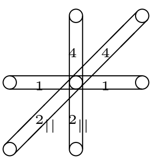
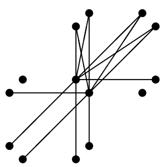
7B

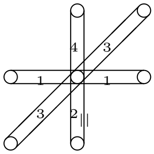
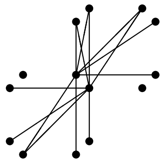
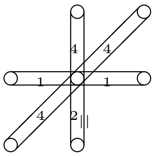
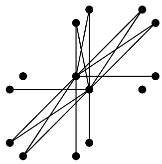
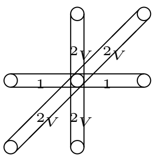
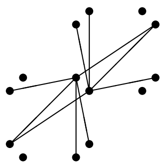
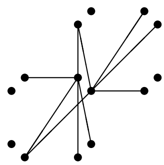
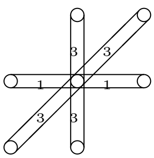
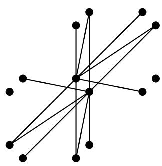
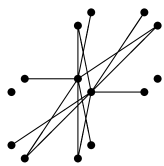
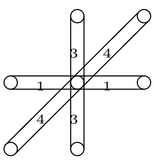
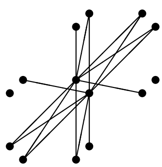
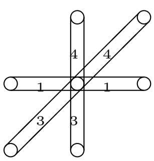
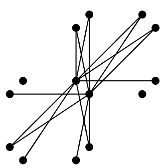


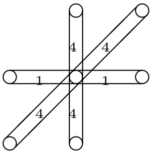
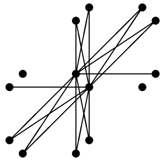
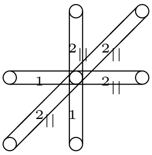
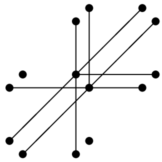
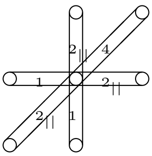
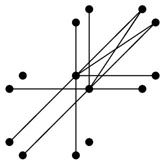
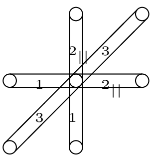
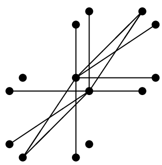
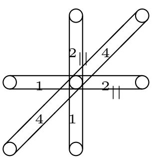
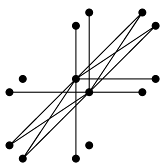
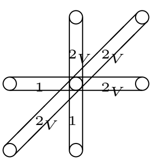
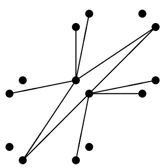
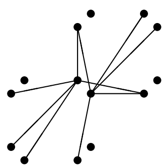
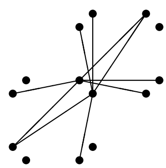
11_14_14

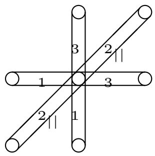
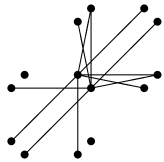
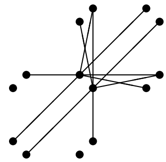
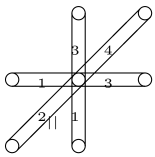
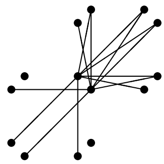
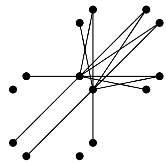
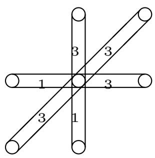
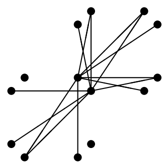
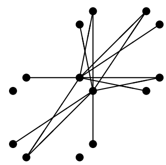
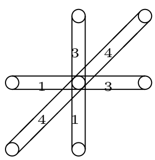
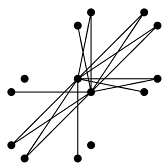
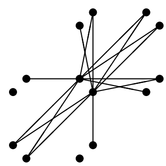
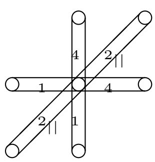
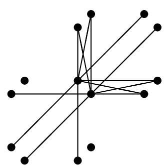
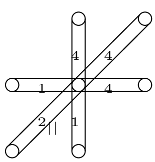
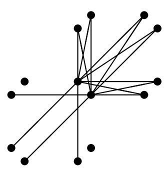


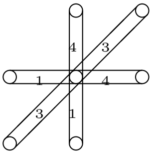
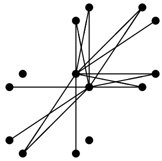
8

Connection types	Vertex neighborhood extensions
 $11\_2_{\|\|}2_{\|\|}\_2_{\|\|}2_{\|\|}$	 9
 $11\_2_{\|\|}2_{\|\|}\_2_{\|\|}4$	 10
 $11\_2_{\|\|}2_{\|\|}\_33$	 11
 $11\_2_{\|\|}2_{\|\|}\_44$	 12
 $11\_2_{\|\|}3\_2_{\|\|}3$	 13
 $11\_2_{\|\|}4\_2_{\|\|}4$	 14

Connection types	Vertex neighborhood extensions	
 $11\_2_{\vert\vert}4\_33$	 15	
 $11\_2_{\vert\vert}4\_44$	 16	
 $11\_2_V2_V\_2_V2_V$	 17A	 17B
 11_33_33	 18A	 18B
 11_33_44	 19	
 11_34_34	 20	

Connection types	Vertex neighborhood extensions		
 11_44_44	 21		
 $12_{\|\|}\_12_{\|\|}\_2_{\|\|}2_{\|\|}$	 22		
 $12_{\|\|}\_12_{\|\|}\_2_{\|\|}4$	 23		
 $12_{\|\|}\_12_{\|\|}\_33$	 24		
 $12_{\|\|}\_12_{\|\|}\_44$	 25		
 $12_V\_12_V\_2_V2_V$	 26A	 26B	 26C

Connection types	Vertex neighborhood extensions	
 $13\_13\_2_{\|\|}2_{\|\|}$	 27A	 27B
 $13\_13\_2_{\|\|}4$	 28A	 28B
 13_13_33	 29A	 29B
 13_13_44	 30A	 30B
 $14\_14\_2_{\|\|}2_{\|\|}$	 31	
 $14\_14\_2_{\|\|}4$	 32	

Connection types	Vertex neighborhood extensions	
		
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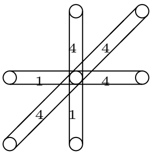	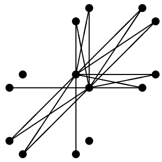	
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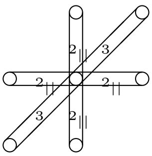
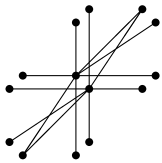
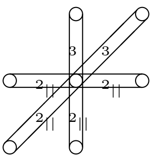
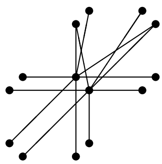
		
$2_{\|\|}2_{\|\|}\_2_{\|\|}2_{\|\|}\_33$	35	
		
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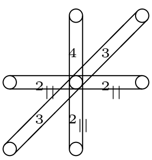
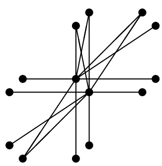
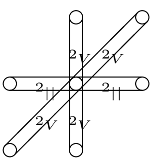
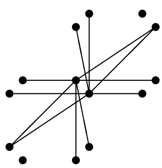
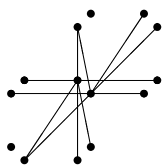
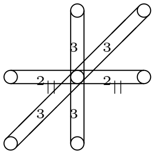
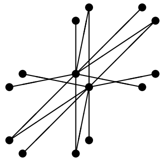
		
$2_{\|\|}2_{\|\|}\_2_{\|\|}4\_33$	37	
		
$2_{\|\|}2_{\|\|}\_2_V2_V\_2_V2_V$	38A	38B

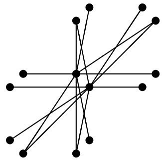
Connection types — Vertex neighborhood extensions



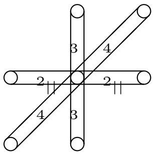
$2_{||}2_{||}$_33_33



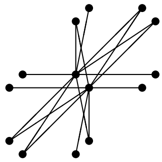
39A



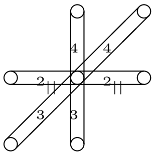
39B



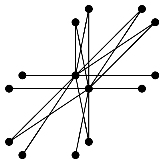
$2_{||}2_{||}$_33_44



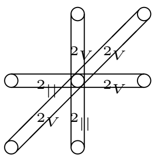
40



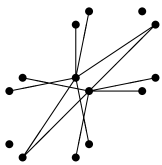
$2_{||}2_{||}$_34_34



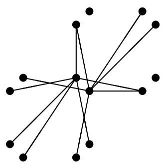
41



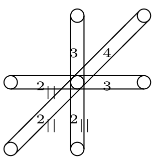
$2_{||}2_V$_$2_{||}2_V$_2_V2_V



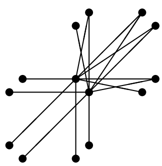
42A



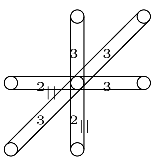
42B



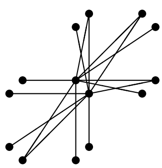
$2_{||}3$_$2_{||}3$_$2_{||}4$



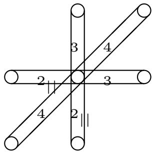
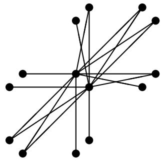
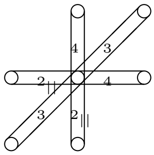
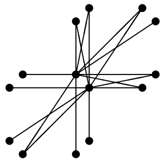
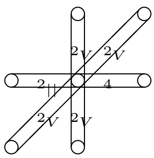
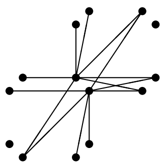
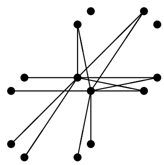
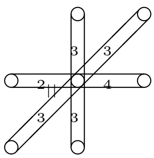
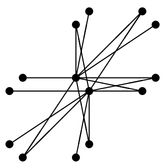
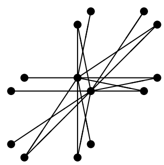
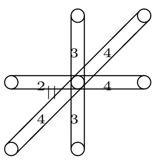
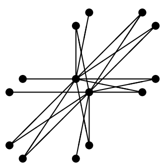
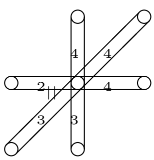
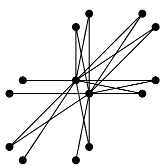
43



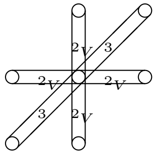
$2_{||}3$_$2_{||}3$_33



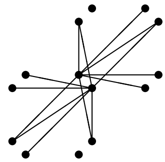
44

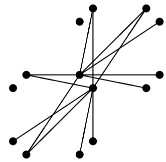
Connection types	Vertex neighborhood extensions	
		
$2_{\|\|}3\_2_{\|\|}3\_44$	45	
		
$2_{\|\|}4\_2_{\|\|}4\_33$	46	
		
$2_{\|\|}4\_2_V2_V\_2_V2_V$	47A	47B
		
$2_{\|\|}4\_33\_33$	48A	48B
		
$2_{\|\|}4\_33\_44$	49	
		
$2_{\|\|}4\_34\_34$	50	

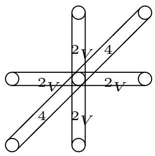
Connection types | Vertex neighborhood extensions



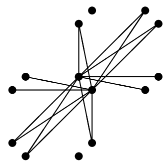
$2_V 2_V\_2_V 2_V\_33$

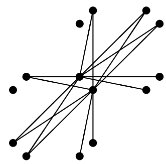

51A

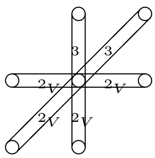

51B



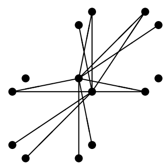
$2_V 2_V\_2_V 2_V\_44$

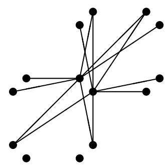

52A

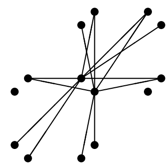

52B

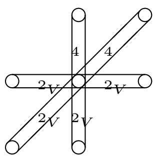


$2_V 2_V\_2_V 3\_2_V 3$

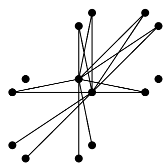

53A

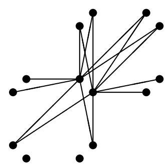

53B

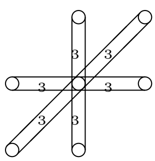

53C



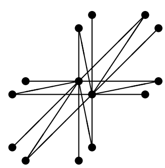
$2_V 2_V\_2_V 4\_2_V 4$

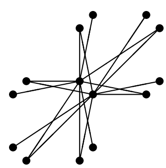

54A

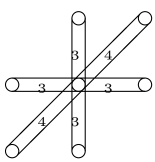

54B



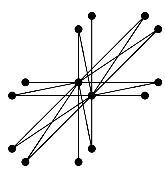
33_33_33

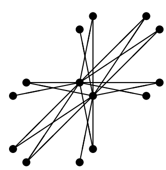

55A

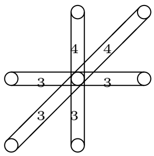
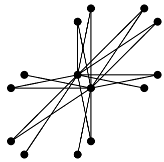
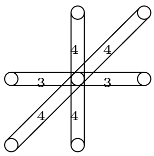
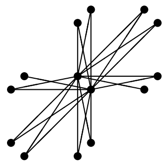
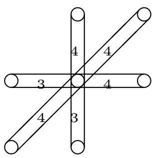
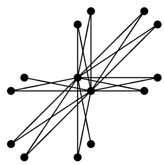

55B



33_33_44


56A


56B

Connection types	Vertex neighborhood extensions
 33_34_34	 57
 33_44_44	 58
 34_34_44	 59

A list of 2872 saturated realizations generated using Algorithm 1 and thinned out using Algorithm 2 is given below in Table 5 at the end of the parer. Saturated realizations are defined by triples H, L, X (see above): group $H \in \mathbf{H}$ is given in the fourth column, subgroup L of index 2 in $H_{(0,0,0)}$ is presented in the fifth column, a subset of X of elements of the group H is in the seventh column. In addition, the sixth column contains an element m such that $L \cup mL = H_{(0,0,0)}$. The realization № is given in the third column. Saturated realizations are sorted by vertex neighborhood extensions given in Table 3. (№ of vertex neighborhood extension is given in the first column of Table 5). The set of realizations with given vertex neighborhood extension, in turn, are divided into classes defined by sizes of spheres of radii 1, 2, ..., 10 of graph of a realization. We call such a set of sizes of spheres of radii 1, 2, ..., 10 *growth* and give it in the second column of Table 5. In this subdivision, classes are lexicographically sorted by growth increasing. In Table 5, along with saturated realizations, we give non-saturated realizations by № of saturated realizations with an asterisk in the third column (see details before Corollary 1 below).

Theorem 3.1. *The saturated realizations of symmetrical* 2*-extensions of the grid* Λ^3 *of class I up to equivalence are exhausted by* 2872 *pairwise nonequivalent saturated realizations given in Table 5.*

Note that listing all, up to equivalence, realizations of the symmetrical 2-extensions of the grid Λ^3 is reduced to listing all, up to equivalence, saturated realizations of symmetrical 2-extensions of Λ^3. Indeed, it is obvious that every non-saturated realization of a symmetrical 2-extension of Λ^3 is obtained from a uniquely defined saturated realization by removing an edge in each block. All maximal non-saturated realizations obtained in this way are given in Table 5 by № of saturated maximal realizations taken with an asterisk.

Corollary 3.2. *The non-saturated realizations of symmetrical* 2*-extensions of the grid* Λ^3 *of class I up to equivalence are exhausted by* 2701 *pairwise nonequivalent non-saturated realizations given in Table 5.*

Proof. Using a computer, it is easily verified that when removing edges inside blocks of 2872 realizations given in Table 5, 171 their graphs become disconnected and the remaining 2701 realizations (see № with an asterisk in Table 5) give all, up to equivalence, non-saturated realizations of symmetrical 2-extensions of the grid Λ^3 of class I. □

According to Theorem 1 and Corollary 1, all realizations given in Table 5 are pairwise nonequivalent. However, among the graphs of these realizations, isomorphic ones are found. With GAP, we built partition of the set of graphs of realizations from Table 5 into classes of isomorphic graphs (for details, see the proof of Corollary 3.3 below). In the following Table 4, we give all the non-singleton classes of this partition.

Table 4

Non-singleton classes of isomorphic graphs of realizations of symmetrical 2-extensions of Λ^3 of class I

1) 1, 45*	51) 1282, 1412*	102) 2492, 2495	153) 1759*, 1760*
2) 7, 8, 76*	52) 1283, 1414*	103) 2552, 2553	154) 1762*, 1763*
3) 9, 10	53) 1288, 664*, 1423*	104) 2651, 2659	155) 1857*, 1858*
4) 16, 17	54) 1289, 1420*	105) 2652, 2660	156) 1919*, 1920*
5) 18, 19	55) 1290, 1424*	106) 2653, 2658	157) 1928*, 1929*
6) 26, 64*	56) 1294, 672*	107) 2654, 2655	158) 1941*, 1943*
7) 30, 97*	57) 1295, 673*	108) 2656, 2657	159) 1944*, 1945*
8) 36, 198*, 199*, 337*	58) 1307, 1437*	109) 2702, 2703	160) 1962*, 1963*
9) 37, 38, 202*, 203*, 204*, 205*, 206*, 207*, 1119*, 1120*, 1484*	59) 1313, 712*	110) 2707, 2708	161) 1990*, 1991*
10) 39, 1121*	60) 1314, 713*	111) 2713, 2714	162) 1998*, 1999*
11) 41, 279	61) 1716, 1717	112) 2718, 2720	163) 2002*, 2006*
12) 42, 280	62) 1720, 1721	113) 2724, 2726	164) 2004*, 2005*
13) 43, 44, 214*, 215*, 343*	63) 1722, 1724	114) 63*, 64*, 65*	165) 2043*, 2047*
14) 46, 123*	64) 1725, 1726	115) 89*, 314*	166) 2050*, 2051*
15) 47, 122*	65) 1727, 1728	116) 102*, 105*	167) 2053*, 2054*
16) 54, 293	66) 1756, 1757	117) 116*, 1121*	168) 2055*, 2056*
17) 55, 294	67) 1759, 1760	118) 117*, 339*	169) 2058*, 2059*
18) 57, 348*, 352*	68) 1762, 1763	119) 121*, 219*	170) 2071*, 2085*
19) 59, 144*	69) 1857, 1858	120) 130*, 1127*	171) 2072*, 2086*
20) 64, 65	70) 1919, 1920	121) 141*, 1125*	172) 2075*, 2084*
21) 110, 250*	71) 1928, 1929	122) 146*, 353*	173) 2080*, 2082*
22) 122, 123	72) 1941, 1943	123) 167*, 245*	174) 2089*, 2090*
23) 198, 199	73) 1944, 1945	124) 175*, 1139*	175) 2091*, 2092*
24) 202, 203	74) 1962, 1963	125) 209*, 210*	176) 2093*, 2094*
25) 206, 207	75) 1990, 1991	126) 211*, 212*	177) 2109*, 2110*
26) 216, 343	76) 1998, 1999	127) 228*, 350*	178) 2346*, 2349*
27) 229, 348	77) 2002, 2006	128) 234*, 235*	179) 2347*, 2348*
28) 233, 352	78) 2004, 2005	129) 328*, 329*	180) 2353*, 2355*
29) 286, 216*	79) 2043, 2047	130) 360*, 361*	181) 2357*, 2358*
30) 296, 1123*, 1124*	80) 2050, 2051	131) 651*, 652*, 653*, 654*, 2114*	182) 2362*, 2365*
31) 299, 229*	81) 2053, 2054	132) 660*, 2115*	183) 2363*, 2364*
32) 301, 233*	82) 2055, 2056	133) 662*, 2116*	184) 2368*, 2369*
33) 324, 363*	83) 2058, 2059	134) 817*, 818*	185) 2371*, 2372*
34) 332, 366*	84) 2071, 2085	135) 819*, 820*	186) 2374*, 2375*
35) 427, 2114*	85) 2072, 2086	136) 821*, 2117*	187) 2376*, 2378*
36) 428, 503*, 658*	86) 2075, 2084	137) 825*, 2118*	188) 2492*, 2495*
37) 431, 667*, 1489*	87) 2080, 2082	138) 1091*, 1094*	189) 2552*, 2553*
38) 439, 1422*	88) 2089, 2090	139) 1092*, 1093*	190) 2651*, 2659*
39) 440, 1421*	89) 2091, 2092	140) 1133*, 1134*	191) 2652*, 2660*
40) 455, 1440*	90) 2093, 2094	141) 1136*, 1137*	192) 2653*, 2658*
41) 456, 1439*	91) 2109, 2110	142) 1143*, 1144*	193) 2654*, 2655*
42) 651, 652	92) 2346, 2349	143) 1147*, 1148*	194) 2656*, 2657*
43) 653, 654	93) 2347, 2348	144) 1149*, 1150*	195) 2702*, 2703*
44) 664, 1489	94) 2353, 2355	145) 1152*, 2521*	196) 2707*, 2708*
45) 672, 1421	95) 2357, 2358	146) 1163*, 1622*	197) 2713*, 2714*
46) 673, 1422	96) 2362, 2365	147) 1716*, 1717*	198) 2718*, 2720*
47) 712, 1439	97) 2363, 2364	148) 1720*, 1721*	199) 2724*, 2726*
48) 713, 1440	98) 2368, 2369	149) 1722*, 1724*	
49) 1091, 1094	99) 2371, 2372	150) 1725*, 1726*	
50) 1092, 1093	100) 2374, 2375	151) 1727*, 1728*	
	101) 2376, 2378	152) 1756*, 1757*	

Corollary 3.3. (i) *Up to isomorphism, there are* 2792 *graphs of saturated realizations of symmetrical* 2*-extensions of the grid* Λ^3 *of class I.*

(ii) *Up to isomorphism, there are* 2594 *graphs of non-saturated realizations of symmetrical* 2*-extensions of the grid* Λ^3 *of class I.*

Corollary 3.4. *Up to isomorphism, there are* 5350 *graphs of realizations of symmetrical* 2*-extensions of the grid* Λ^3 *of class I.*

Proof. (for Corollaries 3.3 and 3.4) Using GAP for each of the graphs of 5573 (2872 saturated and 2701 non-saturated) realizations of symmetrical 2-extensions of Λ^3 of class I, a subgraph B was generated by a set of vertices that are at a distance of ≤ 4 from some arbitrary vertex (i.e., B is a ball of radius 4). In the obtained set of 5573 finite graphs, balls are isomorphic if and only if they correspond to realizations which are in the same line of Table 4. After that, we continued each isomorphism φ_b between the balls B_1 and B_2 to the isomorphism φ of whole graphs of the corresponding realizations $R_1 = (\Gamma_1, G_1, \sigma_1, \varphi_1)$ and $R_2 = (\Gamma_2, G_2, \sigma_2, \varphi_2)$ as follows.

Let a realization R_1 satisfies the condition of $[p_{x1}, p_{y1}, p_{z1}]$ - periodicity and R_2 satisfies the condition of $[p_{x2}, p_{y2}, p_{z2}]$ - periodicity. Recall that, according to [5], a realization $R = (\Gamma, G, \sigma, \varphi)$ of a symmetrical 2-extension of Λ^3 *satisfies the condition of* $[p_x, p_y, p_z]$*-periodicity*, where p_x, p_y, p_z are positive integers, if there exist $g_1, g_2, g_3 \in G$ such that $[g_i, g_j] = 1$ for $i \neq j$ and $\varphi g_1^\sigma \varphi^{-1} = t_x^{p_x}$, $\varphi g_2^\sigma \varphi^{-1} = t_y^{p_y}$, $\varphi g_3^\sigma \varphi^{-1} = t_z^{p_y}$. We identify the set of vertices of Γ_1 with the set $\{(x, y, z, w) : x, y, z \in \mathbb{Z}, w \in \{0, 1\}\}$, so that $\sigma_1 = \{\{(x, y, z, 0), (x, y, z, 1)\} : x, y, z \in \mathbb{Z}\}$ and $\{(x_1, y_1, z_1, w_1), (x_2, y_2, z_2, w_2)\} \in \mathrm{E}(\Gamma_1) \Leftrightarrow \{(x_1+p_{x1}, y_1, z_1, w_1), (x_2+p_{x1}, y_2, z_2, w_2)\} \in \mathrm{E}(\Gamma_1) \Leftrightarrow \{(x_1, y_1+p_{y1}, z_1, w_1), (x_2, y_2 + p_{y1}, z_2, w_2)\} \in \mathrm{E}(\Gamma_1) \Leftrightarrow \{(x_1, y_1, z_1 + p_{z1}, w_1), (x_2, y_2, z_2 + p_{z1}, w_2)\} \in \mathrm{E}(\Gamma_1)$. Similarly, we identify the set of vertices of Γ_2 with the set $\{(x, y, z, w) : x, y, z \in \mathbb{Z}, w \in \{0, 1\}\}$.

We select positive integers p_x, p_y, p_z so that the realization R_1 satisfies the conditions of $[p_x, p_y, p_z]$-periodicity, $p_x|p_{x1}, p_y|p_{y1}, p_z|p_{z1}$ and $(p_x, 0, 0)M, (0, p_y, 0)M, (0, 0, p_z)M \in \langle (p_{x2}, 0, 0), (0, p_{y2}, 0), (0, 0, p_{z2})\rangle$, where angle brackets mean generation in the additive group of row-vectors and the 3×3-matrix M is obtained from the 3×4 matrix

$$\begin{pmatrix} (p_x, 0, 0, 0)\varphi_b/p_x \\ (0, p_y, 0, 0)\varphi_b/p_y \\ (0, 0, p_z, 0)\varphi_b/p_z \end{pmatrix}$$

by deleting the last column. We need to ensure that the extension of the fragment $[0...p_x - 1] \times [0...p_y - 1] \times [0...p_z - 1]$ is inside of the ball B_1. To choose p_x, p_y, p_z in such a way for some pairs of realizations R_1 and R_2 we had to take the radii of balls B_1 and B_2 greater than 4.

The image of an arbitrary vertex u of the extension Γ_1 is now defined by $u\varphi = = ut^{-1}\varphi_b t^M$, where the shift $t^{-1} = t_x^{p_x n_1} t_y^{p_y n_2} t_z^{p_z n_3}$ maps u into the extension of the fragment $[0...p_x - 1] \times [0...p_y - 1] \times [0...p_z - 1]$, where n_1, n_2, n_3 are suitable positive integers. □

Table 5

2872 saturated and 2701 non-saturated maximal realizations of symmetrical 2-extensions of the grid Λ^3 of class I

Nbr.	gr	№	H_i	L	m	X
1A						
	[3, 6, 12, 20, 32, 50, 65, 82, 105, 132]					
		20*,				
	[4, 9, 19, 35, 52, 72, 100, 131, 163, 201]					
		1	H_{778}	$\langle m_z r_x, r_y r_x \rangle$	$r_z^2 r_x$	$m_x t_x^{-1}, r_z^{-1} t_y^{-1}, m_x r_y^{-1} r_z^{-1} t_z^{-1}$
	[4, 10, 21, 36, 54, 78, 106, 136, 173, 214]					
		2	H_{657}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$m_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[4, 10, 21, 37, 57, 81, 109, 142, 180, 222]					
		3	H_{316}	1	i	$r_z^2 t_x^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
	[4, 10, 21, 37, 57, 81, 110, 143, 180, 223]					
		4	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_z^2 t_y^{-1}, m_z t_z^{-1}$
	[4, 10, 21, 37, 58, 83, 111, 145, 184, 226]					
		5	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_y t_y^{-1}, m_z t_z^{-1}$
	[4, 11, 22, 39, 60, 86, 116, 151, 190, 235]					
		6	H_{660}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$m_x t_x^{-1}, r_z^2 t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[4, 11, 24, 41, 62, 90, 122, 157, 200, 247]					
		7	H_{302}	1	i	$i t_x^{-1}, r_z^2 t_y^{-1}, m_z t_z^{-1}$
		8	H_{659}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_y t_y^{-1}, r_x^{-1} t_z^{-1}$
	[4, 11, 24, 41, 63, 91, 123, 160, 202, 249]					
		9	H_{317}	1	i	$r_z^2 t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z^{-1}$
		10	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, i t_y^{-1}, r_x^2 t_z^{-1}$
	[4, 11, 24, 43, 68, 102, 138, 181, 229, 283]					
		11	H_{315}	1	i	$r_z^2 t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[4, 11, 24, 43, 68, 102, 139, 183, 230, 283]					
		12	H_{423}	1	$r_z^2 r_x$	$r_z^2 t_x, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[4, 11, 24, 43, 69, 102, 141, 184, 233, 287]					
		13	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^2 t_y^{-1}, r_x^2 t_z^{-1}$
	[4, 11, 24, 43, 69, 104, 148, 195, 245, 304]					
		14	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_z^2 t_y^{-1}, m_z t_z^{-1}$
	[4, 11, 24, 45, 76, 118, 162, 213, 280, 361]					
		15	H_{658}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_z^2 t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[4, 12, 24, 42, 64, 92, 124, 162, 204, 252]					
		16	H_{777}	$\langle m_z r_x, r_y r_x \rangle$	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_x r_y^{-1} r_x^{-1} t_y^{-1}, r_x^2 r_y t_z^{-1}$
		17	H_{656}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[4, 12, 25, 44, 67, 96, 130, 170, 214, 264]					
		18	H_{655}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$m_x t_x^{-1}, i t_y^{-1}, r_z^2 r_x t_z^{-1}$
		19	H_{314}	1	i	$i t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
	[4, 12, 26, 44, 72, 104, 138, 178, 228, 282]					
		20	H_{393}	1	$r_z^2 r_x$	$r_y^{-1} r_z^{-1} t_x^{-1}, r_y r_x t_y, r_y^2 r_z t_z$
	[4, 12, 27, 49, 77, 109, 148, 194, 244, 301]					
		21	H_{734}	$\langle r_y^{-1} r_z^{-1} \rangle$	i	$r_z^2 t_x^{-1}, r_y r_x^{-1} t_y^{-1}, r_y r_z t_z^{-1}$
	[4, 12, 27, 50, 78, 116, 159, 210, 266, 330]					
		22	H_{301}	1	i	$i t_x^{-1}, i t_y^{-1}, r_y^2 t_z^{-1}$
	[4, 12, 27, 50, 78, 116, 162, 216, 272, 334]					
		23	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, i t_y^{-1}, r_x^2 t_z^{-1}$
	[4, 12, 27, 50, 79, 118, 162, 214, 271, 336]					
		24	H_{406}	1	$r_z^2 r_x$	$r_z^2 t_x, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[4, 12, 27, 50, 80, 120, 167, 222, 279, 344]					
		25	H_{312}	1	i	$i t_x^{-1}, r_z^2 t_y^{-1}, r_x^2 t_z^{-1}$
1B						
	[4, 10, 24, 50, 86, 130, 182, 242, 310, 386]					
		26	H_{758}	$\langle m_z, r_x^2 \rangle$	$r_z^2 r_x$	$m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}$
	[4, 11, 27, 55, 97, 153, 220, 300, 393, 497]					
		27	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}$
	[4, 11, 27, 55, 97, 153, 221, 302, 395, 501]					
		28	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_x^2 t_y, i t_y^{-1}$
	[4, 12, 28, 58, 102, 162, 234, 322, 422, 538]					
		29	H_{760}	$\langle m_z, r_x^2 \rangle$	$r_z^2 r_x$	$m_x t_x^{-1}, r_z^2 t_y, m_x t_y^{-1}$
	[4, 12, 30, 58, 94, 138, 190, 250, 318, 394]					
		30	H_{757}	$\langle m_z, r_x^2 \rangle$	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}$
	[4, 12, 30, 60, 105, 165, 232, 306, 398, 507]					
		31	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}$
	[4, 12, 30, 62, 108, 166, 231, 308, 397, 498]					
		32	H_{393}	1	$r_z^2 r_x$	$r_x^2 r_y t_x^{-1}, r_y^2 r_z t_z, r_x^2 r_y t_z^{-1}$
	[4, 12, 30, 62, 108, 172, 244, 328, 429, 548]					
		33	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_x^2 t_y, i t_y^{-1}$
	[4, 12, 30, 66, 112, 174, 246, 334, 432, 546]					
		34	H_{759}	$\langle m_z, r_x^2 \rangle$	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_z^2 t_y, m_x t_y^{-1}$
	[4, 12, 33, 69, 124, 179, 247, 330, 429, 525]					
		35	H_{393}	1	$r_z^2 r_x$	$r_y r_x t_x, r_y^2 r_z t_z, r_y^{-1} r_z^{-1} t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
2A						
	[4, 9, 19, 35, 52, 72, 100, 131, 163, 201]					
		45*,				
	[4, 9, 19, 39, 64, 97, 136, 171, 217, 271]					
		48*,				
	[4, 9, 19, 39, 76, 140, 229, 329, 437, 556]					
		52*,				
	[4, 10, 24, 50, 86, 130, 182, 242, 310, 386]					
		64*, 65*, 63*,				
	[4, 10, 24, 52, 91, 135, 183, 239, 307, 380]					
		66*,				
	[4, 10, 24, 52, 91, 137, 192, 257, 332, 414]					
		69*,				
	[4, 10, 24, 53, 93, 140, 202, 271, 339, 421]					
		68*,				
	[4, 10, 24, 54, 96, 150, 216, 292, 377, 473]					
		67*,				
	[4, 10, 24, 54, 104, 168, 243, 333, 436, 551]					
		73*,				
	[4, 10, 24, 56, 111, 177, 257, 353, 461, 581]					
		74*,				
	[4, 10, 24, 56, 112, 187, 263, 344, 448, 573]					
		75*,				
	[4, 11, 24, 41, 62, 90, 122, 157, 200, 247]					
		76*,				
	[4, 11, 27, 57, 102, 156, 214, 280, 358, 446]					
		84*,				
	[4, 11, 27, 57, 102, 156, 214, 281, 363, 456]					
		83*,				
	[4, 11, 27, 57, 105, 172, 250, 338, 442, 559]					
		85*,				
	[4, 11, 27, 62, 103, 143, 201, 274, 345, 421]					
		82*,				
	[4, 11, 30, 63, 100, 142, 194, 254, 322, 398]					
		86*,				
	[4, 11, 30, 65, 107, 155, 216, 284, 362, 451]					
		87*,				
	[4, 11, 30, 65, 109, 159, 217, 283, 357, 442]					
		89*,				
	[4, 11, 30, 66, 110, 159, 222, 293, 370, 458]					
		88*,				
	[4, 11, 30, 66, 110, 160, 222, 294, 378, 467]					
		90*,				
	[4, 11, 30, 67, 117, 179, 258, 341, 430, 541]					
		93*,				
	[4, 11, 30, 68, 111, 159, 219, 286, 366, 453]					
		92*,				
	[4, 11, 30, 69, 113, 160, 222, 294, 372, 461]					
		91*,				
	[4, 12, 30, 58, 94, 138, 190, 250, 318, 394]					
		97*,				
	[4, 12, 30, 64, 105, 151, 210, 279, 358, 447]					
		96*,				
	[4, 12, 33, 69, 114, 168, 230, 301, 382, 474]					
		100*,				
	[4, 12, 33, 69, 123, 197, 278, 369, 469, 583]					
		101*,				
	[4, 12, 33, 70, 121, 182, 251, 331, 422, 523]					
		105*, 102*,				
	[4, 12, 33, 70, 121, 184, 260, 350, 453, 570]					
		106*,				
	[4, 12, 33, 71, 116, 166, 230, 305, 390, 485]					
		103*,				
	[4, 12, 33, 73, 133, 206, 288, 383, 491, 611]					
		108*,				
	[4, 12, 33, 74, 128, 191, 266, 352, 450, 560]					
		104*,				
	[4, 12, 33, 75, 138, 208, 288, 383, 491, 611]					
		109*,				
	[4, 12, 36, 76, 128, 190, 264, 350, 448, 558]					
		107*,				
	[5, 13, 26, 45, 69, 98, 133, 173, 218, 269]					
		36	H_{747}	$\langle m_z r_x^{-1}, r_z^2 r_x \rangle$	i	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_y^2 t_z$
	[5, 14, 29, 50, 77, 110, 149, 194, 245, 302]					
		37	H_{745}	$\langle m_z r_x^{-1}, r_z^2 r_x \rangle$	i	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, m_z r_x t_y^{-1}, r_x^2 t_z$
		38	H_{615}	$\langle m_z \rangle$	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, m_z t_z, t_z^{-1}$
	[5, 14, 30, 52, 79, 114, 155, 200, 254, 314]					
		39	H_{483}	1	r_z^2	$m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, m_z t_z^{-1}$
	[5, 14, 30, 53, 83, 121, 164, 212, 270, 335]					
		40	H_{529}	1	r_z^2	$m_x t_x^{-1}, m_y t_y, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[5, 14, 30, 54, 87, 130, 182, 242, 310, 386]					
		41	H_{326}	1	i	$r_z^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
		42	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_y t_y^{-1}, m_z t_z, m_z t_z^{-1}$
	[5, 15, 32, 55, 85, 122, 165, 215, 272, 335]					
		43	H_{618}	$\langle m_z \rangle$	r_z^2	$m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, m_x t_z^{-1}$
		44	H_{461}	1	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, m_z t_z^{-1}$
	[5, 15, 34, 60, 92, 132, 178, 234, 299, 363]					
		45	H_{535}	1	r_z^2	$r_z^{-1} t_x^{-1}, r_z t_y, r_y^2 t_z, m_z t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
	[5, 15, 34, 61, 94, 135, 185, 242, 306, 378]					
		46	H_{461}	1	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, m_z t_z^{-1}$
	[5, 15, 34, 61, 95, 138, 189, 247, 314, 389]					
		47	H_{675}	$\langle r_y^2 r_x \rangle$	$r_z^2 r_x$	$r_y^2 t_x, r_z^2 t_x^{-1}, m_y t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[5, 15, 34, 62, 98, 142, 191, 249, 316, 385]					
		48	H_{512}	1	r_z^2	$r_z^{-1} t_x^{-1}, r_z t_y, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[5, 15, 34, 63, 103, 155, 216, 285, 363, 450]					
		49	H_{460}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z, m_z t_z^{-1}$
	[5, 15, 34, 64, 105, 159, 223, 293, 373, 463]					
		50	H_{503}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y^{-1}, r_x^2 r_z t_z, r_y^2 t_z^{-1}$
	[5, 15, 35, 63, 95, 137, 191, 249, 313, 389]					
		51	H_{640}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_z t_z$
	[5, 15, 38, 74, 126, 201, 289, 386, 497, 630]					
		52	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_y t_y^{-1}, m_z t_z, i t_z^{-1}$
	[5, 16, 33, 58, 89, 128, 173, 226, 285, 352]					
		53	H_{616}	$\langle m_z \rangle$	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, m_y t_z^{-1}$
	[5, 16, 34, 60, 95, 138, 190, 250, 318, 394]					
		54	H_{308}	1	i	$r_z^2 t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 r_z t_z^{-1}$
		55	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[5, 16, 36, 63, 99, 145, 197, 258, 330, 407]					
		56	H_{629}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x t_y^{-1}, r_x^2 t_z$
	[5, 16, 37, 66, 103, 150, 205, 268, 341, 422]					
		57	H_{616}	$\langle m_z \rangle$	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, m_x t_z^{-1}$
	[5, 16, 37, 66, 103, 150, 205, 269, 343, 424]					
		58	H_{483}	1	r_z^2	$m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, i t_z^{-1}$
	[5, 16, 37, 66, 104, 151, 206, 271, 344, 426]					
		59	H_{469}	1	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[5, 16, 37, 66, 104, 152, 208, 274, 349, 431]					
		60	H_{529}	1	r_z^2	$m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[5, 16, 37, 67, 105, 151, 206, 271, 345, 427]					
		61	H_{468}	1	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}$
	[5, 16, 37, 70, 112, 168, 230, 304, 386, 480]					
		62	H_{614}	$\langle m_z \rangle$	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z, m_x t_z^{-1}$
	[5, 16, 38, 70, 113, 168, 232, 305, 388, 480]					
		63	H_{531}	1	r_z^2	$m_x r_z t_x^{-1}, m_x r_z t_y^{-1}, r_y^2 t_z, m_z t_z^{-1}$
	[5, 16, 38, 70, 114, 170, 237, 314, 401, 498]					
		64	H_{305}	1	i	$i t_x^{-1}, t_y, t_y^{-1}, r_y^2 r_z t_z^{-1}$
		65	H_{504}	1	r_z^2	$r_z^2 t_x^{-1}, r_x^2 r_y t_y^{-1}, t_z, t_z^{-1}$
	[5, 16, 38, 72, 114, 162, 220, 288, 364, 449]					
		66	H_{479}	1	r_z^2	$r_y^2 t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[5, 16, 38, 72, 119, 183, 253, 336, 426, 530]					
		67	H_{533}	1	r_z^2	$m_x r_z^{-1} t_x^{-1}, m_x r_z^{-1} t_y, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[5, 16, 38, 73, 115, 167, 233, 302, 379, 470]					
		68	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 t_y^{-1}, m_z t_z$
	[5, 16, 38, 73, 116, 167, 228, 297, 377, 466]					
		69	H_{486}	1	r_z^2	$r_y^2 t_x^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}$
	[5, 16, 38, 76, 124, 191, 271, 367, 473, 595]					
		70	H_{540}	1	r_z^2	$i t_x^{-1}, r_x^2 r_y t_y^{-1}, m_y t_z, m_y t_z^{-1}$
	[5, 16, 38, 76, 127, 197, 281, 380, 492, 620]					
		71	H_{323}	1	i	$r_z^2 t_x, r_z^2 t_x^{-1}, r_x^2 r_y t_y^{-1}, r_x^2 t_z^{-1}$
	[5, 16, 39, 72, 119, 178, 244, 322, 410, 508]					
		72	H_{669}	$\langle r_y^2 r_x \rangle$	$r_z^2 r_x$	$r_y^2 t_x, r_z^2 t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z^{-1}$
	[5, 16, 41, 80, 131, 200, 283, 380, 487, 608]					
		73	H_{308}	1	i	$r_z^2 t_x^{-1}, m_z t_y, m_z t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[5, 16, 41, 81, 134, 205, 292, 388, 500, 620]					
		74	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}$
	[5, 16, 41, 83, 145, 216, 290, 387, 501, 629]					
		75	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[5, 17, 38, 67, 103, 148, 203, 263, 332, 411]					
		76	H_{626}	$\langle m_z \rangle$	r_z^2	$r_z^{-1} t_x^{-1}, r_z t_y, r_y^2 t_z, m_x t_z^{-1}$
	[5, 17, 38, 70, 109, 159, 217, 285, 362, 450]					
		77	H_{461}	1	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, i t_z^{-1}$
	[5, 17, 39, 72, 118, 179, 249, 335, 427, 532]					
		78	H_{460}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z, i t_z^{-1}$
	[5, 17, 39, 72, 119, 179, 253, 338, 434, 539]					
		79	H_{503}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[5, 17, 40, 71, 111, 164, 225, 293, 376, 467]					
		80	H_{747}	$\langle m_z r_x^{-1}, r_z^2 r_x \rangle$	i	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_y^2 t_z$
	[5, 17, 40, 72, 114, 166, 228, 300, 381, 473]					
		81	H_{461}	1	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, i t_z^{-1}$
	[5, 17, 40, 80, 116, 166, 236, 302, 370, 468]					
		82	H_{639}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_y^2 t_z$
	[5, 17, 41, 77, 125, 182, 248, 325, 413, 510]					
		83	H_{475}	1	r_z^2	$i t_x^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}$
	[5, 17, 41, 77, 126, 182, 247, 322, 409, 505]					

Nbr.	gr	№	H_i	L	m	X
		84	H_{485}	1	r_z^2	$it_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[5, 17, 41, 79, 135, 209, 296, 395, 506, 629]					
		85	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_y t_y, m_z t_z, it_z^{-1}$
	[5, 17, 42, 79, 119, 170, 231, 301, 380, 469]					
		86	H_{671}	$\langle r_y^2 r_x \rangle$	$r_z^2 r_x$	$r_y^2 t_x, r_z^2 t_x^{-1}, r_z^2 t_y^{-1}, r_x^{-1} t_z^{-1}$
	[5, 17, 43, 77, 119, 171, 234, 303, 386, 475]					
		87	H_{433}	1	r_z^2	$it_x^{-1}, r_z^2 t_y^{-1}, m_z t_z, it_z^{-1}$
	[5, 17, 43, 77, 122, 176, 241, 312, 397, 489]					
		88	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, it_y^{-1}, r_x^2 t_z$
	[5, 17, 43, 78, 121, 174, 235, 307, 386, 477]					
		89	H_{512}	1	r_z^2	$r_z t_x^{-1}, r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[5, 17, 43, 79, 124, 176, 242, 316, 402, 492]					
		90	H_{466}	1	r_z^2	$r_z^2 t_x^{-1}, r_x^2 t_y^{-1}, m_z t_z, it_z^{-1}$
	[5, 17, 43, 80, 121, 175, 240, 313, 392, 487]					
		91	H_{535}	1	r_z^2	$r_z^{-1} t_x^{-1}, r_z t_y, r_y^2 t_z, it_z^{-1}$
	[5, 17, 43, 81, 124, 177, 243, 317, 400, 494]					
		92	H_{427}	1	r_z^2	$r_z^2 t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[5, 17, 43, 82, 135, 199, 281, 362, 462, 575]					
		93	H_{462}	1	r_z^2	$it_x^{-1}, r_z^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[5, 18, 39, 72, 113, 166, 227, 300, 381, 474]					
		94	H_{745}	$\langle m_z r_x^{-1}, r_z^2 r_x \rangle$	i	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, m_z r_x t_y^{-1}, r_x^2 t_z$
	[5, 18, 41, 76, 119, 174, 239, 316, 401, 498]					
		95	H_{615}	$\langle m_z \rangle$	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, it_z, r_z^2 t_z^{-1}$
	[5, 18, 42, 81, 124, 179, 244, 319, 404, 499]					
		96	H_{631}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, it_z$
	[5, 18, 43, 76, 123, 178, 245, 319, 406, 500]					
		97	H_{624}	$\langle m_z \rangle$	r_z^2	$m_x r_z t_x^{-1}, m_x r_z t_y^{-1}, r_y^2 t_z, m_x t_z^{-1}$
	[5, 18, 43, 84, 135, 204, 285, 382, 489, 612]					
		98	H_{305}	1	i	$it_x^{-1}, it_y, it_y^{-1}, r_y^2 r_z t_z^{-1}$
	[5, 18, 43, 84, 137, 208, 291, 390, 499, 624]					
		99	H_{504}	1	r_z^2	$r_z^2 t_x^{-1}, r_x^2 r_y t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}$
	[5, 18, 44, 82, 132, 188, 255, 331, 420, 517]					
		100	H_{474}	1	r_z^2	$it_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[5, 18, 44, 85, 149, 223, 301, 398, 505, 629]					
		101	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x^2 t_y, r_x^2 t_z, r_y^2 t_z^{-1}$
	[5, 18, 45, 83, 138, 201, 280, 367, 468, 576]					
		102	H_{533}	1	r_z^2	$m_x r_z t_x^{-1}, m_x r_z t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[5, 18, 45, 84, 131, 186, 257, 334, 425, 522]					
		103	H_{473}	1	r_z^2	$it_x^{-1}, r_x^2 t_y^{-1}, m_z t_z, it_z^{-1}$
	[5, 18, 45, 85, 140, 206, 289, 377, 484, 596]					
		104	H_{531}	1	r_z^2	$m_x r_z t_x^{-1}, m_x r_z t_y^{-1}, r_y^2 t_z, it_z^{-1}$
	[5, 18, 46, 85, 139, 206, 285, 376, 481, 597]					
		105	H_{323}	1	i	$r_z^2 t_x^{-1}, r_x^2 r_y t_y^{-1}, m_x t_z, m_x t_z^{-1}$
	[5, 18, 46, 85, 139, 207, 288, 383, 492, 614]					
		106	H_{540}	1	r_z^2	$it_x^{-1}, r_x^2 r_y t_y^{-1}, m_x t_z, m_x t_z^{-1}$
	[5, 18, 47, 88, 147, 209, 293, 379, 485, 595]					
		107	H_{674}	$\langle r_y^2 r_x \rangle$	$r_z^2 r_x$	$r_y^2 t_x, r_z^2 t_x^{-1}, it_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[5, 18, 49, 94, 151, 224, 310, 408, 518, 640]					
		108	H_{326}	1	i	$r_z^2 r_x t_x^{-1}, m_y t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}$
	[5, 18, 49, 95, 152, 223, 311, 407, 519, 639]					
		109	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_y t_y^{-1}, it_z, it_z^{-1}$
2B						
	[4, 11, 30, 73, 147, 243, 346, 462, 602, 756]					
		112*,				
	[4, 11, 30, 76, 156, 253, 350, 466, 608, 762]					
		113*,				
	[4, 12, 33, 85, 153, 240, 344, 464, 600, 752]					
		115*,				
	[5, 14, 32, 64, 112, 176, 256, 352, 464, 592]					
		110	H_{779}	$\langle i, r_x^2, r_z^2 \rangle$	$r_z^2 r_x$	$m_x t_x, t_x^{-1}, m_y t_y, t_y^{-1}$
	[5, 16, 42, 88, 152, 232, 328, 440, 568, 712]					
		111	H_{766}	$\langle m_y, r_x^2 \rangle$	$m_z r_x^{-1}$	$r_z^2 r_x t_x, m_x t_x^{-1}, m_y t_y, t_y^{-1}$
	[5, 17, 46, 101, 177, 262, 364, 490, 628, 774]					
		112	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}$
	[5, 17, 46, 103, 179, 266, 365, 493, 629, 777]					
		113	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y, it_y^{-1}$
	[5, 18, 48, 96, 160, 240, 336, 448, 576, 720]					
		114	H_{779}	$\langle i, r_x^2, r_z^2 \rangle$	$r_z^2 r_x$	$m_z r_x^{-1} t_x, r_z^2 r_x t_x^{-1}, m_y t_y, t_y^{-1}$
	[5, 18, 48, 106, 174, 266, 366, 490, 622, 778]					
		115	H_{768}	$\langle m_y, r_x^2 \rangle$	$m_z r_x^{-1}$	$r_z^2 r_x t_x, m_x t_x^{-1}, r_z^2 t_y, m_x t_y^{-1}$
3A						
	[5, 14, 30, 52, 79, 114, 155, 200, 254, 314]					
		116*,				
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		117*,				
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		119*,				
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Nbr. gr № H_i L m X

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169*,
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165*,

Nbr.	gr	№	H_i	L	m	X
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		172*,				
	[5, 17, 42, 79, 125, 179, 244, 321, 408, 505]					
		173*,				
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		180*,				
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		174*,				
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	[5, 17, 44, 84, 135, 198, 273, 360, 459, 570]					
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		176*,				
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		181*,				
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		182*, 183*,				
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		184*, 185*,				
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		186*,				
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		187*,				
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		188*,				
	[5, 19, 45, 80, 127, 185, 256, 340, 433, 536]					
		189*,				
	[6, 18, 37, 63, 99, 142, 189, 249, 317, 384]					
		116	H_{645}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_z^2 t_x^{-1}, m_x r_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_z t_z$
	[6, 18, 38, 66, 102, 146, 198, 258, 326, 402]					
		117	H_{640}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_z t_z$
	[6, 18, 40, 74, 116, 168, 233, 302, 379, 470]					
		118	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y^{-1}, m_z t_z$
	[6, 18, 40, 74, 117, 168, 229, 299, 378, 467]					
		119	H_{486}	1	r_z^2	$r_y^2 t_x^{-1}, m_y t_y^{-1}, m_z t_z, it_z^{-1}, m_z t_z^{-1}$
	[6, 18, 42, 78, 116, 166, 236, 302, 370, 468]					
		120	H_{639}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_y^2 t_z$
	[6, 19, 40, 69, 108, 154, 208, 273, 344, 423]					
		121	H_{629}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, m_z r_x t_y^{-1}, r_x^2 t_z$
	[6, 19, 41, 71, 110, 158, 214, 279, 353, 435]					
		122	H_{461}	1	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z, m_z t_z^{-1}$
		123	H_{482}	1	r_z^2	$m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 19, 41, 72, 112, 160, 217, 283, 358, 442]					
		124	H_{468}	1	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, m_z t_z, it_z^{-1}, m_z t_z^{-1}$
	[6, 19, 41, 72, 112, 161, 219, 285, 360, 444]					
		125	H_{530}	1	r_z^2	$m_x t_x^{-1}, m_y t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 t_z^{-1}$
	[6, 19, 42, 72, 111, 161, 217, 283, 359, 441]					
		126	H_{483}	1	r_z^2	$m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, it_z^{-1}, m_z t_z^{-1}$
	[6, 19, 42, 73, 113, 164, 222, 289, 366, 450]					
		127	H_{529}	1	r_z^2	$m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_x^2 r_z t_z, r_y^2 t_z^{-1}$
	[6, 19, 43, 77, 119, 170, 231, 301, 380, 469]					
		128	H_{479}	1	r_z^2	$r_y^2 t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 19, 43, 79, 126, 182, 249, 327, 414, 511]					
		129	H_{475}	1	r_z^2	$it_x^{-1}, m_y t_y^{-1}, m_z t_z, it_z^{-1}, m_z t_z^{-1}$
	[6, 19, 43, 80, 131, 192, 262, 342, 432, 534]					
		130	H_{638}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_z^2 t_x^{-1}, m_x r_x t_x^{-1}, m_z r_x t_y^{-1}, r_x^2 t_z$
	[6, 19, 44, 79, 124, 179, 244, 319, 404, 499]					
		131	H_{631}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, it_z$
	[6, 19, 44, 84, 141, 212, 299, 398, 507, 629]					
		132	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_y t_y^{-1}, m_z t_z, it_z^{-1}, m_z t_z^{-1}$
		133	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_y t_y, m_z t_z, it_z^{-1}, m_z t_z^{-1}$
	[6, 19, 45, 77, 121, 172, 235, 305, 387, 476]					
		134	H_{433}	1	r_z^2	$it_x^{-1}, r_z^2 t_y^{-1}, m_z t_z, it_z^{-1}, m_z t_z^{-1}$
	[6, 19, 45, 77, 123, 176, 241, 312, 397, 489]					
		135	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, it_y^{-1}, r_x^2 t_z$
	[6, 19, 45, 79, 126, 177, 243, 318, 403, 493]					
		136	H_{466}	1	r_z^2	$r_z^2 t_x^{-1}, r_x^2 t_y^{-1}, m_z t_z, it_z^{-1}, m_z t_z^{-1}$
	[6, 19, 47, 82, 130, 189, 263, 343, 445, 545]					
		137	H_{539}	1	r_z^2	$it_x^{-1}, r_x^2 t_y, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}$
	[6, 19, 47, 82, 131, 186, 257, 334, 425, 522]					
		138	H_{473}	1	r_z^2	$it_x^{-1}, r_x^2 t_y^{-1}, m_z t_z, it_z^{-1}, m_z t_z^{-1}$
	[6, 19, 50, 100, 159, 226, 312, 410, 520, 642]					
		139	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x^2 t_y^{-1}, r_y^2 t_z, r_x^2 t_z, r_y^2 t_z^{-1}$
	[6, 20, 42, 73, 115, 163, 221, 290, 365, 450]					

Nbr.	gr	№	H_i	L	m	X
		140	H_{479}	1	r_z^2	$r_y^2 t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 20, 43, 75, 117, 167, 226, 296, 374, 461]					
		141	H_{537}	1	r_z^2	$r_z^{-1} t_x^{-1}, r_z t_y, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 t_z^{-1}$
	[6, 20, 43, 76, 119, 170, 231, 301, 380, 469]					
		142	H_{524}	1	r_z^2	$m_z r_z^{-1} t_x^{-1}, m_z r_z t_y, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		143	H_{509}	1	r_z^2	$r_z^{-1} t_x^{-1}, r_z t_y, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 20, 44, 75, 118, 168, 229, 298, 377, 465]					
		144	H_{469}	1	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 20, 44, 76, 118, 170, 230, 300, 380, 468]					
		145	H_{461}	1	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
	[6, 20, 44, 76, 120, 174, 235, 307, 386, 477]					
		146	H_{512}	1	r_z^2	$r_z^{-1} t_x^{-1}, r_z t_y, r_y^2 r_z t_z, r_x^2 r_z t_z, r_y^2 t_z^{-1}$
	[6, 20, 44, 77, 119, 170, 231, 301, 380, 469]					
		147	H_{429}	1	r_z^2	$r_y^2 t_x^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 20, 44, 77, 121, 175, 240, 313, 392, 487]					
		148	H_{535}	1	r_z^2	$r_z^{-1} t_x^{-1}, r_z t_y, r_y^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
	[6, 20, 45, 83, 134, 197, 275, 359, 456, 563]					
		149	H_{460}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
	[6, 20, 45, 84, 134, 201, 278, 366, 463, 572]					
		150	H_{503}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 r_z t_z, r_x^2 r_z t_z, r_y^2 t_z^{-1}$
	[6, 20, 46, 81, 124, 176, 239, 313, 395, 488]					
		151	H_{645}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_y^2 r_x t_x, r_z^2 t_x^{-1}, m_x r_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_z t_z$
	[6, 20, 46, 81, 125, 179, 243, 317, 401, 495]					
		152	H_{469}	1	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 20, 46, 82, 125, 179, 245, 318, 402, 497]					
		153	H_{461}	1	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
	[6, 20, 46, 82, 130, 186, 254, 331, 419, 517]					
		154	H_{485}	1	r_z^2	$i t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 20, 47, 82, 123, 178, 243, 313, 398, 493]					
		155	H_{640}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_z t_z$
	[6, 20, 48, 88, 143, 204, 279, 363, 460, 567]					
		156	H_{425}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 20, 48, 89, 143, 207, 280, 367, 463, 572]					
		157	H_{519}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 t_z^{-1}$
	[6, 20, 50, 84, 131, 188, 255, 332, 421, 518]					
		158	H_{427}	1	r_z^2	$r_z^2 t_x^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 20, 50, 90, 147, 216, 295, 379, 483, 602]					
		159	H_{462}	1	r_z^2	$i t_x^{-1}, r_z^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 20, 54, 101, 155, 226, 312, 410, 520, 642]					
		160	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_y t_y^{-1}, i t_z, m_z t_z, i t_z^{-1}$
	[6, 21, 45, 81, 126, 178, 244, 319, 401, 495]					
		161	H_{427}	1	r_z^2	$r_z^2 t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 21, 47, 81, 123, 178, 243, 313, 398, 493]					
		162	H_{486}	1	r_z^2	$r_y^2 t_x^{-1}, m_y t_y^{-1}, i t_z, i t_z^{-1}, m_z t_z^{-1}$
		163	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y^{-1}, m_z t_z$
	[6, 21, 47, 81, 128, 184, 249, 325, 412, 507]					
		164	H_{485}	1	r_z^2	$i t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 21, 47, 82, 127, 182, 247, 322, 407, 502]					
		165	H_{629}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, m_z r_x t_y^{-1}, r_x^2 t_z$
	[6, 21, 47, 83, 131, 187, 255, 331, 420, 517]					
		166	H_{474}	1	r_z^2	$i t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 21, 47, 84, 138, 201, 280, 367, 468, 576]					
		167	H_{533}	1	r_z^2	$m_x r_z t_x^{-1}, m_x r_z t_y^{-1}, r_y^2 r_z t_z, r_x^2 r_z t_z, r_y^2 t_z^{-1}$
	[6, 21, 47, 85, 140, 206, 289, 377, 484, 596]					
		168	H_{531}	1	r_z^2	$m_x r_z t_x^{-1}, m_x r_z t_y^{-1}, r_y^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
	[6, 21, 48, 83, 131, 188, 255, 332, 421, 518]					
		169	H_{474}	1	r_z^2	$i t_x^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 21, 48, 89, 150, 222, 302, 397, 506, 628]					
		170	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x^2 t_y, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 21, 48, 92, 149, 220, 302, 397, 508, 628]					
		171	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 21, 49, 86, 134, 190, 259, 336, 426, 525]					
		172	H_{461}	1	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z, i t_z^{-1}$
	[6, 21, 49, 87, 134, 190, 259, 338, 427, 526]					
		173	H_{468}	1	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, i t_z, i t_z^{-1}, m_z t_z^{-1}$
	[6, 21, 49, 87, 143, 205, 282, 368, 468, 576]					
		174	H_{462}	1	r_z^2	$i t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 21, 50, 89, 146, 208, 284, 370, 469, 577]					
		175	H_{526}	1	r_z^2	$m_x r_z t_x^{-1}, m_x r_z t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 t_z^{-1}$
	[6, 21, 50, 89, 147, 212, 296, 384, 488, 600]					
		176	H_{638}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_y^2 r_x t_x, r_z^2 t_x^{-1}, m_x r_x t_x^{-1}, m_z r_x t_y^{-1}, r_x^2 t_z$
	[6, 21, 50, 90, 148, 212, 292, 380, 484, 596]					
		177	H_{507}	1	r_z^2	$r_y^2 r_z t_x^{-1}, r_y^2 r_z t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		178	H_{522}	1	r_z^2	$m_x r_z t_x^{-1}, m_x r_z t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 21, 51, 91, 149, 213, 294, 382, 486, 598]					

Nbr.	gr	№	H_i	L	m	X
		179	H_{471}	1	r_z^2	$it_x^{-1}, it_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 21, 53, 99, 155, 226, 312, 410, 520, 642]					
		180	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 22, 46, 81, 123, 178, 243, 313, 398, 493]					
		181	H_{639}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_y^2 t_z$
	[6, 22, 48, 82, 127, 182, 247, 322, 407, 502]					
		182	H_{433}	1	r_z^2	$it_x^{-1}, r_z^2 t_y^{-1}, it_z, it_z^{-1}, m_z t_z^{-1}$
		183	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, it_y^{-1}, r_x^2 t_z$
	[6, 22, 50, 86, 133, 190, 259, 338, 427, 526]					
		184	H_{475}	1	r_z^2	$it_x^{-1}, m_y t_y^{-1}, it_z, it_z^{-1}, m_z t_z^{-1}$
		185	H_{466}	1	r_z^2	$r_z^2 t_x^{-1}, r_x^2 t_y^{-1}, it_z, it_z^{-1}, m_z t_z^{-1}$
	[6, 22, 55, 98, 155, 226, 312, 410, 520, 642]					
		186	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_y t_y^{-1}, it_z, it_z^{-1}, m_z t_z^{-1}$
	[6, 23, 47, 82, 127, 182, 247, 322, 407, 502]					
		187	H_{631}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, it_z$
	[6, 23, 49, 86, 133, 190, 259, 338, 427, 526]					
		188	H_{473}	1	r_z^2	$it_x^{-1}, r_x^2 t_y^{-1}, it_z, it_z^{-1}, m_z t_z^{-1}$
	[6, 23, 50, 87, 141, 202, 277, 360, 459, 566]					
		189	H_{539}	1	r_z^2	$it_x^{-1}, r_x^2 t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}$
3B						
	[5, 15, 37, 78, 142, 228, 332, 452, 588, 740]					
		190*,				
	[5, 15, 37, 80, 151, 242, 342, 460, 602, 756]					
		191*,				
	[5, 15, 37, 83, 156, 248, 348, 466, 608, 762]					
		192*,				
	[5, 15, 37, 84, 150, 240, 344, 464, 600, 752]					
		193*,				
	[5, 17, 47, 100, 172, 260, 364, 484, 620, 772]					
		194*,				
	[5, 18, 49, 101, 172, 260, 364, 484, 620, 772]					
		195*, 196*,				
	[5, 19, 49, 100, 172, 260, 364, 484, 620, 772]					
		197*,				
	[6, 19, 46, 94, 164, 252, 356, 476, 612, 764]					
		190	H_{766}	$\langle m_y, r_x^2 \rangle$	$m_z r_x^{-1}$	$m_x t_x, m_x t_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, t_y^{-1}$
	[6, 19, 48, 103, 178, 262, 364, 490, 628, 774]					
		191	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}$
	[6, 19, 48, 105, 179, 265, 365, 493, 629, 777]					
		192	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, it_y^{-1}$
	[6, 19, 50, 104, 174, 266, 366, 490, 622, 778]					
		193	H_{768}	$\langle m_y, r_x^2 \rangle$	$m_z r_x^{-1}$	$m_x t_x, m_x t_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 t_y, m_x t_y^{-1}$
	[6, 21, 56, 112, 184, 272, 376, 496, 632, 784]					
		194	H_{766}	$\langle m_y, r_x^2 \rangle$	$m_z r_x^{-1}$	$r_z^2 r_x t_x, m_x t_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, t_y^{-1}$
	[6, 22, 57, 112, 184, 272, 376, 496, 632, 784]					
		195	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, it_y^{-1}$
		196	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}$
	[6, 23, 56, 112, 184, 272, 376, 496, 632, 784]					
		197	H_{768}	$\langle m_y, r_x^2 \rangle$	$m_z r_x^{-1}$	$r_z^2 r_x t_x, m_x t_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 t_y, m_x t_y^{-1}$
4A						
	[5, 13, 26, 45, 69, 98, 133, 173, 218, 269]					
		198*, 199*,				
	[5, 13, 26, 46, 75, 112, 157, 213, 275, 343]					
		200*,				
	[5, 13, 26, 47, 81, 126, 176, 236, 309, 396]					
		201*,				
	[5, 14, 29, 50, 77, 110, 149, 194, 245, 302]					
		202*, 206*, 203*, 207*, 204*, 205*,				
	[5, 14, 31, 57, 88, 125, 173, 228, 287, 355]					
		208*,				
	[5, 14, 32, 59, 94, 139, 193, 256, 327, 406]					
		209*, 210*,				
	[5, 14, 32, 59, 94, 139, 195, 262, 335, 414]					
		212*, 211*,				
	[5, 14, 32, 68, 117, 178, 256, 346, 449, 564]					
		213*,				
	[5, 15, 32, 55, 85, 122, 165, 215, 272, 335]					
		214*, 215*,				
	[5, 15, 33, 58, 89, 127, 173, 226, 285, 351]					
		216*,				
	[5, 15, 33, 59, 94, 138, 190, 250, 318, 394]					
		217*,				
	[5, 15, 34, 61, 96, 141, 193, 253, 324, 401]					
		219*,				
	[5, 15, 35, 64, 99, 141, 192, 251, 318, 393]					
		218*,				
	[5, 15, 35, 65, 103, 152, 212, 279, 357, 447]					
		220*,				
	[5, 15, 37, 70, 112, 166, 228, 299, 383, 474]					
		221*,				
	[5, 15, 37, 71, 113, 165, 227, 299, 381, 473]					
		222*,				
	[5, 15, 37, 76, 130, 193, 264, 353, 458, 566]					

Nbr.	gr	№	H_i	L	m	X
		223*,				
	[5, 15, 38, 79, 135, 206, 290, 385, 493, 613]					
		225*,				
	[5, 15, 39, 75, 120, 177, 243, 320, 409, 507]					
		224*,				
	[5, 16, 36, 66, 106, 156, 216, 286, 366, 456]					
		226*,				
	[5, 16, 36, 67, 105, 149, 205, 268, 338, 419]					
		227*,				
	[5, 16, 36, 67, 109, 162, 225, 296, 378, 471]					
		228*,				
	[5, 16, 37, 69, 111, 163, 226, 300, 384, 478]					
		232*,				
	[5, 16, 37, 70, 115, 170, 235, 310, 395, 490]					
		234*, 235*,				
	[5, 16, 38, 68, 106, 156, 213, 278, 356, 440]					
		229*,				
	[5, 16, 38, 69, 109, 160, 218, 285, 365, 452]					
		233*,				
	[5, 16, 38, 71, 112, 163, 226, 296, 376, 469]					
		230*,				
	[5, 16, 38, 71, 113, 165, 228, 298, 378, 471]					
		231*,				
	[5, 16, 40, 80, 135, 204, 286, 381, 489, 609]					
		239*,				
	[5, 16, 41, 78, 125, 183, 252, 332, 423, 525]					
		236*,				
	[5, 16, 41, 79, 128, 187, 258, 342, 436, 540]					
		237*,				
	[5, 16, 43, 84, 133, 194, 266, 349, 444, 550]					
		238*,				
	[5, 17, 40, 73, 114, 165, 228, 298, 378, 471]					
		240*,				
	[5, 17, 40, 73, 116, 169, 232, 305, 388, 481]					
		241*,				
	[5, 17, 40, 74, 118, 171, 234, 307, 390, 483]					
		242*,				
	[5, 17, 41, 76, 121, 176, 242, 319, 406, 503]					
		243*, 244*,				
	[5, 17, 41, 76, 124, 184, 253, 333, 424, 525]					
		245*,				
	[5, 17, 43, 84, 139, 208, 290, 385, 493, 613]					
		247*,				
	[5, 17, 43, 86, 148, 224, 311, 415, 535, 664]					
		246*,				
	[5, 18, 42, 75, 118, 171, 234, 307, 390, 483]					
		248*,				
	[5, 18, 43, 78, 123, 178, 244, 321, 408, 505]					
		249*,				
	[6, 17, 36, 63, 96, 138, 188, 243, 308, 381]					
		198	H_{302}	1	i	$t_x, it_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, m_z t_z^{-1}$
		199	H_{659}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, r_x^{-1} t_z^{-1}$
	[6, 17, 36, 65, 101, 146, 203, 264, 333, 416]					
		200	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, m_z t_z^{-1}$
	[6, 17, 36, 67, 106, 154, 213, 281, 363, 459]					
		201	H_{658}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[6, 18, 38, 66, 102, 146, 198, 258, 326, 402]					
		202	H_{654}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, it_y^{-1}, r_z^2 r_x t_z^{-1}$
		203	H_{656}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
		204	H_{304}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y^{-1}, m_z t_z^{-1}$
	[6, 18, 38, 67, 104, 148, 201, 262, 331, 409]					
		205	H_{316}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
	[6, 18, 39, 68, 105, 150, 204, 266, 336, 414]					
		206	H_{300}	1	i	$t_x, it_x^{-1}, t_x^{-1}, it_y^{-1}, m_z t_z^{-1}$
		207	H_{314}	1	i	$t_x, it_x^{-1}, t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
	[6, 18, 40, 72, 111, 160, 219, 284, 360, 447]					
		208	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
	[6, 18, 41, 72, 113, 162, 222, 292, 370, 458]					
		209	H_{301}	1	i	$t_x, it_x^{-1}, t_x^{-1}, it_y^{-1}, r_y^2 t_z^{-1}$
		210	H_{301}	1	i	$it_x^{-1}, t_y, it_y^{-1}, t_y^{-1}, r_y^2 t_z^{-1}$
	[6, 18, 41, 72, 113, 162, 223, 292, 370, 456]					
		211	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, it_y^{-1}, r_x^2 t_z^{-1}$
	[6, 18, 41, 72, 114, 166, 230, 304, 384, 474]					
		212	H_{312}	1	i	$t_x, it_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_x^2 t_z^{-1}$
	[6, 18, 45, 87, 138, 208, 292, 388, 496, 616]					
		213	H_{308}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y, r_y^2 r_z t_z^{-1}$
	[6, 19, 41, 71, 110, 158, 214, 279, 353, 435]					
		214	H_{302}	1	i	$it_x^{-1}, m_z t_y, r_z^2 t_y^{-1}, m_z t_y^{-1}, m_z t_z^{-1}$
	[6, 19, 41, 71, 111, 158, 216, 280, 355, 437]					
		215	H_{317}	1	i	$r_z^2 t_x^{-1}, m_y t_y^{-1}, m_y t_z, r_y^2 t_z^{-1}, m_y t_z^{-1}$
	[6, 19, 41, 72, 111, 159, 217, 282, 356, 440]					
		216	H_{317}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z^{-1}$
	[6, 19, 41, 73, 114, 164, 225, 295, 374, 463]					
		217	H_{315}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
	[6, 19, 42, 75, 116, 166, 226, 293, 372, 458]					
		218	H_{423}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[6, 19, 43, 75, 118, 170, 231, 302, 383, 472]					
		219	H_{318}	1	i	$r_z^2 t_x^{-1}, m_y t_y^{-1}, m_x t_z, m_x t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 19, 43, 76, 117, 171, 234, 303, 387, 480]					
		220	H_{661}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_y t_y^{-1}, r_x^{-1} t_z^{-1}$
	[6, 19, 45, 79, 126, 183, 250, 327, 416, 513]					
		221	H_{315}	1	i	$r_z^2 t_x^{-1}, m_z t_y, r_z^2 t_y^{-1}, m_z t_y^{-1}, r_y^2 t_z^{-1}$
	[6, 19, 45, 82, 134, 193, 264, 345, 438, 541]					
		222	H_{315}	1	i	$r_z^2 t_x^{-1}, r_z^2 t_y^{-1}, m_y t_z, r_y^2 t_z^{-1}, m_y t_z^{-1}$
	[6, 19, 45, 86, 143, 206, 283, 375, 480, 590]					
		223	H_{311}	1	i	$it_x^{-1}, r_z^2 t_y^{-1}, m_y t_z, r_y^2 t_z^{-1}, m_y t_z^{-1}$
	[6, 19, 47, 84, 140, 201, 275, 360, 458, 564]					
		224	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z^{-1}$
	[6, 19, 50, 95, 152, 225, 311, 409, 519, 641]					
		225	H_{326}	1	i	$r_z^2 r_x t_x^{-1}, m_y t_y^{-1}, r_z^2 t_z, m_z t_z, r_z^2 t_z^{-1}$
	[6, 20, 43, 77, 120, 174, 237, 311, 394, 488]					
		226	H_{657}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[6, 20, 44, 79, 123, 174, 239, 311, 392, 485]					
		227	H_{319}	1	i	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[6, 20, 44, 80, 126, 180, 248, 326, 414, 512]					
		228	H_{312}	1	i	$it_x^{-1}, m_z t_y, r_z^2 t_y^{-1}, m_z t_y^{-1}, r_x^2 t_z^{-1}$
	[6, 20, 45, 77, 120, 173, 234, 305, 387, 476]					
		229	H_{303}	1	i	$it_x^{-1}, m_x t_y, m_x t_y^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z^{-1}$
	[6, 20, 45, 80, 122, 177, 242, 312, 397, 492]					
		230	H_{316}	1	i	$r_z^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
	[6, 20, 45, 80, 123, 178, 243, 313, 398, 493]					
		231	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_z^2 t_y^{-1}, m_z t_z^{-1}$
	[6, 20, 45, 81, 126, 182, 249, 327, 414, 512]					
		232	H_{316}	1	i	$r_z^2 t_x^{-1}, m_y t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
	[6, 20, 46, 80, 125, 179, 243, 317, 402, 495]					
		233	H_{314}	1	i	$it_x^{-1}, m_y t_y^{-1}, m_x t_z, m_x t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 20, 46, 83, 134, 197, 272, 358, 456, 565]					
		234	H_{305}	1	i	$t_x, it_x^{-1}, t_x^{-1}, it_y^{-1}, r_y^2 r_z t_z^{-1}$
	[6, 20, 47, 85, 137, 201, 278, 366, 466, 577]					
		235	H_{305}	1	i	$t_x, it_x^{-1}, t_x^{-1}, it_y, r_y^2 r_z t_z^{-1}$
	[6, 20, 48, 85, 138, 197, 270, 351, 446, 549]					
		236	H_{301}	1	i	$it_x^{-1}, it_y^{-1}, m_y t_z, r_y^2 t_z^{-1}, m_y t_z^{-1}$
	[6, 20, 48, 87, 143, 203, 280, 365, 463, 569]					
		237	H_{312}	1	i	$it_x^{-1}, r_z^2 t_y^{-1}, m_x t_z, m_x t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 20, 49, 89, 143, 207, 280, 367, 463, 572]					
		238	H_{406}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[6, 20, 50, 93, 150, 221, 307, 405, 515, 637]					
		239	H_{308}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[6, 21, 46, 81, 123, 178, 243, 313, 398, 493]					
		240	H_{660}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_z^2 t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[6, 21, 46, 81, 126, 181, 246, 321, 406, 501]					
		241	H_{302}	1	i	$it_x^{-1}, r_z^2 t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
	[6, 21, 46, 82, 127, 182, 247, 322, 407, 502]					
		242	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, it_y^{-1}, r_x^2 t_z^{-1}$
	[6, 21, 48, 85, 132, 189, 258, 337, 426, 525]					
		243	H_{313}	1	i	$it_x^{-1}, m_y t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
		244	H_{317}	1	i	$r_z^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z^{-1}$
	[6, 21, 50, 90, 146, 213, 292, 384, 488, 603]					
		245	H_{323}	1	i	$r_z^2 t_x^{-1}, r_x^2 r_y t_y^{-1}, m_x t_z, r_x^2 t_z, m_x t_z^{-1}$
	[6, 21, 51, 95, 157, 232, 323, 428, 549, 680]					
		246	H_{323}	1	i	$r_z^2 t_x^{-1}, r_x^2 r_y t_y^{-1}, m_x t_z, m_x t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 21, 53, 97, 154, 225, 311, 409, 519, 641]					
		247	H_{326}	1	i	$r_z^2 r_x t_x^{-1}, m_y t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
	[6, 22, 47, 82, 127, 182, 247, 322, 407, 502]					
		248	H_{655}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, it_y^{-1}, r_z^2 r_x t_z^{-1}$
	[6, 22, 49, 86, 133, 190, 259, 338, 427, 526]					
		249	H_{314}	1	i	$it_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
4B						
	[5, 14, 32, 64, 112, 176, 256, 352, 464, 592]					
		250*,				
	[5, 14, 32, 65, 120, 201, 300, 409, 537, 692]					
		251*,				
	[5, 14, 32, 68, 124, 208, 312, 424, 555, 711]					
		252*,				
	[5, 14, 32, 68, 130, 210, 310, 430, 566, 718]					
		253*,				
	[5, 16, 42, 88, 152, 232, 328, 440, 568, 712]					
		254*,				
	[5, 17, 46, 98, 171, 260, 364, 484, 620, 772]					
		255*,				
	[5, 17, 46, 98, 172, 261, 364, 484, 620, 772]					
		256*,				

Nbr.	gr	№	H_i	L	m	X
	[5, 18, 48, 100, 172, 260, 364, 484, 620, 772]					
		257*,				
	[6, 18, 44, 88, 148, 224, 316, 424, 548, 688]					
		250	H_{757}	$\langle m_z, r_x^2 \rangle$	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}$
	[6, 18, 44, 90, 157, 242, 340, 455, 592, 746]					
		251	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}$
	[6, 18, 44, 92, 158, 248, 346, 464, 601, 756]					
		252	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_x^2 t_y, i t_y^{-1}$
	[6, 18, 44, 96, 160, 248, 348, 472, 604, 760]					
		253	H_{759}	$\langle m_z, r_x^2 \rangle$	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_z^2 t_y, m_x t_y^{-1}$
	[6, 20, 52, 104, 172, 256, 356, 472, 604, 752]					
		254	H_{758}	$\langle m_z, r_x^2 \rangle$	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}$
	[6, 21, 55, 111, 184, 272, 376, 496, 632, 784]					
		255	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}$
	[6, 21, 55, 111, 185, 272, 376, 496, 632, 784]					
		256	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_x^2 t_y, i t_y^{-1}$
	[6, 22, 56, 112, 184, 272, 376, 496, 632, 784]					
		257	H_{760}	$\langle m_z, r_x^2 \rangle$	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_z^2 t_y, m_x t_y^{-1}$
5A						
	[6, 18, 38, 66, 102, 146, 198, 258, 326, 402]					
		258*,				
	[6, 18, 39, 71, 114, 165, 224, 294, 375, 467]					
		259*,				
	[6, 18, 40, 73, 114, 165, 228, 298, 378, 471]					
		260*,				
	[6, 19, 42, 75, 118, 171, 234, 307, 390, 483]					
		261*,				
	[6, 19, 43, 76, 118, 172, 234, 305, 389, 480]					
		262*,				
	[6, 19, 43, 77, 122, 178, 244, 320, 406, 503]					
		263*,				
	[6, 19, 43, 78, 123, 178, 244, 321, 408, 505]					
		264*,				
	[6, 19, 44, 80, 127, 185, 256, 340, 433, 536]					
		265*,				
	[6, 19, 45, 84, 139, 206, 282, 370, 470, 582]					
		266*,				
	[6, 19, 45, 86, 141, 210, 292, 387, 495, 615]					
		268*, 269*, 270*, 271*,				
	[6, 19, 48, 90, 142, 206, 282, 370, 470, 582]					
		267*,				
	[6, 21, 51, 95, 153, 224, 308, 406, 516, 638]					
		273*,				
	[6, 21, 51, 95, 154, 227, 313, 413, 526, 652]					
		272*,				
	[6, 21, 51, 95, 155, 230, 318, 420, 535, 663]					
		274*,				
	[6, 21, 51, 95, 156, 233, 323, 427, 545, 677]					
		275*,				
	[7, 21, 44, 77, 119, 170, 231, 301, 380, 469]					
		258	H_{748}	$\langle m_z r_x^{-1}, r_z^2 r_x \rangle$	i	$r_z^2 t_x, m_x r_x t_x, m_y t_x^{-1}, r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_y^2 t_z$
	[7, 21, 45, 80, 124, 176, 239, 313, 395, 488]					
		259	H_{645}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_y^2 r_x t_x, r_z^2 r_x t_x, r_z^2 t_x^{-1}, m_x r_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_z t_z$
	[7, 21, 46, 81, 123, 178, 243, 313, 398, 493]					
		260	H_{747}	$\langle m_z r_x^{-1}, r_z^2 r_x \rangle$	i	$r_y^2 r_x t_x, r_z^2 r_x t_x, m_z r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_y^2 t_z$
	[7, 22, 47, 82, 127, 182, 247, 322, 407, 502]					
		261	H_{745}	$\langle m_z r_x^{-1}, r_z^2 r_x \rangle$	i	$r_y^2 r_x t_x, r_z^2 r_x t_x, m_z r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, m_z r_x t_y^{-1}, r_x^2 t_z$
	[7, 22, 49, 84, 131, 188, 255, 332, 421, 518]					
		262	H_{616}	$\langle m_z \rangle$	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z, m_x t_z^{-1}, m_y t_z^{-1}$
	[7, 22, 49, 85, 133, 190, 259, 336, 426, 525]					
		263	H_{461}	1	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
	[7, 22, 49, 86, 133, 190, 259, 338, 427, 526]					
		264	H_{615}	$\langle m_z \rangle$	r_z^2	$r_z^2 t_x^{-1}, m_y t_y^{-1}, i t_z, m_z t_z, r_z^2 t_z^{-1}, t_z^{-1}$
	[7, 22, 50, 87, 141, 202, 277, 360, 459, 566]					
		265	H_{539}	1	r_z^2	$i t_x^{-1}, r_x^2 t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
	[7, 22, 50, 89, 147, 212, 296, 384, 488, 600]					
		266	H_{638}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_y^2 r_x t_x, r_z^2 r_x t_x, r_z^2 t_x^{-1}, m_x r_x t_x^{-1}, m_z r_x t_y^{-1}, r_x^2 t_z$
	[7, 22, 53, 93, 152, 216, 296, 384, 488, 600]					
		267	H_{746}	$\langle m_z r_x^{-1}, r_z^2 r_x \rangle$	i	$r_z^2 t_x, m_x r_x t_x, m_y t_x^{-1}, r_x t_x^{-1}, m_z r_x t_y^{-1}, r_x^2 t_z$
	[7, 22, 54, 98, 155, 226, 312, 410, 520, 642]					
		268	H_{308}	1	i	$r_z^2 t_x^{-1}, r_z^2 t_y, m_z t_y, r_z^2 t_y^{-1}, m_z t_y^{-1}, r_y^2 r_z t_z^{-1}$
		269	H_{326}	1	i	$r_z^2 r_x t_x^{-1}, m_y t_y^{-1}, r_z^2 t_z, m_z t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
		270	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x^2 t_y^{-1}, r_y^2 t_z, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		271	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_y t_y^{-1}, i t_z, m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
	[7, 24, 57, 102, 163, 236, 325, 426, 541, 668]					
		272	H_{305}	1	i	$i t_x^{-1}, i t_y, t_y, i t_y^{-1}, t_y^{-1}, r_y^2 r_z t_z^{-1}$
		273	H_{540}	1	r_z^2	$i t_x^{-1}, r_x^2 r_y t_y^{-1}, m_x t_z, m_y t_z, m_x t_z^{-1}, m_y t_z^{-1}$
	[7, 24, 57, 102, 165, 240, 331, 434, 551, 680]					
		274	H_{504}	1	r_z^2	$r_z^2 t_x^{-1}, r_x^2 r_y t_y^{-1}, r_z^2 t_z, t_z, r_z^2 t_z^{-1}, t_z^{-1}$
	[7, 24, 57, 102, 165, 240, 331, 434, 554, 686]					

Nbr.	gr	№	H_i	L	m	X
		275	H_{323}	1	i	$r_z^2 t_x, m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_x^2 r_y t_y^{-1}, r_x^2 t_z^{-1}$
5B						
	[6, 19, 48, 100, 172, 260, 364, 484, 620, 772]					
		276*,				
	[7, 22, 56, 112, 184, 272, 376, 496, 632, 784]					
		276	H_{779}	$\langle i, r_x^2, r_z^2 \rangle$	$r_z^2 r_x$	$m_x t_x, m_z r_x^{-1} t_x, t_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, t_y^{-1}$
6						
	[4, 10, 24, 52, 104, 180, 268, 354, 452, 570]					
		308*,				
	[4, 11, 27, 64, 127, 209, 291, 377, 477, 591]					
		317*,				
	[4, 11, 30, 65, 109, 159, 217, 283, 357, 442]					
		314*,				
	[4, 11, 30, 65, 112, 164, 229, 302, 383, 486]					
		316*,				
	[4, 11, 30, 65, 116, 181, 258, 347, 449, 565]					
		315*,				
	[4, 11, 30, 66, 119, 190, 262, 342, 438, 547]					
		318*,				
	[4, 11, 30, 67, 135, 213, 285, 375, 478, 600]					
		319*,				
	[4, 12, 30, 66, 107, 154, 211, 278, 353, 438]					
		328*, 329*,				
	[4, 12, 30, 66, 114, 174, 243, 326, 419, 526]					
		333*,				
	[4, 12, 30, 66, 124, 195, 272, 368, 472, 589]					
		335*,				
	[4, 12, 33, 73, 129, 189, 257, 343, 441, 549]					
		334*,				
	[4, 12, 33, 78, 140, 210, 292, 389, 499, 617]					
		331*,				
	[4, 12, 36, 76, 123, 176, 241, 318, 401, 500]					
		336*,				
	[5, 13, 27, 51, 86, 130, 182, 242, 310, 386]					
		277	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
		278	H_{419}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[5, 14, 30, 54, 87, 130, 182, 242, 310, 386]					
		279	H_{415}	1	$r_z^2 r_x$	$i t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
		280	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_y t_y^{-1}, m_z t_z, m_z t_z^{-1}$
	[5, 14, 31, 56, 85, 120, 165, 216, 271, 334]					
		281	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_y t_y, r_x^{-1} t_y^{-1}, r_x t_z$
	[5, 14, 31, 58, 94, 138, 190, 250, 318, 394]					
		282	H_{402}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
		283	H_{404}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[5, 14, 31, 59, 100, 155, 223, 303, 395, 500]					
		284	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_z t_z^{-1}$
	[5, 14, 31, 60, 105, 165, 232, 306, 398, 507]					
		285	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_z t_z^{-1}$
	[5, 15, 33, 58, 89, 127, 173, 226, 285, 351]					
		286	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_x^2 t_z^{-1}$
	[5, 15, 33, 59, 94, 138, 190, 250, 318, 394]					
		287	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^2 t_y, r_x^2 t_y^{-1}, r_x^2 t_z^{-1}$
		288	H_{401}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[5, 15, 33, 60, 101, 156, 222, 303, 396, 499]					
		289	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_y^2 t_z$
	[5, 15, 34, 59, 89, 130, 177, 227, 290, 359]					
		290	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_y t_y, r_x^{-1} t_y^{-1}, r_x t_z$
	[5, 15, 36, 68, 106, 152, 208, 271, 344, 427]					
		291	H_{418}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x t_z^{-1}$
	[5, 15, 36, 71, 115, 175, 248, 322, 415, 519]					
		292	H_{407}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x t_z^{-1}$
	[5, 16, 34, 60, 95, 138, 190, 250, 318, 394]					
		293	H_{396}	1	$r_z^2 r_x$	$i t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
		294	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[5, 16, 34, 64, 107, 166, 238, 326, 426, 542]					
		295	H_{418}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[5, 16, 35, 60, 93, 134, 181, 236, 299, 368]					
		296	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_x^2 t_z^{-1}$
	[5, 16, 35, 62, 98, 142, 194, 254, 322, 398]					
		297	H_{391}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
		298	H_{392}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[5, 16, 38, 68, 106, 156, 213, 278, 356, 440]					
		299	H_{388}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_z^{-1}$
	[5, 16, 38, 69, 108, 155, 209, 274, 347, 427]					
		300	H_{419}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z$
	[5, 16, 38, 69, 109, 160, 218, 285, 365, 452]					
		301	H_{400}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_z^{-1}$
	[5, 16, 38, 70, 114, 174, 246, 329, 427, 537]					
		302	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_x^2 t_y, i t_y^{-1}, r_x^2 t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
	[5, 16, 38, 72, 120, 186, 261, 344, 447, 566]					
		303	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_x^2 t_y, i t_y^{-1}, r_x^2 t_z^{-1}$
	[5, 16, 38, 74, 125, 189, 265, 354, 455, 568]					
		304	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_y^2 t_z$
	[5, 16, 38, 78, 133, 204, 288, 388, 500, 628]					
		305	H_{407}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[5, 16, 39, 78, 126, 190, 266, 358, 462, 582]					
		306	H_{414}	1	$r_z^2 r_x$	$i t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[5, 16, 39, 80, 136, 208, 292, 392, 504, 632]					
		307	H_{410}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[5, 16, 43, 81, 137, 201, 286, 377, 482, 597]					
		308	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[5, 17, 39, 74, 116, 168, 228, 298, 376, 466]					
		309	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_x r_x^{-1} t_y, r_z^2 t_y^{-1}, m_x r_x t_z^{-1}$
	[5, 17, 40, 78, 126, 192, 269, 352, 449, 562]					
		310	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y, r_z^2 t_y^{-1}, m_x r_x t_z^{-1}$
	[5, 17, 41, 74, 117, 171, 232, 304, 388, 478]					
		311	H_{401}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[5, 17, 41, 75, 122, 184, 256, 343, 445, 555]					
		312	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, i t_y^{-1}, i t_z, r_x^2 t_z^{-1}$
	[5, 17, 41, 76, 123, 182, 248, 324, 417, 516]					
		313	H_{402}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z$
	[5, 17, 44, 81, 130, 188, 256, 334, 419, 524]					
		314	H_{410}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x t_z^{-1}$
	[5, 17, 44, 81, 136, 205, 286, 381, 493, 616]					
		315	H_{414}	1	$r_z^2 r_x$	$i t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x t_z^{-1}$
	[5, 17, 44, 83, 129, 185, 261, 329, 423, 533]					
		316	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z$
	[5, 17, 46, 88, 149, 218, 299, 396, 498, 618]					
		317	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[5, 17, 47, 88, 140, 209, 286, 378, 469, 586]					
		318	H_{404}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z$
	[5, 17, 47, 91, 150, 223, 308, 402, 503, 631]					
		319	H_{415}	1	$r_z^2 r_x$	$i t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z$
	[5, 18, 41, 78, 124, 182, 249, 328, 417, 518]					
		320	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y^2 r_z t_y, r_x^2 r_y t_y^{-1}, r_y^2 r_z t_z$
	[5, 18, 41, 78, 128, 194, 272, 366, 472, 594]					
		321	H_{389}	1	$r_z^2 r_x$	$i t_x^{-1}, i t_y^{-1}, i t_z, i t_z^{-1}$
	[5, 18, 42, 79, 124, 181, 247, 325, 412, 511]					
		322	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_y^2 r_x t_y, i t_y^{-1}, r_y^2 r_x t_z^{-1}$
	[5, 18, 42, 80, 129, 194, 272, 366, 472, 594]					
		323	H_{400}	1	$r_z^2 r_x$	$m_x t_x^{-1}, i t_y^{-1}, i t_z, i t_z^{-1}$
	[5, 18, 43, 81, 131, 191, 263, 347, 443, 549]					
		324	H_{391}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[5, 18, 43, 82, 135, 202, 280, 372, 478, 594]					
		325	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, i t_y^{-1}, i t_z, r_x^2 t_z^{-1}$
	[5, 18, 43, 83, 134, 199, 275, 367, 467, 581]					
		326	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y, i t_y^{-1}, r_y^2 r_x t_z^{-1}$
	[5, 18, 43, 84, 137, 206, 286, 382, 489, 612]					
		327	H_{388}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, i t_y^{-1}, i t_z, i t_z^{-1}$
	[5, 18, 44, 82, 126, 183, 248, 325, 411, 508]					
		328	H_{389}	1	$r_z^2 r_x$	$i t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_z^{-1}$
	[5, 18, 44, 83, 129, 185, 254, 332, 420, 518]					
		329	H_{398}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_z^{-1}$
	[5, 18, 44, 86, 140, 210, 292, 390, 500, 626]					
		330	H_{398}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, i t_y^{-1}, i t_z, i t_z^{-1}$
	[5, 18, 46, 94, 160, 233, 318, 430, 547, 665]					
		331	H_{393}	1	$r_z^2 r_x$	$r_y^{-1} r_z^{-1} t_x^{-1}, r_y r_x t_y, r_x^2 r_y t_y^{-1}, r_y^2 r_z t_z$
	[5, 18, 47, 87, 140, 207, 284, 376, 480, 596]					
		332	H_{393}	1	$r_z^2 r_x$	$r_y^{-1} r_z^{-1} t_x^{-1}, r_y r_x t_y, r_y^{-1} r_z^{-1} t_y^{-1}, r_y r_x t_z$
	[5, 18, 47, 88, 141, 204, 282, 369, 471, 582]					
		333	H_{392}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[5, 18, 47, 88, 142, 203, 279, 368, 467, 576]					
		334	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z$
	[5, 18, 47, 91, 146, 217, 305, 401, 508, 633]					
		335	H_{396}	1	$r_z^2 r_x$	$i t_x^{-1}, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[5, 18, 49, 90, 137, 199, 270, 351, 446, 548]					
		336	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y^2 r_z t_y, r_y^{-1} r_z^{-1} t_y^{-1}, r_y r_x t_z$

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[5, 13, 26, 45, 69, 98, 133, 173, 218, 269]
337*,
[5, 14, 31, 57, 90, 131, 181, 238, 303, 377]
339*,
[5, 14, 31, 57, 91, 134, 185, 244, 313, 390]
338*,
[5, 14, 31, 57, 91, 136, 192, 253, 320, 399]
340*,

Nbr.	gr	№	H_i	L	m	X
	[5, 14, 34, 71, 120, 185, 258, 341, 438, 547]					
		342*,				
	[5, 14, 34, 72, 127, 193, 269, 359, 461, 573]					
		341*,				
	[5, 15, 32, 55, 85, 122, 165, 215, 272, 335]					
		343*,				
	[5, 15, 33, 61, 99, 146, 202, 267, 341, 425]					
		344*,				
	[5, 15, 34, 67, 111, 162, 229, 302, 383, 486]					
		345*,				
	[5, 15, 38, 74, 127, 194, 270, 356, 457, 571]					
		346*,				
	[5, 16, 36, 67, 109, 162, 225, 296, 378, 471]					
		350*,				
	[5, 16, 37, 66, 103, 150, 205, 268, 341, 422]					
		348*, 352*,				
	[5, 16, 37, 66, 105, 157, 217, 283, 357, 442]					
		353*,				
	[5, 16, 37, 67, 107, 158, 217, 286, 367, 455]					
		349*,				
	[5, 16, 37, 71, 117, 170, 236, 314, 399, 498]					
		351*,				
	[5, 16, 37, 72, 117, 176, 245, 328, 421, 528]					
		355*,				
	[5, 16, 37, 72, 122, 188, 271, 355, 445, 559]					
		347*,				
	[5, 16, 39, 78, 134, 202, 280, 374, 485, 604]					
		354*,				
	[5, 16, 39, 79, 135, 204, 281, 373, 481, 602]					
		356*,				
	[5, 17, 40, 73, 116, 170, 235, 310, 395, 491]					
		357*,				
	[5, 17, 41, 77, 127, 187, 258, 345, 443, 551]					
		358*,				
	[5, 17, 41, 81, 137, 204, 283, 373, 478, 597]					
		359*,				
	[5, 18, 39, 70, 109, 158, 215, 282, 357, 442]					
		360*, 361*,				
	[5, 18, 43, 76, 121, 176, 241, 318, 401, 500]					
		362*,				
	[5, 18, 43, 81, 131, 191, 263, 347, 443, 549]					
		363*,				
	[5, 18, 43, 83, 136, 203, 282, 377, 481, 599]					
		365*,				
	[5, 18, 46, 88, 140, 204, 284, 376, 478, 594]					
		364*,				
	[5, 18, 47, 87, 140, 207, 284, 376, 480, 596]					
		366*,				
	[6, 17, 36, 64, 98, 140, 191, 248, 313, 387]					
		337	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_z t_z^{-1}$
	[6, 18, 40, 71, 109, 156, 211, 275, 348, 429]					
		338	H_{419}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[6, 18, 41, 73, 114, 163, 222, 289, 366, 452]					
		339	H_{418}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}$
	[6, 18, 41, 74, 115, 171, 236, 304, 387, 479]					
		340	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_z t_z^{-1}$
	[6, 18, 43, 83, 141, 208, 292, 382, 487, 607]					
		341	H_{407}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}$
	[6, 18, 47, 88, 140, 209, 286, 378, 469, 586]					
		342	H_{404}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[6, 19, 41, 72, 111, 159, 217, 282, 356, 440]					
		343	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_x^2 t_z^{-1}$
	[6, 19, 42, 76, 118, 170, 230, 300, 378, 468]					
		344	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_x r_x^{-1} t_y, r_z^2 t_y^{-1}, m_x r_x t_z^{-1}, m_z t_z^{-1}$
	[6, 19, 43, 83, 129, 185, 261, 329, 423, 533]					
		345	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z, m_z t_z$
	[6, 19, 48, 87, 145, 211, 290, 379, 483, 600]					
		346	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[6, 20, 44, 85, 137, 208, 293, 372, 471, 591]					
		347	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y, r_z^2 t_y^{-1}, m_x r_x t_z^{-1}, m_z t_z^{-1}$
	[6, 20, 45, 77, 120, 173, 234, 305, 387, 476]					
		348	H_{388}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, i t_z^{-1}$
	[6, 20, 45, 79, 124, 177, 240, 315, 397, 489]					
		349	H_{401}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[6, 20, 45, 81, 128, 188, 259, 339, 427, 529]					
		350	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_x^2 t_z^{-1}$
	[6, 20, 45, 85, 132, 188, 262, 339, 428, 535]					
		351	H_{402}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[6, 20, 46, 80, 125, 179, 243, 317, 402, 495]					
		352	H_{400}	1	$r_z^2 r_x$	$m_x t_x^{-1}, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, i t_z^{-1}$
	[6, 20, 47, 81, 131, 191, 259, 338, 423, 526]					
		353	H_{410}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}$
	[6, 20, 48, 88, 145, 214, 297, 395, 508, 628]					
		354	H_{414}	1	$r_z^2 r_x$	$i t_x^{-1}, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}$
	[6, 20, 49, 88, 142, 205, 283, 370, 472, 583]					

Nbr.	gr	№	H_i	L	m	X
		355	H_{392}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[6, 20, 50, 94, 152, 220, 305, 402, 508, 629]					
		356	H_{415}	1	$r_z^2 r_x$	$it_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[6, 21, 48, 85, 132, 190, 258, 337, 426, 526]					
		357	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_y^2 r_x t_y, it_y^{-1}, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 21, 49, 88, 142, 204, 280, 369, 468, 577]					
		358	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z$
	[6, 21, 50, 93, 150, 219, 300, 393, 502, 618]					
		359	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[6, 22, 47, 83, 128, 185, 250, 327, 413, 510]					
		360	H_{389}	1	$r_z^2 r_x$	$it_x^{-1}, it_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, it_z^{-1}$
	[6, 22, 48, 85, 132, 189, 258, 336, 425, 524]					
		361	H_{398}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, it_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, it_z^{-1}$
	[6, 22, 50, 89, 137, 199, 270, 351, 446, 548]					
		362	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y^2 r_z t_y, r_y^{-1} r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y r_x t_z$
	[6, 22, 50, 92, 144, 206, 282, 370, 466, 576]					
		363	H_{391}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[6, 22, 52, 96, 151, 219, 301, 394, 498, 617]					
		364	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y, it_y^{-1}, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[6, 22, 53, 96, 155, 224, 309, 405, 515, 637]					
		365	H_{396}	1	$r_z^2 r_x$	$it_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[6, 22, 56, 96, 156, 222, 306, 398, 508, 624]					
		366	H_{393}	1	$r_z^2 r_x$	$r_y^{-1} r_z^{-1} t_x^{-1}, r_y r_x t_y, r_y^{-1} r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y r_x t_z$
7B						
	[5, 14, 34, 68, 112, 170, 244, 326, 420, 532]					
		367*,				
	[5, 15, 37, 77, 129, 189, 267, 358, 454, 569]					
		369*,				
	[5, 15, 38, 77, 126, 183, 253, 336, 429, 535]					
		368*,				
	[5, 15, 39, 77, 128, 193, 266, 350, 453, 570]					
		370*,				
	[5, 15, 39, 81, 135, 202, 284, 380, 490, 614]					
		371*,				
	[5, 15, 41, 84, 134, 200, 278, 367, 471, 591]					
		372*,				
	[5, 15, 41, 86, 147, 226, 320, 418, 530, 661]					
		374*,				
	[5, 15, 41, 91, 152, 230, 320, 421, 537, 670]					
		375*,				
	[5, 15, 42, 90, 151, 228, 315, 412, 525, 654]					
		373*,				
	[5, 16, 41, 84, 142, 211, 294, 390, 499, 624]					
		376*,				
	[5, 16, 41, 84, 142, 212, 289, 382, 493, 613]					
		377*,				
	[5, 16, 42, 89, 149, 214, 289, 380, 485, 599]					
		378*,				
	[5, 16, 42, 89, 152, 227, 313, 413, 530, 661]					
		379*,				
	[5, 16, 42, 95, 157, 229, 317, 421, 534, 663]					
		382*,				
	[5, 16, 45, 95, 155, 225, 308, 403, 513, 637]					
		380*,				
	[5, 16, 45, 96, 154, 217, 297, 392, 499, 618]					
		381*,				
	[5, 16, 45, 98, 161, 234, 319, 418, 530, 655]					
		383*,				
	[5, 17, 45, 87, 141, 207, 285, 378, 482, 597]					
		385*,				
	[5, 17, 45, 88, 153, 236, 323, 420, 531, 661]					
		384*,				
	[5, 17, 45, 96, 165, 242, 330, 430, 544, 674]					
		386*,				
	[5, 17, 47, 93, 155, 232, 317, 419, 541, 672]					
		389*,				
	[5, 17, 47, 94, 155, 229, 318, 419, 536, 665]					
		387*,				
	[5, 17, 49, 96, 155, 227, 316, 415, 528, 655]					
		388*,				
	[5, 18, 48, 102, 161, 233, 320, 423, 538, 669]					
		392*,				
	[5, 18, 50, 100, 155, 223, 305, 399, 509, 629]					
		390*,				
	[5, 18, 50, 101, 160, 225, 309, 407, 509, 632]					
		395*,				
	[5, 18, 50, 102, 161, 233, 321, 423, 539, 669]					
		396*,				
	[5, 18, 50, 104, 162, 231, 318, 419, 532, 661]					
		393*,				
	[5, 18, 51, 103, 166, 239, 327, 429, 542, 672]					
		391*,				
	[5, 18, 52, 102, 156, 222, 303, 396, 503, 622]					
		394*,				
	[6, 18, 45, 87, 138, 205, 287, 374, 477, 599]					
		367	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z$
	[6, 19, 48, 92, 143, 204, 281, 367, 464, 577]					

Nbr.	gr	№	H_i	L	m	X
		368	H_{419}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z$
	[6, 19, 48, 95, 148, 215, 305, 394, 496, 629]					
		369	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_x^2 t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z$
	[6, 19, 50, 90, 145, 213, 290, 377, 481, 599]					
		370	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z$
	[6, 19, 50, 97, 157, 230, 319, 420, 537, 666]					
		371	H_{418}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z$
	[6, 19, 52, 98, 150, 226, 302, 400, 506, 636]					
		372	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z$
	[6, 19, 52, 101, 162, 241, 323, 428, 541, 673]					
		373	H_{407}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z$
	[6, 19, 53, 101, 164, 242, 332, 434, 549, 680]					
		374	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z, m_z t_z, m_z t_z^{-1}$
	[6, 19, 55, 106, 165, 247, 341, 443, 557, 691]					
		375	H_{415}	1	$r_z^2 r_x$	$i t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z$
	[6, 20, 51, 99, 160, 232, 321, 419, 534, 663]					
		376	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, m_x r_x t_z^{-1}$
	[6, 20, 52, 97, 154, 223, 306, 400, 508, 628]					
		377	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_x^2 t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z$
	[6, 20, 52, 102, 159, 224, 305, 400, 504, 622]					
		378	H_{401}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z$
	[6, 20, 53, 104, 169, 244, 334, 439, 560, 691]					
		379	H_{400}	1	$r_z^2 r_x$	$m_x t_x^{-1}, i t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z$
	[6, 20, 55, 104, 163, 234, 319, 417, 530, 654]					
		380	H_{388}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, i t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z$
	[6, 20, 56, 106, 162, 231, 315, 412, 521, 640]					
		381	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z$
	[6, 20, 56, 109, 169, 248, 340, 444, 559, 696]					
		382	H_{396}	1	$r_z^2 r_x$	$i t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z$
	[6, 20, 57, 108, 168, 243, 330, 434, 544, 671]					
		383	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$
	[6, 21, 53, 97, 168, 244, 331, 432, 545, 677]					
		384	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, m_x r_x t_z^{-1}$
	[6, 21, 54, 97, 154, 220, 302, 397, 500, 619]					
		385	H_{402}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z$
	[6, 21, 55, 109, 175, 249, 340, 441, 559, 690]					
		386	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_y^2 r_x t_y, r_x^2 t_y, i t_y^{-1}, r_y^2 r_x t_z^{-1}$
	[6, 21, 58, 104, 172, 243, 342, 437, 568, 687]					
		387	H_{414}	1	$r_z^2 r_x$	$i t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z$
	[6, 21, 59, 104, 168, 238, 332, 427, 550, 670]					
		388	H_{410}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z$
	[6, 21, 59, 105, 170, 245, 338, 444, 561, 690]					
		389	H_{404}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z$
	[6, 22, 59, 106, 162, 232, 316, 414, 522, 644]					
		390	H_{391}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z$
	[6, 22, 59, 108, 173, 244, 336, 437, 554, 684]					
		391	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y, r_x^2 t_y, i t_y^{-1}, r_y^2 r_x t_z^{-1}$
	[6, 22, 59, 111, 171, 248, 339, 444, 563, 696]					
		392	H_{389}	1	$r_z^2 r_x$	$i t_x^{-1}, i t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z$
	[6, 22, 60, 111, 168, 242, 330, 433, 548, 678]					
		393	H_{398}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, i t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z$
	[6, 22, 61, 112, 172, 245, 339, 438, 560, 687]					
		394	H_{393}	1	$r_z^2 r_x$	$r_y r_x t_x, r_y^{-1} r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y r_x t_z, r_y^{-1} r_z^{-1} t_z^{-1}$
	[6, 22, 61, 113, 172, 250, 343, 443, 561, 700]					
		395	H_{393}	1	$r_z^2 r_x$	$r_x^2 r_y t_x^{-1}, r_y^{-1} r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y r_x t_z, r_x^2 r_y t_z^{-1}$
	[6, 22, 62, 111, 173, 249, 341, 445, 565, 697]					
		396	H_{392}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z$

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[6, 17, 37, 70, 115, 173, 246, 329, 423, 534]
397*,
[6, 17, 38, 75, 125, 183, 253, 336, 429, 535]
398*,
[6, 17, 40, 82, 134, 200, 278, 367, 471, 591]
399*,
[6, 18, 42, 82, 136, 204, 286, 382, 492, 616]
400*,
[6, 18, 42, 83, 140, 210, 294, 390, 499, 624]
401*,
[6, 18, 44, 85, 140, 208, 285, 375, 481, 600]
403*,
[6, 18, 44, 86, 141, 207, 285, 378, 482, 597]
404*,
[6, 18, 44, 87, 153, 236, 323, 420, 531, 661]
402*,
[6, 18, 45, 90, 153, 229, 317, 416, 532, 663]
405*,
[6, 18, 45, 92, 154, 232, 317, 419, 540, 672]
407*,
[6, 18, 46, 92, 155, 232, 317, 419, 541, 672]

Nbr.	gr	№	H_i	L	m	X
		408*,				
	[6, 18, 47, 96, 160, 238, 327, 431, 549, 681]					
		406*,				
	[6, 20, 47, 89, 145, 212, 289, 380, 485, 599]					
		409*,				
	[6, 20, 47, 89, 145, 213, 294, 389, 496, 615]					
		410*,				
	[6, 20, 48, 93, 150, 216, 297, 392, 499, 618]					
		411*,				
	[6, 20, 52, 99, 164, 241, 332, 433, 553, 685]					
		412*,				
	[6, 20, 52, 101, 165, 241, 332, 435, 554, 685]					
		413*,				
	[6, 21, 50, 99, 158, 233, 321, 423, 538, 669]					
		421*,				
	[6, 21, 51, 96, 153, 223, 304, 399, 510, 629]					
		414*,				
	[6, 21, 51, 97, 153, 223, 305, 399, 509, 629]					
		415*,				
	[6, 21, 51, 99, 159, 233, 321, 423, 539, 669]					
		422*,				
	[6, 21, 51, 100, 159, 231, 318, 417, 530, 657]					
		416*,				
	[6, 21, 52, 99, 161, 237, 326, 428, 544, 674]					
		417*,				
	[6, 21, 52, 99, 161, 237, 326, 429, 547, 679]					
		418*,				
	[6, 21, 54, 101, 159, 231, 317, 416, 528, 654]					
		419*,				
	[6, 21, 54, 103, 162, 236, 327, 429, 542, 672]					
		420*,				
	[6, 23, 54, 100, 159, 225, 309, 407, 509, 632]					
		424*,				
	[6, 23, 54, 103, 163, 239, 327, 431, 547, 679]					
		423*,				
	[6, 23, 56, 105, 166, 241, 330, 435, 552, 683]					
		425*,				
	[6, 23, 59, 105, 160, 230, 312, 407, 515, 635]					
		426*,				
	[7, 20, 46, 88, 139, 204, 287, 375, 476, 599]					
		397	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_y^2 t_z, r_x t_z$
	[7, 20, 47, 91, 143, 204, 281, 367, 464, 577]					
		398	H_{419}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z$
	[7, 20, 50, 98, 150, 226, 302, 400, 506, 636]					
		399	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z$
	[7, 21, 51, 97, 157, 230, 319, 420, 537, 666]					
		400	H_{418}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}, r_x t_z^{-1}$
	[7, 21, 51, 98, 159, 232, 321, 419, 534, 663]					
		401	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, m_x r_x t_z^{-1}, m_z t_z^{-1}$
	[7, 21, 52, 97, 168, 244, 331, 432, 545, 677]					
		402	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, m_x r_x t_z^{-1}, m_z t_z^{-1}$
	[7, 21, 53, 96, 153, 221, 302, 395, 500, 620]					
		403	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_y^2 t_z, r_x t_z$
	[7, 21, 53, 97, 154, 220, 302, 397, 500, 619]					
		404	H_{402}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z$
	[7, 21, 55, 103, 166, 244, 330, 433, 549, 683]					
		405	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z, m_z t_z^{-1}$
	[7, 21, 55, 104, 168, 246, 334, 442, 558, 694]					
		406	H_{407}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}, r_x t_z^{-1}$
	[7, 21, 57, 105, 170, 245, 338, 443, 562, 689]					
		407	H_{415}	1	$r_z^2 r_x$	$i t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z$
	[7, 21, 58, 105, 170, 245, 338, 444, 561, 690]					
		408	H_{404}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z$
	[7, 23, 54, 100, 157, 224, 305, 400, 504, 622]					
		409	H_{401}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$
	[7, 23, 54, 100, 157, 226, 312, 409, 515, 641]					
		410	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, i t_y^{-1}, m_z r_x t_y^{-1}, i t_z, m_z r_x t_z, r_x^2 t_z^{-1}$
	[7, 23, 56, 103, 161, 231, 315, 412, 521, 640]					
		411	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z$
	[7, 23, 61, 107, 176, 247, 346, 440, 572, 691]					
		412	H_{410}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}, r_x t_z^{-1}$
	[7, 23, 61, 108, 176, 247, 346, 441, 572, 691]					
		413	H_{414}	1	$r_z^2 r_x$	$i t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}, r_x t_z^{-1}$
	[7, 24, 58, 103, 162, 232, 316, 414, 522, 643]					
		414	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, i t_y^{-1}, m_z r_x t_y^{-1}, i t_z, m_z r_x t_z, r_x^2 t_z^{-1}$
	[7, 24, 58, 104, 162, 232, 316, 414, 522, 644]					
		415	H_{391}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$
	[7, 24, 59, 108, 166, 244, 329, 432, 545, 672]					
		416	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$
	[7, 24, 59, 108, 172, 247, 338, 441, 559, 690]					
		417	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_y^2 r_x t_y, r_x^2 t_y, i t_y^{-1}, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[7, 24, 59, 108, 172, 247, 338, 443, 564, 695]					
		418	H_{400}	1	$r_z^2 r_x$	$m_x t_x^{-1}, i t_y^{-1}, m_z r_x t_y^{-1}, i t_z, m_z r_x t_z, i t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
	[7, 24, 60, 105, 166, 238, 326, 425, 540, 666]					
		419	H_{388}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, it_y^{-1}, m_z r_x t_y^{-1}, it_z, m_z r_x t_z, it_z^{-1}$
	[7, 24, 60, 107, 170, 244, 336, 437, 554, 684]					
		420	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y, r_x^2 t_y, it_y^{-1}, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[7, 24, 60, 109, 172, 250, 340, 445, 564, 698]					
		421	H_{396}	1	$r_z^2 r_x$	$it_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$
	[7, 24, 61, 109, 173, 249, 341, 445, 565, 697]					
		422	H_{392}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$
	[7, 26, 61, 110, 173, 250, 341, 446, 565, 698]					
		423	H_{389}	1	$r_z^2 r_x$	$it_x^{-1}, it_y^{-1}, m_z r_x t_y^{-1}, it_z, m_z r_x t_z, it_z^{-1}$
	[7, 26, 61, 112, 172, 250, 343, 443, 561, 700]					
		424	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y^2 r_z t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y r_x t_z$
	[7, 26, 63, 111, 174, 249, 342, 446, 566, 697]					
		425	H_{398}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, it_y^{-1}, m_z r_x t_y^{-1}, it_z, m_z r_x t_z, it_z^{-1}$
	[7, 26, 66, 110, 176, 249, 344, 444, 566, 694]					
		426	H_{393}	1	$r_z^2 r_x$	$r_y^{-1} r_z^{-1} t_x^{-1}, r_y r_x t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y r_x t_z$

9

[5, 14, 32, 66, 117, 179, 251, 335, 431, 539]
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437*,
[5, 14, 33, 68, 119, 183, 259, 347, 448, 563]
438*,
[5, 15, 38, 77, 126, 186, 260, 342, 434, 541]
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445*,
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446*,
[5, 15, 40, 89, 154, 226, 310, 408, 520, 646]
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449*,
[5, 15, 40, 89, 158, 236, 322, 421, 536, 667]
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457*,
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465*,
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466*,
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469*,
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473*,
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474*,
[5, 17, 48, 101, 167, 240, 327, 430, 545, 675]
475*,
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476*,
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477*,
[5, 17, 51, 112, 188, 278, 383, 503, 639, 790]
478*,
[5, 18, 47, 90, 142, 205, 281, 369, 469, 581]
479*,
[5, 18, 48, 89, 142, 213, 294, 386, 492, 609]
481*,
[5, 18, 48, 90, 143, 210, 289, 379, 480, 597]
482*,

Nbr.	gr	№	H_i	L	m	X
	[5, 18, 48, 90, 143, 211, 288, 377, 483, 599]					
		480*,				
	[5, 18, 49, 96, 153, 224, 308, 402, 513, 638]					
		483*,				
	[5, 18, 49, 100, 168, 252, 352, 468, 600, 748]					
		484*,				
	[5, 18, 50, 105, 179, 268, 372, 492, 628, 780]					
		486*,				
	[5, 18, 50, 107, 181, 268, 372, 492, 628, 780]					
		487*,				
	[5, 18, 52, 106, 170, 245, 335, 439, 557, 689]					
		488*,				
	[5, 18, 52, 110, 184, 272, 376, 496, 632, 784]					
		485*,				
	[5, 18, 55, 109, 171, 244, 329, 431, 547, 675]					
		489*,				
	[5, 18, 55, 121, 198, 285, 390, 509, 643, 795]					
		490*,				
	[5, 18, 56, 121, 198, 285, 389, 509, 643, 795]					
		491*,				
	[5, 19, 52, 101, 159, 230, 316, 414, 526, 652]					
		492*,				
	[5, 19, 52, 102, 163, 237, 326, 427, 543, 674]					
		494*,				
	[5, 19, 52, 102, 165, 239, 328, 432, 547, 678]					
		495*,				
	[5, 19, 53, 102, 160, 236, 328, 426, 538, 670]					
		493*,				
	[5, 20, 54, 104, 165, 239, 328, 431, 548, 679]					
		496*,				
	[5, 20, 54, 106, 168, 241, 330, 433, 550, 681]					
		497*,				
	[5, 20, 56, 111, 183, 272, 376, 496, 632, 784]					
		498*,				
	[5, 20, 58, 110, 170, 244, 332, 434, 550, 680]					
		499*,				
	[5, 20, 58, 111, 173, 247, 335, 439, 556, 687]					
		500*,				
	[5, 20, 58, 112, 172, 245, 335, 439, 556, 687]					
		501*,				
	[5, 20, 59, 118, 191, 280, 384, 504, 640, 792]					
		502*,				
	[6, 18, 38, 66, 102, 146, 198, 258, 326, 402]					
		427	H_{779}	$\langle m_z, m_z r_x, r_x^2 \rangle$	$r_z^2 r_x$	$m_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}$
	[6, 19, 43, 78, 123, 179, 246, 323, 411, 510]					
		428	H_{680}	$\langle m_x \rangle$	r_z^2	$m_x t_x, m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}$
	[6, 19, 44, 84, 141, 217, 312, 424, 552, 696]					
		429	H_{527}	1	r_z^2	$m_x t_x, m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, m_z t_z^{-1}$
		430	H_{529}	1	r_z^2	$m_x t_x, m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[6, 20, 46, 84, 134, 196, 270, 356, 454, 564]					
		431	H_{749}	$\langle m_y, r_z^2 \rangle$	i	$r_y^2 t_x, m_z t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_z t_z^{-1}$
	[6, 20, 47, 86, 137, 202, 278, 366, 469, 582]					
		432	H_{650}	$\langle m_z r_x \rangle$	m_x	$m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
	[6, 20, 47, 88, 145, 220, 313, 424, 552, 696]					
		433	H_{527}	1	r_z^2	$m_x t_x, m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, i t_z^{-1}$
		434	H_{529}	1	r_z^2	$m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[6, 20, 47, 89, 144, 210, 288, 378, 480, 594]					
		435	H_{682}	$\langle m_y \rangle$	m_x	$r_y^2 t_x^{-1}, m_y t_y, t_y^{-1}, m_z t_z, r_y^2 t_z^{-1}$
	[6, 20, 48, 88, 140, 208, 286, 376, 484, 600]					
		436	H_{648}	$\langle m_z r_x \rangle$	m_x	$m_x t_x^{-1}, r_x^2 t_y, i t_y^{-1}, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}$
	[6, 20, 48, 91, 145, 208, 283, 371, 472, 585]					
		437	H_{378}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[6, 20, 48, 91, 149, 220, 306, 404, 514, 636]					
		438	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_y t_y, m_y t_y^{-1}, m_z t_z, i t_z^{-1}$
	[6, 20, 48, 92, 153, 232, 328, 440, 568, 712]					
		439	H_{604}	$\langle r_y^2 \rangle$	r_z^2	$m_x t_x, m_x t_x^{-1}, m_y t_y^{-1}, r_x^2 r_z t_z, r_z t_z^{-1}$
		440	H_{622}	$\langle m_z \rangle$	r_z^2	$m_x t_x, m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, m_x r_z t_z^{-1}$
	[6, 21, 49, 90, 145, 213, 294, 389, 497, 618]					
		441	H_{680}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_y t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}$
	[6, 21, 50, 90, 140, 203, 277, 361, 458, 566]					
		442	H_{359}	1	m_z	$r_z^2 t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_z t_z^{-1}$
	[6, 21, 50, 94, 155, 233, 328, 440, 568, 712]					
		443	H_{452}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 r_z t_z, m_z t_z^{-1}$
		444	H_{503}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 r_z t_z, r_x^2 t_z^{-1}$
	[6, 21, 51, 97, 162, 247, 349, 467, 601, 751]					
		445	H_{452}	1	r_z^2	$r_z^2 t_x^{-1}, t_y, t_y^{-1}, r_y^2 r_z t_z, m_z t_z^{-1}$
	[6, 21, 51, 98, 165, 254, 359, 479, 615, 767]					
		446	H_{503}	1	r_z^2	$r_z^2 t_x^{-1}, t_y, t_y^{-1}, r_y^2 r_z t_z, r_x^2 t_z^{-1}$
	[6, 21, 52, 94, 147, 212, 286, 374, 475, 587]					
		447	H_{377}	1	m_z	$r_y^2 t_x, r_z^{-1} t_x^{-1}, r_z t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[6, 21, 54, 104, 164, 237, 324, 423, 537, 664]					
		448	H_{368}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[6, 21, 54, 104, 168, 239, 328, 429, 544, 670]					

Nbr.	gr	№	H_i	L	m	X
		449	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[6, 21, 54, 104, 169, 245, 333, 434, 553, 685]					
		450	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[6, 21, 54, 105, 167, 243, 332, 434, 553, 683]					
		451	H_{361}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_y, it_y^{-1}, r_y^2 t_z^{-1}$
	[6, 22, 50, 94, 150, 222, 306, 406, 518, 646]					
		452	H_{779}	$\langle m_z, m_z r_x, r_x^2 \rangle$	$r_z^2 r_x$	$m_x t_x^{-1}, r_z^2 t_y, m_x t_y^{-1}, m_x r_x^{-1} t_z, r_y^2 r_x t_z^{-1}$
	[6, 22, 51, 96, 157, 234, 329, 440, 568, 712]					
		453	H_{452}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 r_z t_z, it_z^{-1}$
		454	H_{503}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[6, 22, 52, 98, 161, 240, 336, 448, 576, 720]					
		455	H_{598}	$\langle r_y^2 \rangle$	r_z^2	$r_z^2 t_x, r_x^2 t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 r_z t_z, r_z t_z^{-1}$
		456	H_{611}	$\langle m_z \rangle$	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 r_z t_z, m_x r_z t_z^{-1}$
	[6, 22, 53, 98, 153, 218, 296, 386, 488, 602]					
		457	H_{370}	1	m_z	$r_z^2 t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, r_x^2 t_z^{-1}$
	[6, 22, 54, 100, 158, 228, 312, 407, 516, 639]					
		458	H_{359}	1	m_z	$r_z^2 t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_z t_z^{-1}$
	[6, 22, 55, 101, 158, 230, 315, 411, 522, 647]					
		459	H_{359}	1	m_z	$it_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_z t_z^{-1}$
	[6, 22, 56, 100, 157, 226, 308, 401, 505, 624]					
		460	H_{382}	1	m_z	$r_y^2 t_x, r_z^{-1} t_x^{-1}, r_z t_y, m_y t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[6, 22, 56, 102, 160, 230, 316, 414, 524, 646]					
		461	H_{750}	$\langle m_y, r_z^2 \rangle$	i	$r_y^2 t_x, m_z t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_x^2 r_z t_z^{-1}$
	[6, 22, 56, 106, 174, 259, 362, 482, 618, 770]					
		462	H_{503}	1	r_z^2	$r_z^2 t_x^{-1}, t_y, t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[6, 22, 56, 107, 174, 259, 362, 482, 618, 770]					
		463	H_{452}	1	r_z^2	$r_z^2 t_x^{-1}, t_y, t_y^{-1}, r_y^2 r_z t_z, it_z^{-1}$
	[6, 22, 56, 110, 171, 247, 339, 443, 563, 695]					
		464	H_{649}	$\langle m_z r_x \rangle$	m_x	$r_z^2 r_x t_x^{-1}, r_x^2 t_y, it_y^{-1}, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}$
	[6, 22, 56, 111, 172, 245, 340, 448, 563, 690]					
		465	H_{652}	$\langle m_z r_x \rangle$	m_x	$r_z^2 r_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
	[6, 22, 59, 109, 172, 248, 340, 444, 564, 696]					
		466	H_{682}	$\langle m_y \rangle$	m_x	$r_y^2 t_x^{-1}, r_z^2 t_y, m_x t_y^{-1}, m_z t_z, r_y^2 t_z^{-1}$
	[6, 22, 59, 112, 171, 245, 337, 441, 557, 686]					
		467	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_x t_y, m_x t_y^{-1}, m_z t_z, it_z^{-1}$
	[6, 22, 59, 112, 175, 250, 342, 446, 566, 698]					
		468	H_{378}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[6, 23, 53, 92, 145, 209, 282, 371, 469, 576]					
		469	H_{682}	$\langle m_x \rangle$	r_z^2	$r_y^2 t_x, r_y^2 t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}$
	[6, 23, 53, 94, 150, 215, 290, 381, 482, 595]					
		470	H_{343}	1	m_z	$r_z^2 t_x, m_x r_z t_x^{-1}, it_y, m_x r_z t_y^{-1}, m_z t_z^{-1}$
	[6, 23, 57, 105, 165, 239, 325, 424, 539, 665]					
		471	H_{370}	1	m_z	$it_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, r_x^2 t_z^{-1}$
	[6, 23, 57, 105, 168, 243, 332, 435, 552, 681]					
		472	H_{359}	1	m_z	$it_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_z t_z^{-1}$
	[6, 23, 58, 110, 180, 268, 372, 492, 628, 780]					
		473	H_{527}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, r_y^2 r_z t_z, m_z t_z^{-1}$
	[6, 23, 58, 111, 182, 271, 376, 496, 632, 784]					
		474	H_{529}	1	r_z^2	$m_y t_x, m_y t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[6, 23, 59, 109, 172, 246, 338, 441, 558, 689]					
		475	H_{377}	1	m_z	$r_y^2 t_x, m_z r_z^{-1} t_x^{-1}, m_z r_z t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[6, 23, 60, 109, 167, 241, 328, 427, 541, 668]					
		476	H_{370}	1	m_z	$r_z^2 t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, r_x^2 t_z^{-1}$
	[6, 23, 61, 119, 190, 279, 385, 506, 639, 792]					
		477	H_{541}	1	r_z^2	$r_x t_x, r_x^{-1} t_x^{-1}, m_y t_y^{-1}, m_z t_z, it_z^{-1}$
	[6, 23, 61, 119, 191, 280, 384, 505, 639, 792]					
		478	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y^{-1}, m_z t_z, it_z^{-1}$
	[6, 24, 55, 99, 152, 218, 296, 386, 488, 602]					
		479	H_{683}	$\langle m_x \rangle$	r_z^2	$r_y^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}$
	[6, 24, 56, 100, 158, 225, 304, 400, 506, 622]					
		480	H_{344}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[6, 24, 56, 100, 159, 231, 316, 412, 519, 644]					
		481	H_{347}	1	m_z	$r_z^2 t_x, m_x r_z t_x^{-1}, it_y, m_x r_z t_y^{-1}, r_x^2 r_z t_z^{-1}$
	[6, 24, 56, 100, 160, 230, 312, 407, 516, 638]					
		482	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x^2 t_y, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[6, 24, 58, 103, 161, 234, 319, 416, 529, 653]					
		483	H_{350}	1	m_z	$r_z^2 t_x, it_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_z t_z^{-1}$
	[6, 24, 58, 108, 177, 263, 365, 483, 617, 767]					
		484	H_{611}	$\langle m_z \rangle$	r_z^2	$r_z^2 t_x^{-1}, t_y, t_y^{-1}, r_y^2 r_z t_z, m_x r_z t_z^{-1}$
	[6, 24, 60, 114, 186, 274, 378, 498, 634, 786]					
		485	H_{598}	$\langle r_y^2 \rangle$	r_z^2	$r_y^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 r_z t_z, r_z t_z^{-1}$
	[6, 24, 61, 115, 186, 273, 376, 496, 632, 784]					
		486	H_{529}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[6, 24, 61, 116, 186, 273, 376, 496, 632, 784]					
		487	H_{527}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, r_y^2 r_z t_z, it_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
	[6, 24, 62, 112, 176, 252, 344, 448, 568, 700]					
		488	H_{370}	1	m_z	$it_x,\, r_y^2 t_x^{-1},\, m_y t_y,\, r_x^2 t_y^{-1},\, r_x^2 t_z^{-1}$
	[6, 24, 64, 113, 177, 250, 339, 443, 560, 689]					
		489	H_{382}	1	m_z	$r_y^2 t_x,\, m_z r_z^{-1} t_x^{-1},\, m_z r_z t_y,\, m_y t_y^{-1},\, r_y^2 r_z t_z^{-1}$
	[6, 24, 65, 126, 196, 285, 389, 508, 643, 796]					
		490	H_{511}	1	r_z^2	$r_x t_x,\, r_x^{-1} t_x^{-1},\, r_x^2 t_y^{-1},\, r_x^2 t_z,\, r_y^2 t_z^{-1}$
	[6, 24, 65, 126, 197, 284, 389, 508, 643, 796]					
		491	H_{511}	1	r_z^2	$r_z^2 r_x t_x,\, r_y^2 r_x t_x^{-1},\, r_x^2 t_y^{-1},\, r_x^2 t_z,\, r_y^2 t_z^{-1}$
	[6, 25, 59, 108, 167, 241, 328, 427, 541, 668]					
		492	H_{365}	1	m_z	$r_z^2 t_x,\, it_x^{-1},\, m_y t_y,\, r_x^2 t_y^{-1},\, r_x^2 t_z^{-1}$
	[6, 25, 60, 108, 170, 248, 335, 434, 554, 686]					
		493	H_{372}	1	m_z	$r_z^2 t_x,\, it_x^{-1},\, m_y t_y,\, r_x^2 t_y^{-1},\, r_y^2 t_z^{-1}$
	[6, 25, 61, 108, 170, 246, 336, 438, 557, 687]					
		494	H_{682}	$\langle m_x \rangle$	r_z^2	$it_x,\, r_x^2 t_x^{-1},\, m_y t_y^{-1},\, r_y^2 t_z,\, r_x^2 t_z^{-1}$
	[6, 25, 61, 108, 172, 247, 339, 442, 560, 692]					
		495	H_{343}	1	m_z	$r_z^2 t_x,\, r_y^2 r_z t_x^{-1},\, it_y,\, r_y^2 r_z t_y^{-1},\, m_z t_z^{-1}$
	[6, 26, 61, 111, 174, 250, 342, 446, 566, 698]					
		496	H_{683}	$\langle m_x \rangle$	r_z^2	$it_x,\, r_x^2 t_x^{-1},\, r_x^2 t_y^{-1},\, r_y^2 t_z,\, r_x^2 t_z^{-1}$
	[6, 26, 62, 114, 176, 252, 344, 448, 568, 700]					
		497	H_{364}	1	m_z	$r_z^2 t_x,\, it_x^{-1},\, m_y t_y,\, r_x^2 t_y^{-1},\, it_z^{-1}$
	[6, 26, 64, 118, 190, 278, 382, 502, 638, 790]					
		498	H_{622}	$\langle m_z \rangle$	r_z^2	$m_x t_x^{-1},\, m_x t_y,\, m_x t_y^{-1},\, r_y^2 r_z t_z,\, m_x r_z t_z^{-1}$
	[6, 26, 65, 113, 176, 251, 341, 444, 563, 693]					
		499	H_{347}	1	m_z	$r_z^2 t_x,\, r_y^2 r_z t_x^{-1},\, it_y,\, r_y^2 r_z t_y^{-1},\, r_x^2 r_z t_z^{-1}$
	[6, 26, 65, 114, 177, 251, 343, 447, 566, 697]					
		500	H_{511}	1	r_z^2	$r_z^2 r_x t_x,\, r_y^2 t_y,\, r_y^2 t_y^{-1},\, r_x^2 t_z,\, r_y^2 t_z^{-1}$
	[6, 26, 65, 115, 176, 252, 344, 448, 568, 700]					
		501	H_{344}	1	m_z	$r_z^2 t_x,\, it_x^{-1},\, it_y,\, it_y^{-1},\, r_y^2 r_z t_z^{-1}$
	[6, 26, 66, 122, 194, 282, 386, 506, 642, 794]					
		502	H_{604}	$\langle r_y^2 \rangle$	r_z^2	$it_x,\, m_y t_x^{-1},\, m_y t_y^{-1},\, r_x^2 r_z t_z,\, r_z t_z^{-1}$
10						
	[6, 19, 43, 78, 123, 179, 246, 323, 411, 510]					
		503*,				
	[6, 19, 43, 79, 127, 187, 259, 343, 439, 547]					
		504*,				
	[6, 19, 43, 79, 128, 190, 262, 344, 439, 547]					
		505*,				
	[6, 19, 43, 79, 128, 191, 267, 355, 456, 571]					
		506*,				
	[6, 20, 47, 85, 132, 192, 265, 347, 440, 546]					
		507*,				
	[6, 20, 47, 87, 139, 203, 279, 367, 467, 579]					
		510*,				
	[6, 20, 48, 89, 139, 200, 274, 360, 459, 569]					
		508*,				
	[6, 20, 48, 90, 143, 207, 283, 371, 471, 583]					
		509*,				
	[6, 20, 48, 90, 144, 211, 290, 381, 486, 602]					
		511*,				
	[6, 20, 48, 91, 147, 216, 297, 388, 491, 607]					
		512*,				
	[6, 20, 49, 94, 151, 220, 303, 399, 508, 631]					
		513*,				
	[6, 20, 49, 96, 161, 245, 348, 468, 604, 756]					
		514*, 515*,				
	[6, 20, 50, 101, 172, 260, 364, 484, 620, 772]					
		516*,				
	[6, 20, 51, 100, 160, 232, 318, 416, 528, 654]					
		517*,				
	[6, 21, 49, 86, 135, 199, 270, 353, 453, 558]					
		518*,				
	[6, 21, 49, 89, 141, 205, 281, 369, 469, 581]					
		520*,				
	[6, 21, 49, 89, 143, 210, 289, 379, 480, 597]					
		523*,				
	[6, 21, 49, 89, 143, 211, 288, 377, 483, 599]					
		522*,				
	[6, 21, 50, 90, 141, 205, 279, 366, 468, 578]					
		519*,				
	[6, 21, 50, 91, 143, 207, 283, 371, 471, 583]					
		521*,				
	[6, 21, 50, 91, 145, 213, 292, 385, 492, 609]					
		526*,				
	[6, 21, 51, 93, 144, 207, 283, 371, 471, 583]					
		524*,				
	[6, 21, 51, 94, 149, 217, 295, 386, 492, 607]					
		525*,				
	[6, 21, 51, 95, 151, 219, 300, 395, 503, 623]					
		536*, 537*,				
	[6, 21, 51, 96, 155, 227, 312, 411, 523, 648]					
		530*,				
	[6, 21, 51, 97, 157, 228, 311, 408, 519, 643]					
		531*,				
	[6, 21, 52, 97, 152, 218, 295, 386, 492, 607]					
		527*,				
	[6, 21, 52, 97, 153, 221, 302, 397, 504, 624]					

Nbr.	gr	№	H_i	L	m	X
		529*,				
	[6, 21, 52, 97, 153, 223, 306, 401, 511, 634]					
		528*,				
	[6, 21, 52, 97, 153, 224, 309, 405, 516, 641]					
		532*,				
	[6, 21, 52, 98, 157, 230, 315, 413, 526, 651]					
		533*,				
	[6, 21, 52, 101, 164, 236, 320, 419, 531, 656]					
		534*,				
	[6, 21, 52, 104, 170, 242, 327, 433, 555, 682]					
		541*,				
	[6, 21, 53, 100, 161, 237, 324, 425, 542, 670]					
		538*,				
	[6, 21, 53, 104, 169, 242, 327, 433, 555, 682]					
		543*,				
	[6, 21, 53, 104, 173, 260, 364, 484, 620, 772]					
		535*,				
	[6, 21, 54, 108, 180, 268, 372, 492, 628, 780]					
		539*, 540*,				
	[6, 21, 55, 103, 160, 232, 318, 416, 528, 654]					
		542*,				
	[6, 21, 56, 107, 169, 245, 335, 439, 557, 689]					
		544*,				
	[6, 21, 57, 110, 174, 250, 339, 443, 561, 693]					
		545*,				
	[6, 22, 52, 92, 143, 207, 283, 371, 471, 583]					
		546*, 547*,				
	[6, 22, 53, 96, 152, 221, 302, 397, 504, 624]					
		548*,				
	[6, 22, 54, 97, 150, 217, 295, 386, 492, 607]					
		549*,				
	[6, 22, 54, 97, 152, 224, 305, 398, 510, 629]					
		550*,				
	[6, 22, 54, 98, 154, 226, 310, 405, 516, 640]					
		551*, 552*,				
	[6, 22, 54, 100, 158, 230, 316, 414, 526, 652]					
		556*,				
	[6, 22, 54, 102, 165, 241, 331, 435, 553, 685]					
		562*,				
	[6, 22, 54, 102, 169, 256, 360, 480, 616, 768]					
		553*, 554*,				
	[6, 22, 55, 101, 158, 228, 307, 401, 513, 631]					
		555*,				
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		566*,				
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		568*,				
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		567*,				
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		569*,				
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		570*,				
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		572*,				
	[6, 23, 53, 95, 151, 219, 300, 395, 503, 623]					
		574*, 575*,				
	[6, 23, 55, 102, 162, 233, 318, 417, 529, 654]					
		576*,				
	[6, 23, 55, 103, 164, 237, 325, 427, 543, 673]					
		586*,				
	[6, 23, 56, 99, 155, 227, 307, 401, 513, 631]					
		573*,				
	[6, 23, 56, 103, 163, 237, 325, 427, 543, 673]					
		590*,				
	[6, 23, 56, 103, 163, 239, 330, 429, 541, 672]					
		578*,				
	[6, 23, 56, 103, 164, 239, 328, 431, 548, 679]					
		585*,				
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		579*,				
	[6, 23, 56, 104, 164, 237, 325, 426, 541, 670]					
		580*,				
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		591*, 592*,				
	[6, 23, 57, 101, 156, 227, 307, 401, 513, 631]					
		577*,				

Nbr.	gr	№	H_i	L	m	X
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		581*, 582*, 583*,				
	[6, 23, 57, 104, 164, 239, 328, 430, 546, 676]					
		584*,				
	[6, 23, 57, 110, 181, 268, 372, 492, 628, 780]					
		597*,				
	[6, 23, 58, 105, 164, 239, 327, 428, 544, 673]					
		589*,				
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		600*,				
	[6, 23, 58, 108, 171, 246, 335, 439, 557, 689]					
		601*,				
	[6, 23, 58, 112, 177, 250, 339, 443, 561, 693]					
		602*, 603*,				
	[6, 23, 58, 112, 184, 272, 376, 496, 632, 784]					
		604*, 605*,				
	[6, 23, 58, 114, 186, 274, 378, 498, 634, 786]					
		587*, 588*,				
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		598*, 599*,				
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		610*,				
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		607*,				
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		616*,				
	[6, 24, 59, 106, 165, 240, 330, 431, 547, 678]					
		617*, 618*,				
	[6, 24, 59, 108, 169, 243, 332, 435, 552, 683]					
		619*, 620*,				
	[6, 24, 60, 108, 169, 245, 335, 439, 557, 689]					
		621*, 622*,				
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		623*,				
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		625*,				
	[6, 24, 61, 114, 178, 251, 339, 443, 561, 693]					
		626*,				
	[6, 24, 61, 114, 184, 272, 376, 496, 632, 784]					
		627*, 628*,				
	[6, 25, 59, 107, 169, 243, 332, 435, 552, 683]					
		629*, 630*,				
	[6, 25, 60, 107, 169, 245, 335, 439, 557, 689]					
		631*,				
	[6, 25, 61, 109, 170, 245, 335, 439, 556, 687]					
		633*, 634*,				
	[6, 25, 61, 109, 171, 246, 335, 439, 556, 687]					
		632*,				
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		639*, 640*,				
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		641*, 642*, 643*, 644*,				
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		645*,				
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		646*,				
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		647*,				
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		648*,				
	[6, 26, 70, 127, 196, 284, 388, 508, 644, 796]					
		649*, 650*,				
	[7, 23, 50, 87, 135, 194, 263, 343, 434, 535]					
		503	H_{680}	$\langle m_x \rangle$	r_z^2	$m_x t_x, m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
	[7, 23, 52, 94, 148, 214, 292, 382, 484, 598]					
		504	H_{682}	$\langle m_y \rangle$	m_x	$r_y^2 t_x^{-1}, m_y t_y, t_y^{-1}, m_z t_z, r_y^2 t_z^{-1}, m_z t_z^{-1}$
	[7, 23, 52, 95, 149, 212, 287, 375, 476, 589]					

Nbr.	gr	№	H_i	L	m	X
		505	H_{378}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[7, 23, 52, 95, 153, 224, 310, 408, 518, 640]					
		506	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_y t_y, m_y t_y^{-1}, m_z t_z, it_z^{-1}, m_z t_z^{-1}$
	[7, 24, 53, 92, 143, 206, 279, 364, 461, 568]					
		507	H_{359}	1	m_z	$r_z^2 t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
	[7, 24, 54, 95, 148, 213, 288, 376, 477, 588]					
		508	H_{377}	1	m_z	$r_y^2 t_x, m_x t_x, r_z^{-1} t_x^{-1}, r_z t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[7, 24, 55, 98, 152, 218, 296, 386, 488, 602]					
		509	H_{680}	$\langle m_x \rangle$	r_z^2	$m_x t_x, m_x t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
		510	H_{370}	1	m_z	$r_z^2 t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
	[7, 24, 55, 99, 155, 223, 304, 398, 503, 621]					
		511	H_{353}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_z t_z^{-1}$
	[7, 24, 56, 102, 158, 225, 307, 401, 505, 624]					
		512	H_{382}	1	m_z	$r_y^2 t_x, m_x t_x, r_z^{-1} t_x^{-1}, r_z t_y, m_y t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[7, 24, 56, 102, 160, 231, 316, 413, 523, 648]					
		513	H_{359}	1	m_z	$it_x, r_z^2 t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_z t_z^{-1}$
	[7, 24, 56, 104, 169, 253, 356, 476, 612, 764]					
		514	H_{527}	1	r_z^2	$m_x t_x, m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, it_z^{-1}, m_z t_z^{-1}$
		515	H_{529}	1	r_z^2	$m_x t_x, m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[7, 24, 56, 105, 173, 260, 364, 484, 620, 772]					
		516	H_{690}	$\langle m_x \rangle$	r_z^2	$m_x t_x, m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, m_z r_z^{-1} t_z, r_y^2 t_z^{-1}$
	[7, 24, 59, 108, 167, 241, 328, 427, 541, 668]					
		517	H_{368}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[7, 25, 54, 93, 147, 210, 283, 373, 470, 577]					
		518	H_{682}	$\langle m_x \rangle$	r_z^2	$r_y^2 t_x, r_y^2 t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
	[7, 25, 55, 96, 151, 216, 292, 383, 484, 596]					
		519	H_{343}	1	m_z	$r_z^2 t_x, m_x r_z t_x^{-1}, it_y, r_z^2 t_y, m_x r_z t_y^{-1}, m_z t_z^{-1}$
	[7, 25, 56, 98, 152, 218, 296, 386, 488, 602]					
		520	H_{683}	$\langle m_x \rangle$	r_z^2	$r_y^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
		521	H_{682}	$\langle m_y \rangle$	m_x	$r_y^2 t_x^{-1}, m_y t_y, t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, m_z t_z^{-1}$
	[7, 25, 56, 100, 158, 225, 304, 400, 506, 622]					
		522	H_{344}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[7, 25, 56, 100, 160, 230, 312, 407, 516, 638]					
		523	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x^2 t_y, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[7, 25, 57, 99, 152, 218, 296, 386, 488, 602]					
		524	H_{359}	1	m_z	$r_z^2 t_x, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
	[7, 25, 57, 101, 158, 226, 306, 401, 506, 623]					
		525	H_{378}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, m_y t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[7, 25, 57, 102, 160, 230, 315, 412, 519, 644]					
		526	H_{347}	1	m_z	$r_z^2 t_x, m_x r_z t_x^{-1}, it_y, r_z^2 t_y, m_x r_z t_y^{-1}, r_x^2 r_z t_z^{-1}$
	[7, 25, 58, 103, 159, 226, 306, 401, 506, 623]					
		527	H_{377}	1	m_z	$r_y^2 t_x, m_x t_x, r_z^{-1} t_x^{-1}, r_z t_y, r_x^2 t_y^{-1}, m_z t_z^{-1}$
	[7, 25, 58, 103, 161, 233, 317, 414, 525, 649]					
		528	H_{359}	1	m_z	$it_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
	[7, 25, 58, 104, 161, 230, 315, 410, 518, 642]					
		529	H_{359}	1	m_z	$r_z^2 t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
	[7, 25, 58, 105, 165, 238, 325, 425, 538, 665]					
		530	H_{680}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_y t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
	[7, 25, 58, 106, 167, 240, 326, 426, 540, 666]					
		531	H_{370}	1	m_z	$it_x, r_z^2 t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, r_x^2 t_z^{-1}$
	[7, 25, 59, 105, 164, 239, 325, 424, 539, 665]					
		532	H_{370}	1	m_z	$it_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
	[7, 25, 59, 106, 166, 240, 326, 426, 540, 666]					
		533	H_{353}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_z t_z^{-1}$
	[7, 25, 59, 109, 170, 242, 329, 429, 542, 669]					
		534	H_{368}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z^{-1}$
	[7, 25, 59, 109, 176, 261, 364, 484, 620, 772]					
		535	H_{690}	$\langle m_x \rangle$	r_z^2	$m_x t_x, m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, m_z r_z^{-1} t_z, r_x^2 t_z^{-1}$
	[7, 25, 60, 106, 164, 234, 320, 418, 528, 650]					
		536	H_{378}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_y^2 r_z t_z^{-1}$
		537	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_y t_y, m_y t_y^{-1}, it_z, it_z^{-1}, m_z t_z^{-1}$
	[7, 25, 60, 107, 170, 245, 334, 437, 554, 683]					
		538	H_{359}	1	m_z	$it_x, r_z^2 t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_z t_z^{-1}$
	[7, 25, 60, 113, 184, 272, 376, 496, 632, 784]					
		539	H_{496}	1	r_z^2	$m_x t_x, m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		540	H_{502}	1	r_z^2	$m_x t_x, m_x t_x^{-1}, m_y t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}$
	[7, 25, 61, 114, 176, 249, 344, 452, 567, 694]					
		541	H_{373}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, it_z^{-1}$
	[7, 25, 62, 108, 167, 241, 328, 427, 541, 668]					
		542	H_{370}	1	m_z	$r_z^2 t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
	[7, 25, 62, 113, 176, 249, 344, 452, 567, 694]					
		543	H_{378}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[7, 25, 64, 112, 176, 252, 344, 448, 568, 700]					
		544	H_{682}	$\langle m_y \rangle$	m_x	$r_y^2 t_x^{-1}, r_z^2 t_y, m_x t_y^{-1}, m_z t_z, r_y^2 t_z^{-1}, m_z t_z^{-1}$
	[7, 25, 65, 114, 179, 254, 346, 450, 570, 702]					

Nbr.	gr	№	H_i	L	m	X
		545	H_{378}	1	m_z	$r_y^2t_x, r_y^2t_x^{-1}, m_xt_x^{-1}, m_yt_y, r_x^2t_y^{-1}, r_y^2r_zt_z^{-1}$
	[7, 26, 57, 98, 152, 218, 296, 386, 488, 602]					
		546	H_{682}	$\langle m_x\rangle$	r_z^2	$r_y^2t_x, r_y^2t_x^{-1}, m_yt_y^{-1}, r_x^2t_z, r_x^2t_z^{-1}, r_y^2t_z^{-1}$
		547	H_{370}	1	m_z	$r_z^2t_x, m_xt_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, r_x^2t_z^{-1}$
	[7, 26, 58, 103, 161, 230, 315, 410, 518, 642]					
		548	H_{359}	1	m_z	$r_z^2t_x, r_y^2t_x^{-1}, m_xt_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_zt_z^{-1}$
	[7, 26, 59, 102, 158, 226, 306, 401, 506, 623]					
		549	H_{382}	1	m_z	$r_y^2t_x, m_xt_x, r_z^{-1}t_x^{-1}, r_zt_y, r_x^2t_y^{-1}, r_y^2r_zt_z^{-1}$
	[7, 26, 59, 103, 162, 233, 315, 414, 523, 643]					
		550	H_{330}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, r_z^2t_y, it_y^{-1}, m_zt_z^{-1}$
	[7, 26, 59, 104, 163, 235, 320, 418, 530, 654]					
		551	H_{350}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_zt_z^{-1}$
		552	H_{350}	1	m_z	$r_z^2t_x, it_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_yt_y^{-1}, m_zt_z^{-1}$
	[7, 26, 59, 107, 174, 259, 362, 482, 618, 770]					
		553	H_{452}	1	r_z^2	$r_z^2t_x^{-1}, t_y, t_y^{-1}, r_y^2r_zt_z, it_z^{-1}, m_zt_z^{-1}$
		554	H_{503}	1	r_z^2	$r_z^2t_x^{-1}, t_y, t_y^{-1}, r_y^2r_zt_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[7, 26, 60, 106, 165, 234, 316, 416, 524, 644]					
		555	H_{343}	1	m_z	$it_x, m_xr_zt_x^{-1}, it_y, r_z^2t_y, m_xr_zt_y^{-1}, m_zt_z^{-1}$
	[7, 26, 60, 107, 167, 241, 328, 427, 541, 668]					
		556	H_{365}	1	m_z	$r_z^2t_x, it_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_yt_y^{-1}, r_x^2t_z^{-1}$
	[7, 26, 61, 107, 170, 248, 335, 434, 554, 686]					
		557	H_{372}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, r_y^2t_z^{-1}$
	[7, 26, 61, 108, 167, 241, 328, 427, 541, 668]					
		558	H_{368}	1	m_z	$r_y^2t_x, r_y^2t_x^{-1}, m_xt_x^{-1}, m_yt_y, r_x^2t_y^{-1}, r_y^2t_z^{-1}$
	[7, 26, 61, 108, 170, 246, 336, 438, 557, 687]					
		559	H_{361}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, r_z^2t_y, it_y^{-1}, r_y^2t_z^{-1}$
	[7, 26, 61, 109, 168, 241, 328, 427, 541, 668]					
		560	H_{359}	1	m_z	$r_z^2t_x, r_y^2t_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, m_zt_z^{-1}$
	[7, 26, 61, 109, 171, 245, 335, 438, 554, 684]					
		561	H_{359}	1	m_z	$it_x, r_y^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_yt_y^{-1}, m_zt_z^{-1}$
	[7, 26, 61, 110, 174, 250, 342, 446, 566, 698]					
		562	H_{680}	$\langle m_x\rangle$	r_z^2	$r_z^2t_x, m_yt_x^{-1}, m_yt_y^{-1}, r_x^2t_z, r_x^2t_z^{-1}, r_y^2t_z^{-1}$
	[7, 26, 62, 109, 167, 241, 328, 427, 541, 668]					
		563	H_{359}	1	m_z	$it_x, m_xt_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, m_zt_z^{-1}$
	[7, 26, 62, 114, 183, 269, 372, 492, 628, 780]					
		564	H_{452}	1	r_z^2	$r_z^2t_x^{-1}, r_z^2t_y, r_z^2t_y^{-1}, r_y^2r_zt_z, it_z^{-1}, m_zt_z^{-1}$
		565	H_{503}	1	r_z^2	$r_z^2t_x^{-1}, r_z^2t_y, r_z^2t_y^{-1}, r_y^2r_zt_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[7, 26, 62, 115, 185, 272, 376, 496, 632, 784]					
		566	H_{690}	$\langle m_x\rangle$	r_z^2	$r_z^2t_x, m_yt_x^{-1}, m_yt_y^{-1}, r_y^2r_zt_z, m_zr_z^{-1}t_z, r_y^2t_z^{-1}$
	[7, 26, 63, 113, 176, 251, 341, 444, 562, 692]					
		567	H_{377}	1	m_z	$r_y^2t_x, m_xt_x, m_zr_z^{-1}t_x^{-1}, m_zr_zt_y, m_yt_y^{-1}, m_zt_z^{-1}$
	[7, 26, 64, 111, 176, 252, 344, 448, 568, 700]					
		568	H_{370}	1	m_z	$it_x, r_y^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_yt_y^{-1}, r_x^2t_z^{-1}$
	[7, 26, 65, 114, 178, 254, 346, 450, 570, 702]					
		569	H_{370}	1	m_z	$it_x, r_z^2t_x, r_y^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, r_x^2t_z^{-1}$
	[7, 26, 66, 113, 176, 250, 339, 443, 560, 689]					
		570	H_{382}	1	m_z	$r_y^2t_x, m_xt_x, m_zr_z^{-1}t_x^{-1}, m_zr_zt_y, m_yt_y^{-1}, r_y^2r_zt_z^{-1}$
	[7, 26, 66, 115, 178, 254, 346, 450, 570, 702]					
		571	H_{368}	1	m_z	$m_xt_x, r_y^2t_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, r_y^2t_z^{-1}$
	[7, 27, 56, 98, 152, 218, 296, 386, 488, 602]					
		572	H_{683}	$\langle m_x\rangle$	r_z^2	$r_y^2t_x, r_y^2t_x^{-1}, r_x^2t_y^{-1}, r_x^2t_z, r_x^2t_z^{-1}, r_y^2t_z^{-1}$
	[7, 27, 60, 104, 164, 234, 316, 416, 524, 644]					
		573	H_{344}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, it_y, r_z^2t_y^{-1}, r_y^2r_zt_z^{-1}$
	[7, 27, 60, 106, 164, 234, 320, 418, 528, 650]					
		574	H_{344}	1	m_z	$it_x, it_x^{-1}, r_z^2t_x^{-1}, r_z^2t_y, r_z^2t_y^{-1}, r_y^2r_zt_z^{-1}$
		575	H_{511}	1	r_z^2	$r_z^2r_xt_x, r_x^2t_y, r_x^2t_y^{-1}, r_y^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[7, 27, 60, 109, 169, 242, 329, 429, 542, 669]					
		576	H_{365}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, r_x^2t_z^{-1}$
	[7, 27, 61, 105, 164, 234, 316, 416, 524, 644]					
		577	H_{347}	1	m_z	$it_x, m_xr_zt_x^{-1}, it_y, r_z^2t_y, m_xr_zt_y^{-1}, r_x^2r_zt_z^{-1}$
	[7, 27, 61, 109, 172, 249, 336, 436, 555, 687]					
		578	H_{372}	1	m_z	$r_z^2t_x, it_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_yt_y^{-1}, r_y^2t_z^{-1}$
	[7, 27, 61, 110, 169, 242, 329, 429, 542, 669]					
		579	H_{370}	1	m_z	$r_z^2t_x, r_y^2t_x^{-1}, m_xt_x^{-1}, m_yt_y, r_x^2t_y^{-1}, r_x^2t_z^{-1}$
	[7, 27, 61, 110, 172, 247, 337, 440, 558, 688]					
		580	H_{361}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_y, it_y^{-1}, r_z^2t_y^{-1}, r_y^2t_z^{-1}$
	[7, 27, 62, 108, 167, 241, 328, 427, 541, 668]					
		581	H_{350}	1	m_z	$r_z^2t_x, it_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, m_zt_z^{-1}$
		582	H_{370}	1	m_z	$it_x, m_xt_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, r_x^2t_z^{-1}$
		583	H_{370}	1	m_z	$r_z^2t_x, r_y^2t_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, r_x^2t_z^{-1}$
	[7, 27, 62, 109, 172, 247, 337, 440, 558, 688]					
		584	H_{682}	$\langle m_x\rangle$	r_z^2	$it_x, r_x^2t_x^{-1}, m_yt_y^{-1}, r_y^2t_z, r_x^2t_z^{-1}, r_y^2t_z^{-1}$
	[7, 27, 62, 110, 174, 250, 342, 446, 566, 698]					
		585	H_{683}	$\langle m_x\rangle$	r_z^2	$it_x, r_x^2t_x^{-1}, r_x^2t_y^{-1}, r_y^2t_z, r_x^2t_z^{-1}, r_y^2t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
	[7, 27, 62, 112, 175, 251, 343, 447, 567, 699]					
		586	H_{332}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, r_z^2t_y, it_y^{-1}, it_z^{-1}$
	[7, 27, 62, 117, 186, 276, 378, 500, 634, 788]					
		587	H_{453}	1	r_z^2	$it_x^{-1}, m_zt_y, m_zt_y^{-1}, r_y^2r_zt_z, r_y^2r_zt_z^{-1}, r_x^2r_zt_z^{-1}$
		588	H_{539}	1	r_z^2	$m_zt_x, m_zt_x^{-1}, r_x^2t_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, r_y^2r_zt_z^{-1}$
	[7, 27, 63, 109, 171, 246, 336, 438, 555, 685]					
		589	H_{359}	1	m_z	$it_x, r_y^2t_x^{-1}, m_xt_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_zt_z^{-1}$
	[7, 27, 63, 111, 175, 251, 343, 447, 567, 699]					
		590	H_{344}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, r_z^2t_y, it_y^{-1}, r_y^2r_zt_z^{-1}$
	[7, 27, 63, 113, 176, 252, 344, 448, 568, 700]					
		591	H_{364}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, it_z^{-1}$
		592	H_{364}	1	m_z	$r_z^2t_x, it_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_yt_y^{-1}, it_z^{-1}$
	[7, 27, 63, 116, 187, 275, 379, 499, 635, 787]					
		593	H_{539}	1	r_z^2	$it_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, r_y^2r_zt_z^{-1}$
		594	H_{438}	1	r_z^2	$r_z^2t_x^{-1}, t_y, t_y^{-1}, r_y^2r_zt_z, r_y^2r_zt_z^{-1}, r_x^2r_zt_z^{-1}$
		595	H_{495}	1	r_z^2	$r_z^2t_x^{-1}, t_y, t_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, r_y^2r_zt_z^{-1}$
		596	H_{505}	1	r_z^2	$r_y^2t_x, r_y^2t_x^{-1}, r_x^2t_y^{-1}, r_y^2r_zt_z, r_y^2r_zt_z^{-1}, r_x^2r_zt_z^{-1}$
	[7, 27, 63, 117, 186, 273, 376, 496, 632, 784]					
		597	H_{690}	$\langle m_x \rangle$	r_z^2	$r_z^2t_x, m_yt_x^{-1}, m_yt_y^{-1}, r_y^2r_zt_z, m_zr_z^{-1}t_z, r_x^2t_z^{-1}$
	[7, 27, 64, 110, 172, 248, 338, 440, 559, 689]					
		598	H_{330}	1	m_z	$r_z^2t_x, it_x^{-1}, it_y, it_y^{-1}, r_z^2t_y^{-1}, m_zt_z^{-1}$
		599	H_{350}	1	m_z	$it_x, it_x^{-1}, r_z^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_zt_z^{-1}$
	[7, 27, 64, 112, 176, 252, 344, 448, 568, 700]					
		600	H_{682}	$\langle m_y \rangle$	m_x	$r_y^2t_x^{-1}, r_z^2t_y, m_xt_y^{-1}, r_y^2t_z, r_y^2t_z^{-1}, m_zt_z^{-1}$
	[7, 27, 64, 113, 177, 252, 344, 448, 568, 700]					
		601	H_{359}	1	m_z	$it_x, r_y^2t_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, m_zt_z^{-1}$
	[7, 27, 64, 117, 179, 254, 346, 450, 570, 702]					
		602	H_{378}	1	m_z	$r_y^2t_x, r_y^2t_x^{-1}, m_xt_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, r_y^2r_zt_z^{-1}$
		603	H_{541}	1	r_z^2	$r_z^2r_xt_x, m_xt_y, m_xt_y^{-1}, it_z, it_z^{-1}, m_zt_z^{-1}$
	[7, 27, 64, 119, 190, 278, 382, 502, 638, 790]					
		604	H_{438}	1	r_z^2	$r_z^2t_x^{-1}, r_z^2t_y, r_z^2t_y^{-1}, r_y^2r_zt_z, r_y^2r_zt_z^{-1}, r_x^2r_zt_z^{-1}$
		605	H_{495}	1	r_z^2	$r_z^2t_x^{-1}, r_z^2t_y, r_z^2t_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, r_y^2r_zt_z^{-1}$
	[7, 27, 65, 113, 174, 249, 341, 445, 561, 690]					
		606	H_{541}	1	r_z^2	$r_z^2r_xt_x, m_xt_y, m_xt_y^{-1}, m_zt_z, it_z^{-1}, m_zt_z^{-1}$
	[7, 27, 65, 113, 176, 252, 342, 445, 564, 695]					
		607	H_{343}	1	m_z	$r_z^2t_x, r_y^2r_zt_x^{-1}, it_y, r_z^2t_y, r_y^2r_zt_y^{-1}, m_zt_z^{-1}$
	[7, 27, 65, 113, 178, 254, 346, 450, 570, 702]					
		608	H_{378}	1	m_z	$r_y^2t_x, r_y^2t_x^{-1}, m_xt_x^{-1}, r_x^2t_y, m_yt_y^{-1}, r_y^2r_zt_z^{-1}$
		609	H_{378}	1	m_z	$r_y^2t_x, r_y^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_yt_y^{-1}, r_y^2r_zt_z^{-1}$
	[7, 27, 65, 115, 178, 254, 346, 450, 570, 702]					
		610	H_{373}	1	m_z	$r_y^2t_x, r_y^2t_x^{-1}, m_xt_x^{-1}, m_yt_y, r_x^2t_y^{-1}, it_z^{-1}$
	[7, 27, 65, 116, 181, 255, 347, 450, 570, 702]					
		611	H_{377}	1	m_z	$r_y^2t_x, m_xt_x, m_zr_z^{-1}t_x^{-1}, m_zr_zt_y, r_x^2t_y^{-1}, m_zt_z^{-1}$
	[7, 27, 67, 113, 176, 252, 344, 448, 568, 700]					
		612	H_{344}	1	m_z	$r_z^2t_x, it_x^{-1}, it_y, it_y^{-1}, r_z^2t_y^{-1}, r_y^2r_zt_z^{-1}$
	[7, 27, 68, 113, 175, 251, 341, 444, 563, 693]					
		613	H_{347}	1	m_z	$r_z^2t_x, r_y^2r_zt_x^{-1}, it_y, r_z^2t_y, r_y^2r_zt_y^{-1}, r_x^2r_zt_z^{-1}$
	[7, 27, 68, 126, 194, 281, 385, 506, 641, 793]					
		614	H_{541}	1	r_z^2	$r_z^2r_xt_x, r_y^2r_xt_x^{-1}, m_yt_y^{-1}, m_zt_z, it_z^{-1}, m_zt_z^{-1}$
		615	H_{541}	1	r_z^2	$r_xt_x, r_x^{-1}t_x^{-1}, m_yt_y^{-1}, m_zt_z, it_z^{-1}, m_zt_z^{-1}$
	[7, 28, 61, 108, 167, 241, 328, 427, 541, 668]					
		616	H_{365}	1	m_z	$r_z^2t_x, it_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, r_x^2t_z^{-1}$
	[7, 28, 63, 110, 172, 248, 338, 440, 559, 689]					
		617	H_{361}	1	m_z	$it_x, it_x^{-1}, r_z^2t_x^{-1}, r_z^2t_y, it_y^{-1}, r_y^2t_z^{-1}$
		618	H_{372}	1	m_z	$it_x, it_x^{-1}, r_z^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, r_y^2t_z^{-1}$
	[7, 28, 64, 113, 176, 252, 344, 448, 568, 700]					
		619	H_{361}	1	m_z	$r_z^2t_x, it_x^{-1}, it_y, it_y^{-1}, r_z^2t_y^{-1}, r_y^2t_z^{-1}$
		620	H_{365}	1	m_z	$it_x, it_x^{-1}, r_z^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, r_x^2t_z^{-1}$
	[7, 28, 65, 112, 176, 252, 344, 448, 568, 700]					
		621	H_{682}	$\langle m_x \rangle$	r_z^2	$it_x, r_x^2t_x^{-1}, m_yt_y^{-1}, r_x^2t_z, r_x^2t_z^{-1}, r_y^2t_z^{-1}$
		622	H_{370}	1	m_z	$it_x, r_y^2t_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, r_x^2t_z^{-1}$
	[7, 28, 65, 114, 178, 254, 346, 450, 570, 702]					
		623	H_{370}	1	m_z	$it_x, r_y^2t_x^{-1}, m_xt_x^{-1}, m_yt_y, r_x^2t_y^{-1}, r_x^2t_z^{-1}$
	[7, 28, 66, 115, 178, 254, 346, 450, 570, 702]					
		624	H_{372}	1	m_z	$r_z^2t_x, it_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, r_y^2t_z^{-1}$
	[7, 28, 66, 115, 180, 255, 347, 450, 570, 702]					
		625	H_{343}	1	m_z	$it_x, r_y^2r_zt_x^{-1}, it_y, r_z^2t_y, r_y^2r_zt_y^{-1}, m_zt_z^{-1}$
	[7, 28, 66, 117, 180, 254, 346, 450, 570, 702]					
		626	H_{382}	1	m_z	$r_y^2t_x, m_xt_x, m_zr_z^{-1}t_x^{-1}, m_zr_zt_y, r_x^2t_y^{-1}, r_y^2r_zt_z^{-1}$
	[7, 28, 66, 118, 188, 275, 378, 498, 634, 786]					
		627	H_{527}	1	r_z^2	$m_xt_x^{-1}, m_xt_y, m_xt_y^{-1}, r_y^2r_zt_z, it_z^{-1}, m_zt_z^{-1}$
		628	H_{529}	1	r_z^2	$m_xt_x^{-1}, m_xt_y, m_xt_y^{-1}, r_y^2r_zt_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[7, 29, 63, 113, 176, 252, 344, 448, 568, 700]					

Nbr.	gr	№	H_i	L	m	X
		629	H_{332}	1	m_z	$r_z^2t_x, it_x^{-1}, it_y, it_y^{-1}, r_z^2t_y^{-1}, it_z^{-1}$
		630	H_{364}	1	m_z	$it_x, it_x^{-1}, r_z^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, it_z^{-1}$
	[7, 29, 64, 112, 176, 252, 344, 448, 568, 700]					
		631	H_{683}	$\langle m_x \rangle$	r_z^2	$it_x, r_x^2t_x^{-1}, r_x^2t_y^{-1}, r_x^2t_z, r_x^2t_z^{-1}, r_y^2t_z^{-1}$
	[7, 29, 65, 113, 176, 251, 343, 447, 566, 697]					
		632	H_{511}	1	r_z^2	$r_z^2r_xt_x, r_y^2t_y, r_y^2t_y^{-1}, r_x^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[7, 29, 65, 113, 176, 252, 344, 448, 568, 700]					
		633	H_{344}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, it_y, it_y^{-1}, r_y^2r_zt_z^{-1}$
		634	H_{344}	1	m_z	$r_z^2t_x, it_x^{-1}, it_y, r_z^2t_y, it_y^{-1}, r_y^2r_zt_z^{-1}$
	[7, 29, 65, 115, 178, 254, 346, 450, 570, 702]					
		635	H_{364}	1	m_z	$r_z^2t_x, it_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, it_z^{-1}$
	[7, 29, 66, 115, 179, 254, 346, 450, 570, 702]					
		636	H_{511}	1	r_z^2	$r_z^2r_xt_x, r_y^2t_y, r_y^2t_y^{-1}, r_y^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[7, 29, 66, 116, 178, 254, 346, 450, 570, 702]					
		637	H_{344}	1	m_z	$it_x, it_x^{-1}, r_z^2t_x^{-1}, it_y, it_y^{-1}, r_y^2r_zt_z^{-1}$
	[7, 29, 67, 116, 179, 254, 346, 450, 570, 702]					
		638	H_{347}	1	m_z	$it_x, r_y^2r_zt_x^{-1}, it_y, r_z^2t_y, r_y^2r_zt_y^{-1}, r_x^2r_zt_z^{-1}$
	[7, 29, 67, 124, 193, 283, 385, 507, 641, 795]					
		639	H_{539}	1	r_z^2	$it_x^{-1}, r_y^2t_y, r_y^2t_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, r_y^2r_zt_z^{-1}$
		640	H_{505}	1	r_z^2	$r_y^2t_x^{-1}, r_y^2t_y, r_y^2t_y^{-1}, r_y^2r_zt_z, r_y^2r_zt_z^{-1}, r_x^2r_zt_z^{-1}$
	[7, 29, 68, 123, 194, 282, 386, 506, 642, 794]					
		641	H_{453}	1	r_z^2	$it_x^{-1}, it_y, it_y^{-1}, r_y^2r_zt_z, r_y^2r_zt_z^{-1}, r_x^2r_zt_z^{-1}$
		642	H_{539}	1	r_z^2	$it_x, it_x^{-1}, r_x^2t_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, r_y^2r_zt_z^{-1}$
		643	H_{496}	1	r_z^2	$m_xt_x^{-1}, m_xt_y, m_xt_y^{-1}, r_y^2r_zt_z, r_y^2r_zt_z^{-1}, r_x^2r_zt_z^{-1}$
		644	H_{502}	1	r_z^2	$m_xt_x^{-1}, m_xt_y, m_xt_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, r_y^2r_zt_z^{-1}$
	[7, 29, 71, 126, 196, 284, 388, 508, 644, 796]					
		645	H_{511}	1	r_z^2	$r_xt_x, r_x^{-1}t_x^{-1}, r_x^2t_y^{-1}, r_y^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[7, 29, 71, 128, 196, 284, 388, 508, 644, 796]					
		646	H_{511}	1	r_z^2	$r_xt_x, r_x^{-1}t_x^{-1}, r_x^2t_y^{-1}, r_x^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[7, 29, 72, 125, 196, 284, 388, 508, 644, 796]					
		647	H_{511}	1	r_z^2	$r_z^2r_xt_x, r_y^2r_xt_x^{-1}, r_x^2t_y^{-1}, r_y^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[7, 29, 72, 127, 196, 284, 388, 508, 644, 796]					
		648	H_{511}	1	r_z^2	$r_z^2r_xt_x, r_y^2r_xt_x^{-1}, r_x^2t_y^{-1}, r_x^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[7, 30, 73, 125, 196, 284, 388, 508, 644, 796]					
		649	H_{541}	1	r_z^2	$r_z^2r_xt_x, r_y^2r_xt_x^{-1}, m_yt_y^{-1}, it_z, it_z^{-1}, m_zt_z^{-1}$
		650	H_{541}	1	r_z^2	$r_xt_x, r_x^{-1}t_x^{-1}, m_yt_y^{-1}, it_z, it_z^{-1}, m_zt_z^{-1}$

11

[6, 18, 38, 66, 102, 146, 198, 258, 326, 402]
651*, 652*, 653*, 654*,
[6, 19, 43, 78, 122, 175, 239, 314, 398, 491]
655*,
[6, 19, 43, 78, 123, 179, 246, 323, 411, 510]
658*,
[6, 19, 43, 79, 127, 187, 259, 343, 439, 547]
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[6, 19, 43, 79, 128, 191, 267, 355, 455, 567]
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[6, 20, 46, 84, 134, 196, 270, 356, 454, 564]
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[6, 20, 46, 84, 134, 196, 272, 362, 465, 582]
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[6, 20, 46, 84, 135, 199, 275, 363, 463, 575]
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[6, 20, 47, 87, 139, 203, 279, 367, 467, 579]
664*, 665*,
[6, 20, 47, 87, 140, 207, 287, 380, 487, 607]
668*,
[6, 20, 48, 89, 140, 204, 281, 368, 468, 581]
666*,
[6, 20, 48, 90, 143, 207, 283, 370, 469, 581]
670*,
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674*, 675*,
[6, 20, 48, 94, 160, 244, 344, 460, 592, 740]
671*,
[6, 20, 49, 96, 160, 240, 336, 448, 576, 720]
672*, 673*,
[6, 20, 51, 98, 156, 228, 314, 412, 524, 650]
676*,
[6, 20, 51, 99, 161, 237, 327, 431, 549, 681]
677*,
[6, 21, 49, 89, 141, 205, 281, 369, 469, 581]
678*,
[6, 21, 49, 91, 147, 217, 301, 399, 511, 637]
681*,

Nbr.	gr	№	H_i	L	m	X
	[6, 21, 50, 91, 143, 207, 283, 371, 471, 583]					
		679*,				
	[6, 21, 50, 94, 150, 217, 298, 392, 499, 619]					
		687*,				
	[6, 21, 50, 95, 153, 221, 303, 399, 507, 627]					
		688*,				
	[6, 21, 51, 93, 145, 211, 289, 376, 477, 591]					
		683*,				
	[6, 21, 51, 94, 148, 216, 298, 391, 497, 617]					
		684*,				
	[6, 21, 51, 95, 151, 221, 306, 404, 516, 642]					
		680*,				
	[6, 21, 51, 95, 151, 222, 306, 401, 512, 637]					
		686*,				
	[6, 21, 51, 96, 155, 227, 312, 410, 521, 645]					
		692*,				
	[6, 21, 51, 97, 156, 228, 314, 412, 524, 650]					
		689*,				
	[6, 21, 52, 95, 148, 217, 298, 389, 496, 614]					
		682*,				
	[6, 21, 52, 97, 155, 230, 319, 418, 532, 661]					
		685*,				
	[6, 21, 52, 98, 153, 218, 296, 386, 488, 602]					
		694*,				
	[6, 21, 52, 98, 156, 228, 314, 412, 524, 650]					
		690*, 691*,				
	[6, 21, 52, 100, 162, 239, 329, 428, 543, 679]					
		695*,				
	[6, 21, 53, 100, 161, 237, 327, 431, 549, 681]					
		693*,				
	[6, 21, 53, 104, 174, 263, 368, 488, 624, 776]					
		696*,				
	[6, 21, 53, 106, 179, 268, 373, 493, 629, 781]					
		697*,				
	[6, 21, 56, 110, 181, 269, 373, 493, 629, 781]					
		698*,				
	[6, 21, 56, 115, 188, 275, 383, 506, 640, 789]					
		699*,				
	[6, 21, 57, 110, 171, 243, 331, 435, 551, 679]					
		700*,				
	[6, 22, 51, 91, 143, 207, 283, 371, 471, 583]					
		701*,				
	[6, 22, 52, 95, 151, 219, 300, 395, 503, 623]					
		705*, 706*,				
	[6, 22, 52, 96, 151, 216, 294, 384, 486, 600]					
		704*,				
	[6, 22, 52, 97, 154, 222, 304, 399, 507, 628]					
		703*,				
	[6, 22, 53, 97, 154, 224, 307, 403, 512, 634]					
		702*,				
	[6, 22, 53, 98, 157, 230, 317, 418, 533, 662]					
		708*,				
	[6, 22, 53, 100, 159, 229, 314, 413, 525, 650]					
		709*,				
	[6, 22, 53, 100, 163, 240, 331, 435, 553, 685]					
		711*,				
	[6, 22, 53, 100, 164, 244, 340, 452, 580, 724]					
		712*, 713*,				
	[6, 22, 53, 101, 163, 237, 326, 429, 546, 677]					
		710*,				
	[6, 22, 54, 100, 158, 228, 312, 410, 520, 642]					
		717*,				
	[6, 22, 54, 100, 158, 230, 316, 414, 526, 652]					
		707*,				
	[6, 22, 54, 100, 159, 231, 317, 417, 530, 656]					
		716*,				
	[6, 22, 54, 100, 161, 237, 327, 431, 549, 681]					
		718*,				
	[6, 22, 54, 102, 165, 241, 331, 435, 553, 685]					
		719*,				
	[6, 22, 54, 104, 172, 256, 356, 472, 604, 752]					
		720*,				
	[6, 22, 55, 102, 160, 232, 318, 416, 528, 654]					
		714*, 715*,				
	[6, 22, 55, 103, 165, 241, 331, 435, 553, 685]					
		725*,				
	[6, 22, 56, 104, 163, 238, 328, 429, 545, 676]					
		723*, 724*,				
	[6, 22, 56, 109, 179, 265, 367, 485, 619, 769]					
		722*,				
	[6, 22, 56, 109, 180, 268, 372, 492, 628, 780]					
		721*,				
	[6, 22, 57, 109, 172, 247, 337, 441, 559, 691]					
		733*, 734*,				
	[6, 22, 57, 111, 183, 272, 376, 496, 632, 784]					
		735*,				
	[6, 22, 57, 111, 183, 273, 378, 498, 634, 786]					
		731*,				
	[6, 22, 57, 113, 186, 274, 378, 498, 634, 786]					
		726*,				
	[6, 22, 58, 110, 173, 247, 335, 439, 556, 687]					
		737*,				
	[6, 22, 58, 110, 177, 264, 368, 488, 624, 776]					

Nbr.	gr	№	H_i	L	m	X
		732*,				
	[6, 22, 58, 113, 186, 274, 378, 498, 634, 786]					
		727*, 728*,				
	[6, 22, 58, 114, 186, 274, 378, 498, 634, 786]					
		729*, 730*,				
	[6, 22, 58, 116, 190, 278, 382, 502, 638, 790]					
		736*,				
	[6, 22, 59, 118, 192, 280, 384, 504, 640, 792]					
		738*,				
	[6, 22, 59, 122, 198, 284, 389, 510, 644, 794]					
		739*,				
	[6, 23, 56, 102, 160, 232, 318, 416, 528, 654]					
		740*,				
	[6, 23, 56, 105, 167, 241, 330, 433, 550, 681]					
		741*, 742*,				
	[6, 23, 57, 105, 167, 243, 333, 437, 555, 687]					
		745*,				
	[6, 23, 58, 106, 165, 240, 330, 431, 547, 678]					
		743*, 744*,				
	[6, 23, 58, 107, 169, 245, 335, 439, 557, 689]					
		747*,				
	[6, 23, 59, 109, 169, 242, 331, 435, 551, 679]					
		749*,				
	[6, 23, 59, 111, 174, 249, 339, 443, 561, 693]					
		750*, 751*,				
	[6, 23, 59, 113, 184, 272, 376, 496, 632, 784]					
		746*, 748*,				
	[6, 23, 59, 113, 185, 274, 378, 498, 634, 786]					
		752*,				
	[6, 23, 59, 116, 190, 278, 382, 502, 638, 790]					
		754*, 755*,				
	[6, 23, 60, 117, 190, 279, 382, 502, 640, 791]					
		753*,				
	[6, 23, 61, 116, 185, 272, 376, 496, 632, 784]					
		756*,				
	[6, 23, 62, 117, 186, 274, 378, 498, 634, 786]					
		757*,				
	[6, 24, 58, 104, 163, 235, 321, 421, 534, 660]					
		758*,				
	[6, 24, 58, 104, 164, 238, 326, 428, 543, 671]					
		759*,				
	[6, 24, 58, 107, 169, 243, 332, 435, 552, 683]					
		760*, 761*,				
	[6, 24, 59, 107, 169, 245, 335, 439, 557, 689]					
		762*, 763*,				
	[6, 24, 59, 108, 171, 248, 339, 443, 561, 693]					
		764*,				
	[6, 24, 60, 109, 171, 246, 335, 439, 556, 687]					
		765*,				
	[6, 24, 61, 113, 181, 268, 372, 492, 628, 780]					
		766*,				
	[6, 24, 61, 115, 185, 272, 376, 496, 632, 784]					
		768*,				
	[6, 24, 61, 115, 186, 274, 378, 498, 634, 786]					
		767*,				
	[6, 24, 61, 116, 188, 276, 380, 500, 636, 788]					
		770*,				
	[6, 24, 62, 118, 190, 278, 382, 502, 638, 790]					
		769*,				
	[6, 24, 62, 119, 192, 280, 384, 504, 640, 792]					
		772*,				
	[6, 24, 63, 119, 192, 280, 384, 504, 640, 792]					
		773*, 774*,				
	[6, 24, 63, 120, 192, 280, 384, 504, 640, 792]					
		771*, 775*, 776*,				
	[6, 24, 63, 124, 198, 284, 387, 508, 645, 796]					
		777*,				
	[6, 25, 64, 118, 187, 274, 378, 498, 634, 786]					
		778*,				
	[6, 25, 65, 122, 194, 282, 386, 506, 642, 794]					
		779*, 780*,				
	[6, 26, 65, 120, 192, 280, 384, 504, 640, 792]					
		781*,				
	[6, 27, 67, 122, 194, 282, 386, 506, 642, 794]					
		782*,				
	[7, 22, 47, 82, 127, 182, 247, 322, 407, 502]					
		651	H_{610}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, m_z t_z, t_z^{-1}$
		652	H_{615}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, m_z t_z, t_z^{-1}$
	[7, 22, 48, 84, 130, 186, 253, 330, 417, 514]					
		653	H_{305}	1	i	$t_x, i t_x^{-1}, t_x^{-1}, t_y, t_y^{-1}, r_y^2 r_z t_z^{-1}$
		654	H_{504}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_x^2 r_y t_y^{-1}, t_z, t_z^{-1}$
	[7, 23, 51, 90, 139, 199, 271, 354, 447, 551]					
		655	H_{461}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, m_z t_z^{-1}$
	[7, 23, 51, 91, 143, 207, 283, 371, 471, 583]					
		656	H_{617}	$\langle m_z \rangle$	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, t_z^{-1}$
	[7, 23, 51, 91, 143, 207, 284, 374, 476, 590]					
		657	H_{460}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z, m_z t_z^{-1}$
	[7, 23, 52, 93, 145, 210, 287, 375, 476, 589]					
		658	H_{461}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, m_z t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
	[7, 23, 54, 99, 157, 231, 318, 417, 531, 658]					
		659	H_{460}	1	r_z^2	$r_z^2 t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 t_z, m_z t_z^{-1}$
	[7, 24, 53, 92, 143, 206, 279, 364, 461, 568]					
		660	H_{616}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, m_x t_z^{-1}$
	[7, 24, 53, 94, 147, 212, 290, 380, 482, 596]					
		661	H_{614}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z, m_x t_z^{-1}$
	[7, 24, 54, 95, 149, 216, 295, 386, 491, 607]					
		662	H_{323}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_x^2 r_y t_y^{-1}, m_x t_z, m_x t_z^{-1}$
	[7, 24, 54, 95, 149, 217, 298, 393, 502, 624]					
		663	H_{540}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_x^2 r_y t_y^{-1}, m_x t_z, m_x t_z^{-1}$
	[7, 24, 54, 96, 150, 216, 294, 384, 486, 600]					
		664	H_{615}	$\langle m_z \rangle$	r_z^2	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, t_z^{-1}$
		665	H_{483}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, m_z t_z^{-1}$
	[7, 24, 55, 97, 150, 217, 295, 384, 487, 601]					
		666	H_{431}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, m_z t_z, i t_z^{-1}$
	[7, 24, 55, 98, 155, 224, 307, 402, 511, 632]					
		667	H_{616}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, m_y t_z^{-1}$
	[7, 24, 55, 99, 156, 227, 311, 408, 519, 643]					
		668	H_{483}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, m_z t_z^{-1}$
	[7, 24, 56, 101, 157, 226, 307, 400, 508, 628]					
		669	H_{468}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}$
	[7, 24, 56, 101, 157, 226, 308, 401, 508, 628]					
		670	H_{469}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 24, 56, 104, 170, 255, 357, 475, 609, 759]					
		671	H_{452}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_x^2 r_z t_z, m_z t_z^{-1}$
	[7, 24, 56, 105, 172, 256, 356, 472, 604, 752]					
		672	H_{326}	1	i	$m_z r_x t_x, r_z^2 r_x t_x^{-1}, m_z r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
		673	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_y t_y^{-1}, m_z t_z, m_z t_z^{-1}$
	[7, 24, 58, 104, 162, 232, 318, 416, 526, 648]					
		674	H_{326}	1	i	$r_z^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
		675	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, m_z t_z^{-1}$
	[7, 24, 58, 104, 163, 237, 324, 423, 537, 664]					
		676	H_{425}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 24, 59, 106, 170, 246, 338, 442, 562, 694]					
		677	H_{614}	$\langle m_z \rangle$	r_z^2	$r_z^2 t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 t_z, m_x t_z^{-1}$
	[7, 25, 55, 97, 151, 217, 295, 385, 487, 601]					
		678	H_{618}	$\langle m_z \rangle$	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z, m_y t_z^{-1}$
	[7, 25, 56, 98, 152, 218, 296, 386, 488, 602]					
		679	H_{461}	1	r_z^2	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z, m_z t_z^{-1}$
	[7, 25, 57, 102, 159, 231, 317, 415, 529, 656]					
		680	H_{460}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z, i t_z^{-1}$
	[7, 25, 57, 103, 163, 237, 325, 427, 543, 673]					
		681	H_{618}	$\langle m_z \rangle$	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, m_x t_z^{-1}$
	[7, 25, 58, 101, 158, 228, 309, 404, 512, 630]					
		682	H_{433}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y^{-1}, m_z t_z, i t_z^{-1}$
	[7, 25, 58, 102, 160, 231, 314, 409, 519, 640]					
		683	H_{485}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 25, 58, 103, 159, 230, 314, 408, 517, 639]					
		684	H_{461}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, i t_z^{-1}$
	[7, 25, 58, 103, 163, 238, 327, 428, 545, 673]					
		685	H_{462}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 25, 58, 104, 164, 237, 324, 423, 537, 662]					
		686	H_{475}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}$
	[7, 25, 58, 105, 163, 234, 319, 416, 527, 650]					
		687	H_{433}	1	r_z^2	$i t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1}, m_z t_z, i t_z^{-1}$
	[7, 25, 58, 106, 165, 235, 319, 417, 529, 651]					
		688	H_{466}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_x^2 t_y^{-1}, m_z t_z, i t_z^{-1}$
	[7, 25, 58, 106, 165, 239, 326, 425, 539, 666]					
		689	H_{482}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 25, 59, 106, 165, 239, 326, 425, 539, 666]					
		690	H_{461}	1	r_z^2	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, m_z t_z^{-1}$
		691	H_{481}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}$
	[7, 25, 59, 106, 167, 240, 327, 426, 540, 666]					
		692	H_{461}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, i t_z^{-1}$
	[7, 25, 60, 106, 169, 244, 336, 440, 560, 692]					
		693	H_{460}	1	r_z^2	$r_z^2 t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 t_z, i t_z^{-1}$
	[7, 25, 60, 107, 165, 236, 321, 418, 529, 652]					
		694	H_{427}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 25, 60, 108, 171, 249, 340, 441, 563, 699]					
		695	H_{462}	1	r_z^2	$i t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 25, 60, 112, 182, 270, 374, 494, 630, 782]					
		696	H_{527}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1}, r_y^2 r_z t_z, m_z t_z^{-1}$
	[7, 25, 60, 112, 182, 270, 375, 494, 631, 782]					
		697	H_{503}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_x^2 r_z t_z, r_y^2 t_z^{-1}$
	[7, 25, 63, 114, 185, 271, 375, 494, 631, 782]					

Nbr.	gr	№	H_i	L	m	X
		698	H_{503}	1	r_z^2	$r_z^2 t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_x^2 r_z t_z, r_y^2 t_z^{-1}$
	[7, 25, 63, 121, 190, 278, 386, 506, 639, 791]					
		699	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_y t_y, m_z t_z, i t_z^{-1}$
	[7, 25, 65, 114, 175, 249, 341, 445, 561, 690]					
		700	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}$
	[7, 26, 56, 98, 152, 218, 296, 386, 488, 602]					
		701	H_{616}	$\langle m_z \rangle$	r_z^2	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z, m_y t_z^{-1}$
	[7, 26, 59, 104, 163, 234, 319, 416, 527, 650]					
		702	H_{610}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, i t_z, r_z^2 t_z^{-1}$
	[7, 26, 59, 106, 164, 235, 320, 417, 528, 651]					
		703	H_{434}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, i t_y^{-1}, m_z t_z, i t_z^{-1}$
	[7, 26, 59, 106, 165, 236, 321, 418, 529, 652]					
		704	H_{474}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 26, 60, 106, 164, 234, 320, 418, 528, 650]					
		705	H_{308}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 r_z t_z^{-1}$
		706	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[7, 26, 60, 107, 166, 240, 327, 426, 540, 667]					
		707	H_{483}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, i t_z^{-1}$
	[7, 26, 60, 107, 169, 244, 334, 437, 555, 686]					
		708	H_{308}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, m_z t_y, m_z t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[7, 26, 60, 109, 170, 243, 332, 433, 548, 675]					
		709	H_{473}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_x^2 t_y^{-1}, m_z t_z, i t_z^{-1}$
	[7, 26, 60, 109, 171, 247, 340, 444, 564, 696]					
		710	H_{471}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, i t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 26, 60, 109, 173, 250, 342, 446, 566, 698]					
		711	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}$
	[7, 26, 60, 111, 178, 262, 362, 478, 610, 758]					
		712	H_{308}	1	i	$r_z^2 t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_z^{-1} t_z, r_y^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		713	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[7, 26, 61, 108, 167, 241, 328, 427, 541, 668]					
		714	H_{468}	1	r_z^2	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}$
		715	H_{469}	1	r_z^2	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 26, 61, 108, 169, 242, 331, 432, 547, 674]					
		716	H_{615}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, i t_z, r_z^2 t_z^{-1}$
		717	H_{540}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_x^2 r_y t_y^{-1}, m_y t_z, m_y t_z^{-1}$
	[7, 26, 61, 108, 171, 246, 337, 440, 560, 692]					
		718	H_{323}	1	i	$r_z^2 t_x, r_z^2 t_x^{-1}, r_x^2 r_y t_y^{-1}, m_x t_z, m_x t_z^{-1}, r_x^2 t_z^{-1}$
	[7, 26, 61, 110, 174, 250, 342, 446, 566, 698]					
		719	H_{483}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, i t_z^{-1}$
	[7, 26, 61, 112, 181, 267, 369, 487, 621, 771]					
		720	H_{611}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_x^2 r_z t_z, m_x r_z^{-1} t_z^{-1}$
	[7, 26, 61, 112, 181, 268, 372, 492, 628, 780]					
		721	H_{452}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 r_z t_z, m_z t_z^{-1}$
	[7, 26, 61, 113, 183, 270, 373, 492, 627, 778]					
		722	H_{305}	1	i	$i t_x^{-1}, t_y, t_y^{-1}, m_x r_z^{-1} t_z, r_y^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
	[7, 26, 62, 109, 171, 247, 337, 439, 558, 688]					
		723	H_{486}	1	r_z^2	$r_x^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_x^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}$
		724	H_{479}	1	r_z^2	$r_x^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 26, 62, 110, 174, 250, 342, 446, 566, 698]					
		725	H_{616}	$\langle m_z \rangle$	r_z^2	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, m_x t_z^{-1}$
	[7, 26, 62, 116, 187, 275, 379, 499, 635, 787]					
		726	H_{504}	1	r_z^2	$r_z^2 t_x^{-1}, r_y t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} t_y^{-1}, t_z, t_z^{-1}$
	[7, 26, 63, 115, 188, 274, 380, 498, 636, 786]					
		727	H_{308}	1	i	$r_z^2 t_x^{-1}, m_z t_y, m_z t_y^{-1}, m_x r_z^{-1} t_z, r_y^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		728	H_{323}	1	i	$r_z^2 t_x, r_z^2 t_x^{-1}, m_x r_y t_y, r_x^2 r_y t_y^{-1}, m_x r_y t_y^{-1}, r_x^2 t_z^{-1}$
	[7, 26, 63, 116, 187, 275, 379, 499, 635, 787]					
		729	H_{540}	1	r_z^2	$i t_x^{-1}, r_y t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} t_y^{-1}, m_y t_z, m_y t_z^{-1}$
		730	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}$
		731	H_{529}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_y t_y, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[7, 26, 64, 113, 181, 267, 370, 490, 626, 778]					
		732	H_{452}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_x^2 r_z t_z, i t_z^{-1}$
	[7, 26, 64, 114, 177, 253, 345, 449, 569, 701]					
		733	H_{486}	1	r_z^2	$r_y^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}$
		734	H_{479}	1	r_z^2	$r_y^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 26, 64, 117, 188, 275, 378, 498, 634, 786]					
		735	H_{529}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[7, 26, 64, 120, 191, 279, 383, 503, 639, 791]					
		736	H_{453}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, i t_y^{-1}, r_x^2 r_z t_z, r_y^2 r_z t_z^{-1}$
	[7, 26, 65, 114, 177, 251, 343, 447, 566, 697]					
		737	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 26, 65, 121, 192, 280, 384, 504, 640, 792]					
		738	H_{489}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, i t_y^{-1}, r_z t_z, r_z^{-1} t_z^{-1}$
	[7, 26, 66, 127, 196, 284, 389, 509, 643, 795]					
		739	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_x^2 t_y, r_x^2 t_z, r_y^2 t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
	[7, 27, 61, 108, 167, 241, 328, 427, 541, 668]					
		740	H_{461}	1	r_z^2	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z, i t_z^{-1}$
	[7, 27, 62, 112, 175, 251, 343, 447, 567, 699]					
		741	H_{477}	1	r_z^2	$r_y^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, m_z t_z, i t_z^{-1}$
		742	H_{429}	1	r_z^2	$r_y^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 27, 63, 110, 172, 248, 338, 440, 559, 689]					
		743	H_{466}	1	r_z^2	$r_z^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, m_z t_z, i t_z^{-1}$
		744	H_{427}	1	r_z^2	$r_z^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 27, 63, 111, 175, 251, 343, 447, 567, 699]					
		745	H_{617}	$\langle m_z \rangle$	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, i t_z, r_z^2 t_z^{-1}$
	[7, 27, 63, 115, 185, 272, 376, 496, 632, 784]					
		746	H_{503}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[7, 27, 64, 112, 176, 252, 344, 448, 568, 700]					
		747	H_{461}	1	r_z^2	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, i t_z^{-1}$
	[7, 27, 64, 117, 187, 274, 378, 498, 634, 786]					
		748	H_{527}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, m_z t_z^{-1}$
	[7, 27, 65, 113, 174, 249, 341, 445, 561, 690]					
		749	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_x t_y, m_y t_y, m_x t_y^{-1}, m_z t_z, i t_z^{-1}$
	[7, 27, 65, 115, 178, 254, 346, 450, 570, 702]					
		750	H_{475}	1	r_z^2	$i t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}$
		751	H_{485}	1	r_z^2	$i t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 27, 65, 119, 191, 279, 383, 503, 639, 791]					
		752	H_{622}	$\langle m_z \rangle$	r_z^2	$m_x t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1}, r_y^2 r_z t_z, m_x r_z t_z^{-1}$
	[7, 27, 65, 121, 192, 280, 383, 505, 640, 792]					
		753	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}$
	[7, 27, 65, 122, 193, 281, 385, 505, 641, 793]					
		754	H_{505}	1	r_z^2	$r_y^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_x^2 r_z t_z, r_y^2 r_z t_z^{-1}$
		755	H_{506}	1	r_z^2	$r_y^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_z t_z, r_z^{-1} t_z^{-1}$
	[7, 27, 66, 117, 186, 273, 376, 496, 632, 784]					
		756	H_{503}	1	r_z^2	$r_z^2 t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[7, 27, 68, 119, 189, 276, 379, 499, 635, 787]					
		757	H_{527}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1}, r_y^2 r_z t_z, i t_z^{-1}$
	[7, 28, 63, 110, 171, 244, 333, 434, 549, 676]					
		758	H_{305}	1	i	$t_x, i t_x^{-1}, t_x^{-1}, i t_y, i t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[7, 28, 63, 110, 173, 248, 339, 442, 559, 688]					
		759	H_{504}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_x^2 r_y t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}$
	[7, 28, 63, 113, 176, 252, 344, 448, 568, 700]					
		760	H_{473}	1	r_z^2	$i t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, m_z t_z, i t_z^{-1}$
		761	H_{474}	1	r_z^2	$i t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 28, 64, 112, 176, 252, 344, 448, 568, 700]					
		762	H_{615}	$\langle m_z \rangle$	r_z^2	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, i t_z, r_z^2 t_z^{-1}$
		763	H_{326}	1	i	$r_z^2 r_x t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}$
	[7, 28, 64, 113, 177, 254, 346, 450, 570, 702]					
		764	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, i t_z, i t_z^{-1}$
	[7, 28, 65, 113, 176, 251, 343, 447, 566, 697]					
		765	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_y^2 t_y, r_x^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 28, 65, 115, 183, 269, 372, 492, 628, 780]					
		766	H_{452}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 r_z t_z, i t_z^{-1}$
	[7, 28, 65, 118, 188, 275, 379, 499, 635, 787]					
		767	H_{529}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[7, 28, 66, 119, 188, 275, 378, 498, 634, 786]					
		768	H_{529}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[7, 28, 66, 120, 191, 279, 383, 503, 639, 791]					
		769	H_{438}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_x^2 r_z t_z, r_y^2 r_z t_z^{-1}$
	[7, 28, 66, 121, 192, 280, 384, 504, 640, 792]					
		770	H_{323}	1	i	$r_z^2 t_x^{-1}, m_x r_y t_y, r_x^2 r_y t_y^{-1}, m_x r_y t_y^{-1}, m_x t_z, m_x t_z^{-1}$
	[7, 28, 67, 121, 192, 280, 384, 504, 640, 792]					
		771	H_{446}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_z t_z, r_z^{-1} t_z^{-1}$
	[7, 28, 67, 123, 194, 282, 386, 506, 642, 794]					
		772	H_{540}	1	r_z^2	$i t_x^{-1}, r_y t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} t_y^{-1}, m_x t_z, m_x t_z^{-1}$
	[7, 28, 68, 122, 195, 281, 387, 505, 643, 793]					
		773	H_{305}	1	i	$i t_x^{-1}, i t_y, i t_y^{-1}, m_x r_z^{-1} t_z, r_y^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		774	H_{326}	1	i	$m_z r_x t_x, r_z^2 r_x t_x^{-1}, m_z r_x t_x^{-1}, m_y t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}$
	[7, 28, 68, 123, 194, 282, 386, 506, 642, 794]					
		775	H_{504}	1	r_z^2	$r_z^2 t_x^{-1}, r_y t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}$
		776	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_y t_y^{-1}, i t_z, i t_z^{-1}$
	[7, 28, 68, 127, 196, 284, 387, 509, 644, 796]					
		777	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[7, 29, 68, 120, 189, 276, 379, 499, 635, 787]					
		778	H_{527}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, i t_z^{-1}$
	[7, 29, 69, 124, 195, 283, 387, 507, 643, 795]					
		779	H_{496}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_x^2 r_z t_z, r_y^2 r_z t_z^{-1}$
		780	H_{514}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_z t_z, r_z^{-1} t_z^{-1}$
	[7, 30, 67, 121, 192, 280, 384, 504, 640, 792]					

Nbr.	gr	№	H_i	L	m	X
		781	H_{611}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 r_z t_z, m_x r_z t_z^{-1}$
	[7, 31, 69, 124, 195, 283, 387, 507, 643, 795]					
		782	H_{622}	$\langle m_z \rangle$	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, m_x r_z t_z^{-1}$
12						
	[7, 23, 51, 91, 143, 207, 283, 371, 471, 583]					
		783*,				
	[7, 23, 52, 95, 151, 219, 300, 395, 503, 623]					
		784*,				
	[7, 24, 56, 102, 160, 232, 318, 416, 528, 654]					
		786*,				
	[7, 24, 56, 105, 173, 260, 364, 484, 620, 772]					
		785*,				
	[7, 24, 57, 104, 164, 239, 327, 428, 544, 673]					
		787*,				
	[7, 24, 58, 106, 165, 240, 330, 431, 547, 678]					
		788*,				
	[7, 25, 58, 107, 169, 243, 332, 435, 552, 683]					
		789*,				
	[7, 25, 59, 107, 169, 245, 335, 439, 557, 689]					
		790*,				
	[7, 25, 59, 109, 173, 249, 339, 443, 561, 693]					
		791*,				
	[7, 25, 60, 109, 169, 242, 331, 435, 551, 679]					
		793*,				
	[7, 25, 60, 109, 170, 245, 335, 439, 556, 687]					
		795*,				
	[7, 25, 60, 109, 171, 246, 335, 439, 556, 687]					
		794*,				
	[7, 25, 60, 109, 172, 249, 339, 443, 561, 693]					
		796*,				
	[7, 25, 60, 111, 174, 249, 339, 443, 561, 693]					
		797*,				
	[7, 25, 61, 116, 188, 276, 380, 500, 636, 788]					
		792*,				
	[7, 26, 62, 115, 185, 272, 376, 496, 632, 784]					
		798*,				
	[7, 26, 63, 117, 188, 276, 380, 500, 636, 788]					
		799*, 800*, 801*, 802*,				
	[7, 26, 64, 119, 190, 279, 383, 502, 639, 791]					
		803*,				
	[7, 27, 63, 111, 173, 249, 339, 443, 561, 693]					
		804*,				
	[7, 27, 65, 120, 192, 280, 384, 504, 640, 792]					
		805*,				
	[7, 27, 66, 120, 189, 276, 380, 500, 636, 788]					
		806*, 807*, 808*, 809*,				
	[7, 27, 66, 124, 197, 284, 388, 508, 644, 796]					
		810*,				
	[7, 29, 69, 124, 196, 284, 388, 508, 644, 796]					
		811*, 812*, 813*, 814*,				
	[8, 26, 56, 98, 152, 218, 296, 386, 488, 602]					
		783	H_{749}	$\langle m_y, r_z^2 \rangle$	i	$r_y^2 t_x, r_z^2 t_x, m_z t_x^{-1}, r_z^2 t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_z t_z^{-1}$
	[8, 26, 60, 106, 164, 234, 320, 418, 528, 650]					
		784	H_{750}	$\langle m_y, r_z^2 \rangle$	i	$r_y^2 t_x, r_z^2 t_x, m_z t_x^{-1}, r_z^2 t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_x^2 r_z t_z^{-1}$
	[8, 27, 60, 109, 176, 261, 364, 484, 620, 772]					
		785	H_{690}	$\langle m_x \rangle$	r_z^2	$m_x t_x, m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, m_z r_z^{-1} t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
	[8, 27, 61, 108, 167, 241, 328, 427, 541, 668]					
		786	H_{680}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_x t_x, m_y t_x^{-1}, m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}$
	[8, 27, 62, 109, 171, 246, 336, 438, 555, 685]					
		787	H_{359}	1	m_z	$i t_x, r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_z t_z^{-1}$
	[8, 27, 63, 110, 172, 248, 338, 440, 559, 689]					
		788	H_{682}	$\langle m_x \rangle$	r_z^2	$i t_x, r_y^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}$
	[8, 28, 63, 113, 176, 252, 344, 448, 568, 700]					
		789	H_{683}	$\langle m_x \rangle$	r_z^2	$i t_x, r_y^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_x^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}$
	[8, 28, 64, 112, 176, 252, 344, 448, 568, 700]					
		790	H_{749}	$\langle m_y, r_z^2 \rangle$	i	$r_y^2 t_x, r_z^2 t_x, m_z t_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, m_z t_y^{-1}, m_z t_z^{-1}$
	[8, 28, 64, 114, 178, 254, 346, 450, 570, 702]					
		791	H_{370}	1	m_z	$i t_x, r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, r_x^2 t_z^{-1}$
	[8, 28, 64, 117, 188, 276, 380, 500, 636, 788]					
		792	H_{750}	$\langle m_y, m_z \rangle$	r_z^2	$m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_y^2 r_z t_z, m_z r_z t_z, m_x r_z t_z^{-1}, r_z t_z^{-1}$
	[8, 28, 65, 113, 174, 249, 341, 445, 561, 690]					
		793	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_x t_y, m_y t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}$
	[8, 28, 65, 113, 176, 251, 343, 447, 566, 697]					

Nbr.	gr	№	H_i	L	m	X
		794	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_y^2 t_y, r_x^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[8, 28, 65, 113, 176, 252, 344, 448, 568, 700]					
		795	H_{344}	1	m_z	$r_z^2 t_x, i t_x^{-1}, i t_y, r_z^2 t_y, i t_y^{-1}, r_z^2 t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[8, 28, 65, 113, 178, 254, 346, 450, 570, 702]					
		796	H_{378}	1	m_z	$r_y^2 t_x, m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[8, 28, 65, 115, 178, 254, 346, 450, 570, 702]					
		797	H_{682}	$\langle m_y \rangle$	m_x	$r_y^2 t_x^{-1}, r_z^2 t_y, m_y t_y, m_x t_y^{-1}, t_y^{-1}, m_z t_z, r_y^2 t_z^{-1}$
	[8, 29, 66, 119, 188, 275, 378, 498, 634, 786]					
		798	H_{690}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_y t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, m_z r_z^{-1} t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
	[8, 29, 66, 119, 189, 276, 380, 500, 636, 788]					
		799	H_{452}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 r_z t_z, m_z t_z^{-1}$
		800	H_{503}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 r_z t_z, r_x^2 t_z^{-1}$
		801	H_{527}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, m_z t_z^{-1}$
		802	H_{529}	1	r_z^2	$m_x t_x, m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[8, 29, 67, 121, 192, 280, 384, 504, 640, 792]					
		803	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_y^2 r_x t_x^{-1}, r_x^{-1} t_x^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}$
	[8, 30, 66, 114, 178, 254, 346, 450, 570, 702]					
		804	H_{750}	$\langle m_y, r_z^2 \rangle$	i	$r_y^2 t_x, r_z^2 t_x, m_z t_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, m_z t_y^{-1}, r_x^2 r_z t_z^{-1}$
	[8, 30, 68, 123, 194, 282, 386, 506, 642, 794]					
		805	H_{750}	$\langle m_y, m_z \rangle$	r_z^2	$m_x t_x^{-1}, r_z^2 t_y, m_x t_y^{-1}, r_y^2 r_z t_z, m_z r_z t_z, m_x r_z t_z^{-1}, r_z t_z^{-1}$
	[8, 30, 69, 121, 190, 277, 380, 500, 636, 788]					
		806	H_{452}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 r_z t_z, i t_z^{-1}$
		807	H_{503}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
		808	H_{527}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, i t_z^{-1}$
		809	H_{529}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[8, 30, 69, 126, 196, 284, 388, 508, 644, 796]					
		810	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_y^2 r_x t_x^{-1}, r_x^{-1} t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[8, 32, 70, 125, 196, 284, 388, 508, 644, 796]					
		811	H_{604}	$\langle r_y^2 \rangle$	r_z^2	$i t_x, m_x t_x, m_y t_x^{-1}, m_x t_x^{-1}, m_y t_y^{-1}, r_x^2 r_z t_z, r_z t_z^{-1}$
		812	H_{598}	$\langle r_y^2 \rangle$	r_z^2	$r_z^2 t_x, r_y^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 r_z t_z, r_z t_z^{-1}$
		813	H_{611}	$\langle m_z \rangle$	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 r_z t_z, m_x r_z t_z^{-1}$
		814	H_{622}	$\langle m_z \rangle$	r_z^2	$m_x t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, m_x r_z t_z^{-1}$

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[6, 19, 44, 83, 134, 196, 272, 361, 460, 573]
816*,
[6, 19, 44, 84, 138, 201, 272, 357, 460, 577]
815*,
[6, 20, 45, 78, 121, 176, 238, 310, 395, 486]
817*, 818*,
[6, 20, 45, 80, 125, 180, 245, 320, 405, 500]
819*, 820*,
[6, 20, 47, 85, 132, 191, 261, 340, 431, 533]
821*,
[6, 20, 47, 87, 137, 195, 263, 343, 434, 535]
825*,
[6, 20, 47, 87, 139, 203, 280, 370, 471, 585]
823*,
[6, 20, 47, 87, 141, 211, 292, 382, 486, 602]
822*,
[6, 20, 47, 87, 141, 211, 297, 397, 509, 635]
826*,
[6, 20, 47, 89, 147, 216, 292, 384, 496, 615]
824*,
[6, 20, 49, 95, 154, 221, 296, 386, 492, 607]
827*,
[6, 20, 52, 105, 170, 243, 329, 429, 544, 675]

Nbr.	gr	№	H_i	L	m	X
		828*,				
	[6, 21, 50, 90, 143, 212, 290, 381, 490, 606]					
		829*,				
	[6, 21, 51, 93, 146, 214, 293, 383, 489, 605]					
		830*,				
	[6, 21, 52, 97, 152, 218, 295, 386, 492, 607]					
		831*,				
	[6, 21, 52, 99, 159, 229, 307, 401, 513, 631]					
		832*,				
	[6, 21, 53, 103, 168, 245, 331, 431, 546, 675]					
		835*,				
	[6, 21, 53, 104, 169, 243, 329, 429, 544, 675]					
		833*,				
	[6, 21, 53, 106, 169, 236, 320, 421, 534, 661]					
		834*,				
	[6, 21, 53, 107, 173, 243, 327, 433, 555, 682]					
		836*,				
	[6, 21, 54, 107, 172, 243, 327, 433, 555, 682]					
		837*,				
	[6, 21, 58, 112, 175, 249, 336, 440, 559, 690]					
		838*,				
	[6, 22, 53, 95, 149, 217, 295, 386, 492, 607]					
		839*,				
	[6, 22, 54, 97, 153, 225, 305, 399, 511, 629]					
		840*,				
	[6, 22, 55, 100, 156, 228, 315, 414, 527, 655]					
		842*,				
	[6, 22, 55, 106, 166, 237, 325, 427, 543, 673]					
		847*,				
	[6, 22, 55, 107, 176, 255, 345, 447, 563, 694]					
		844*,				
	[6, 22, 56, 102, 157, 227, 307, 401, 513, 631]					
		841*,				
	[6, 22, 56, 105, 166, 240, 327, 428, 544, 673]					
		845*,				
	[6, 22, 56, 106, 165, 237, 325, 427, 543, 673]					
		849*,				
	[6, 22, 56, 107, 166, 234, 320, 421, 534, 661]					
		843*,				
	[6, 22, 57, 108, 170, 244, 333, 436, 552, 683]					
		846*,				
	[6, 22, 57, 109, 174, 250, 337, 439, 556, 687]					
		850*,				
	[6, 22, 58, 109, 171, 246, 334, 436, 552, 682]					
		848*,				
	[6, 22, 59, 111, 170, 243, 332, 434, 550, 680]					
		851*,				
	[6, 23, 56, 101, 159, 232, 319, 420, 535, 664]					
		852*,				
	[6, 23, 56, 107, 173, 249, 339, 442, 559, 691]					
		853*,				
	[6, 23, 58, 108, 171, 246, 335, 439, 557, 689]					
		854*,				
	[6, 23, 58, 109, 173, 251, 343, 445, 561, 693]					
		855*,				
	[6, 23, 58, 110, 177, 254, 343, 445, 561, 693]					
		856*,				
	[6, 23, 59, 114, 180, 252, 339, 443, 561, 693]					
		857*,				
	[6, 23, 60, 112, 175, 250, 339, 443, 561, 693]					
		858*,				
	[6, 23, 60, 114, 177, 250, 339, 443, 561, 693]					
		859*,				
	[6, 24, 56, 100, 159, 232, 319, 420, 535, 664]					
		860*,				
	[6, 24, 59, 110, 171, 243, 332, 435, 552, 683]					
		861*,				
	[6, 24, 60, 108, 169, 245, 335, 439, 557, 689]					
		862*,				
	[6, 24, 60, 109, 171, 247, 337, 441, 559, 691]					
		863*,				
	[6, 24, 60, 111, 173, 247, 337, 441, 559, 691]					
		864*, 865*,				
	[6, 24, 60, 113, 177, 250, 339, 443, 561, 693]					
		866*,				
	[6, 24, 61, 112, 172, 245, 335, 439, 556, 687]					
		867*,				
	[6, 24, 62, 112, 173, 249, 339, 443, 561, 693]					
		868*,				
	[6, 24, 62, 114, 175, 249, 339, 443, 561, 693]					
		869*,				
	[6, 24, 62, 115, 177, 250, 339, 443, 561, 693]					
		870*,				
	[7, 23, 52, 95, 150, 216, 293, 381, 485, 603]					
		815	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_z t_z^{-1}$
	[7, 23, 52, 95, 150, 218, 301, 393, 497, 619]					
		816	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_z t_z^{-1}$
	[7, 24, 52, 90, 141, 202, 273, 358, 452, 556]					
		817	H_{388}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, m_z r_x t_z^{-1}$
	[7, 24, 52, 91, 143, 204, 276, 362, 457, 563]					
		818	H_{400}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, m_z r_x t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
	[7, 24, 53, 93, 145, 208, 283, 369, 467, 576]					
		819	H_{389}	1	$r_z^2 r_x$	$it_x^{-1}, m_z r_x t_y, it_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, m_z r_x t_z^{-1}$
	[7, 24, 53, 94, 147, 210, 287, 375, 474, 584]					
		820	H_{398}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, m_z r_x t_y, it_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, m_z r_x t_z^{-1}$
	[7, 24, 54, 95, 148, 213, 288, 376, 477, 588]					
		821	H_{418}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_x t_z^{-1}$
	[7, 24, 54, 96, 152, 221, 301, 395, 501, 618]					
		822	H_{407}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_x t_z^{-1}$
	[7, 24, 54, 98, 154, 222, 307, 400, 504, 630]					
		823	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_x^2 t_y, it_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_x^2 t_z^{-1}$
	[7, 24, 54, 98, 156, 225, 306, 402, 510, 629]					
		824	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_x^2 t_y, it_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_x^2 t_z^{-1}$
	[7, 24, 55, 99, 154, 219, 298, 389, 493, 610]					
		825	H_{410}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_x t_z^{-1}$
	[7, 24, 55, 99, 157, 231, 320, 423, 543, 677]					
		826	H_{414}	1	$r_z^2 r_x$	$it_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_x t_z^{-1}$
	[7, 24, 56, 103, 161, 227, 306, 401, 506, 623]					
		827	H_{419}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[7, 24, 60, 112, 175, 249, 337, 438, 557, 689]					
		828	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[7, 25, 56, 99, 157, 226, 307, 405, 512, 631]					
		829	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_y^2 r_x t_y, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[7, 25, 57, 100, 156, 225, 305, 399, 505, 622]					
		830	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}$
	[7, 25, 58, 103, 159, 226, 306, 401, 506, 623]					
		831	H_{402}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[7, 25, 58, 106, 166, 234, 316, 416, 524, 644]					
		832	H_{401}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[7, 25, 60, 111, 175, 249, 337, 438, 557, 689]					
		833	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z, m_z t_z, m_z t_z^{-1}$
	[7, 25, 60, 113, 172, 243, 332, 433, 548, 674]					
		834	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[7, 25, 61, 111, 177, 253, 343, 447, 566, 698]					
		835	H_{418}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}$
	[7, 25, 62, 116, 177, 249, 344, 452, 567, 694]					
		836	H_{415}	1	$r_z^2 r_x$	$it_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[7, 25, 63, 115, 177, 249, 344, 452, 567, 694]					
		837	H_{404}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[7, 25, 65, 114, 178, 251, 343, 448, 567, 699]					
		838	H_{407}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}$
	[7, 26, 58, 101, 158, 226, 306, 401, 506, 623]					
		839	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}$
	[7, 26, 59, 103, 163, 233, 315, 415, 523, 643]					
		840	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[7, 26, 61, 106, 164, 234, 316, 416, 524, 644]					
		841	H_{391}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[7, 26, 62, 107, 168, 243, 332, 433, 551, 680]					
		842	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_y^2 r_x t_y, it_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}$
	[7, 26, 62, 112, 170, 243, 332, 433, 548, 674]					
		843	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$
	[7, 26, 62, 114, 181, 257, 349, 451, 571, 702]					
		844	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, r_y^2 t_z, m_x r_x t_z^{-1}$
	[7, 26, 63, 111, 174, 249, 338, 441, 559, 688]					
		845	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_x r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}$
	[7, 26, 63, 112, 175, 250, 341, 444, 563, 694]					
		846	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y, it_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}$
	[7, 26, 63, 114, 175, 251, 343, 447, 567, 699]					
		847	H_{396}	1	$r_z^2 r_x$	$it_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[7, 26, 64, 112, 175, 250, 341, 444, 562, 692]					
		848	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}$
	[7, 26, 64, 113, 175, 251, 343, 447, 567, 699]					
		849	H_{392}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[7, 26, 64, 114, 179, 254, 344, 448, 568, 700]					
		850	H_{400}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_z r_x t_y, it_y^{-1}, it_z, it_z^{-1}, m_z r_x t_z^{-1}$
	[7, 26, 65, 113, 174, 249, 339, 442, 560, 690]					
		851	H_{388}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_z r_x t_y, it_y^{-1}, it_z, it_z^{-1}, m_z r_x t_z^{-1}$
	[7, 27, 62, 108, 170, 245, 335, 438, 556, 687]					
		852	H_{401}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}$
	[7, 27, 62, 114, 178, 254, 346, 449, 569, 701]					
		853	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[7, 27, 64, 113, 177, 252, 344, 448, 568, 700]					
		854	H_{419}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}$
	[7, 27, 64, 114, 178, 256, 348, 450, 570, 702]					
		855	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
	[7, 27, 64, 115, 181, 256, 348, 450, 570, 702]					

Nbr.	gr	№	H_i	L	m	X
		856	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_y^2 r_x t_y, it_y^{-1}, it_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[7, 27, 65, 118, 181, 254, 346, 450, 570, 702]					
		857	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, r_y^2 t_z, m_x r_x t_z^{-1}$
	[7, 27, 66, 115, 179, 254, 346, 450, 570, 702]					
		858	H_{410}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}$
	[7, 27, 66, 117, 179, 254, 346, 450, 570, 702]					
		859	H_{414}	1	$r_z^2 r_x$	$it_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}$
	[7, 28, 61, 108, 170, 245, 335, 438, 556, 687]					
		860	H_{392}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}$
	[7, 28, 64, 115, 176, 252, 344, 448, 568, 700]					
		861	H_{389}	1	$r_z^2 r_x$	$it_x^{-1}, m_z r_x t_y, it_y^{-1}, it_z, it_z^{-1}, m_z r_x t_z^{-1}$
	[7, 28, 65, 112, 176, 252, 344, 448, 568, 700]					
		862	H_{404}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}$
	[7, 28, 65, 113, 177, 253, 345, 449, 569, 701]					
		863	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}$
	[7, 28, 65, 115, 177, 253, 345, 449, 569, 701]					
		864	H_{396}	1	$r_z^2 r_x$	$it_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}$
		865	H_{391}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}$
	[7, 28, 65, 117, 179, 254, 346, 450, 570, 702]					
		866	H_{402}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}$
	[7, 28, 66, 115, 176, 252, 344, 448, 568, 700]					
		867	H_{398}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, m_z r_x t_y, it_y^{-1}, it_z, it_z^{-1}, m_z r_x t_z^{-1}$
	[7, 28, 67, 114, 178, 254, 346, 450, 570, 702]					
		868	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}$
	[7, 28, 67, 116, 178, 254, 346, 450, 570, 702]					
		869	H_{415}	1	$r_z^2 r_x$	$it_x^{-1}, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}$
	[7, 28, 67, 117, 179, 254, 346, 450, 570, 702]					
		870	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y, it_y^{-1}, it_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
14						
	[7, 24, 54, 95, 149, 217, 295, 386, 492, 607]					
		871*,				
	[7, 24, 55, 99, 156, 226, 308, 404, 514, 636]					
		872*,				
	[7, 24, 55, 99, 156, 227, 311, 408, 519, 643]					
		873*,				
	[7, 24, 56, 103, 163, 235, 320, 419, 531, 656]					
		874*,				
	[7, 24, 56, 103, 165, 241, 329, 429, 544, 675]					
		875*,				
	[7, 24, 56, 105, 169, 242, 327, 433, 555, 682]					
		876*,				
	[7, 25, 56, 98, 155, 224, 304, 400, 507, 626]					
		877*,				
	[7, 25, 57, 99, 155, 227, 307, 401, 513, 631]					
		878*,				
	[7, 25, 57, 100, 157, 229, 312, 408, 519, 642]					
		879*,				
	[7, 25, 57, 102, 161, 233, 318, 417, 529, 654]					
		880*,				
	[7, 25, 57, 103, 163, 237, 325, 427, 543, 673]					
		887*,				
	[7, 25, 58, 103, 162, 239, 330, 429, 541, 672]					
		881*,				
	[7, 25, 58, 104, 163, 234, 320, 421, 534, 661]					
		883*,				
	[7, 25, 58, 104, 163, 235, 320, 419, 531, 656]					
		882*,				
	[7, 25, 58, 104, 163, 237, 325, 426, 541, 670]					
		884*,				
	[7, 25, 58, 105, 166, 241, 330, 433, 550, 681]					
		890*,				
	[7, 25, 59, 106, 164, 235, 320, 419, 531, 656]					
		885*, 886*,				
	[7, 25, 60, 108, 168, 242, 329, 431, 547, 675]					
		888*,				
	[7, 25, 60, 109, 170, 245, 334, 436, 552, 682]					
		889*,				
	[7, 25, 62, 111, 172, 249, 339, 443, 561, 693]					
		891*,				
	[7, 25, 63, 113, 173, 249, 339, 443, 561, 693]					
		892*,				
	[7, 26, 60, 105, 163, 235, 320, 419, 531, 656]					
		893*, 894*, 895*, 896*,				
	[7, 26, 61, 107, 167, 242, 329, 431, 547, 675]					
		897*, 900*,				
	[7, 26, 61, 108, 168, 243, 332, 435, 552, 683]					
		902*, 903*,				
	[7, 26, 62, 109, 168, 243, 332, 434, 550, 680]					
		898*, 899*,				
	[7, 26, 62, 110, 170, 245, 335, 438, 554, 685]					
		901*,				
	[7, 26, 62, 110, 172, 249, 339, 443, 561, 693]					
		904*, 905*, 906*,				
	[7, 26, 63, 112, 173, 249, 339, 443, 561, 693]					
		907*, 908*,				
	[7, 26, 63, 113, 175, 250, 339, 443, 561, 693]					

Nbr.	gr	№	H_i	L	m	X
		909*, 910*,				
	[7, 27, 60, 104, 163, 235, 320, 419, 531, 656]					
		911*, 912*,				
	[7, 27, 61, 107, 168, 243, 332, 435, 552, 683]					
		915*, 916*,				
	[7, 27, 62, 108, 168, 243, 332, 434, 550, 680]					
		913*, 914*, 917*,				
	[7, 27, 62, 109, 170, 245, 335, 439, 556, 687]					
		918*, 919*,				
	[7, 27, 63, 111, 173, 249, 339, 443, 561, 693]					
		920*,				
	[7, 27, 65, 113, 173, 249, 339, 443, 561, 693]					
		921*, 922*, 923*, 924*, 925*, 926*,				
	[7, 28, 65, 112, 173, 249, 339, 443, 561, 693]					
		927*, 928*, 929*, 930*, 931*, 932*,				
	[7, 29, 65, 111, 173, 249, 339, 443, 561, 693]					
		933*, 934*,				
	[8, 27, 58, 101, 158, 226, 306, 401, 506, 623]					
		871	H_{650}	$\langle m_z r_x \rangle$	m_x	$m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_y t_y^{-1}, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_x^{-1} t_z^{-1}$
	[8, 27, 59, 104, 163, 234, 318, 416, 526, 650]					
		872	H_{359}	1	m_z	$it_x, r_z^2 t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
	[8, 27, 60, 106, 166, 240, 326, 426, 540, 666]					
		873	H_{370}	1	m_z	$it_x, r_z^2 t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
	[8, 27, 61, 109, 169, 242, 329, 429, 542, 669]					
		874	H_{368}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z^{-1}$
	[8, 27, 61, 109, 173, 249, 337, 438, 557, 689]					
		875	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z, m_z t_z^{-1}$
	[8, 27, 63, 113, 176, 249, 344, 452, 567, 694]					
		876	H_{652}	$\langle m_z r_x \rangle$	m_x	$r_z^2 r_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_y t_y^{-1}, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_x^{-1} t_z^{-1}$
	[8, 28, 59, 104, 163, 231, 316, 412, 519, 643]					
		877	H_{359}	1	m_z	$r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
	[8, 28, 60, 104, 164, 234, 316, 416, 524, 644]					
		878	H_{648}	$\langle m_z r_x \rangle$	m_x	$m_x t_x^{-1}, r_x^2 t_y, it_y^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
	[8, 28, 60, 105, 165, 236, 321, 420, 531, 655]					
		879	H_{350}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
	[8, 28, 61, 108, 169, 242, 329, 429, 542, 669]					
		880	H_{365}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
	[8, 28, 62, 108, 172, 249, 336, 436, 555, 687]					
		881	H_{372}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z^{-1}$
	[8, 28, 62, 109, 169, 242, 329, 429, 542, 669]					
		882	H_{370}	1	m_z	$r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
	[8, 28, 62, 109, 170, 243, 332, 433, 548, 674]					
		883	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$
	[8, 28, 62, 109, 172, 247, 337, 440, 558, 688]					
		884	H_{361}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, r_z^2 t_y, it_y^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[8, 28, 63, 110, 169, 242, 329, 429, 542, 669]					
		885	H_{359}	1	m_z	$it_x, r_z^2 t_x, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
		886	H_{353}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
	[8, 28, 63, 111, 175, 251, 343, 447, 567, 699]					
		887	H_{649}	$\langle m_z r_x \rangle$	m_x	$r_z^2 r_x t_x^{-1}, r_x^2 t_y, it_y^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
	[8, 28, 64, 111, 173, 247, 337, 440, 556, 686]					
		888	H_{359}	1	m_z	$it_x, r_z^2 t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
	[8, 28, 64, 112, 174, 250, 341, 444, 562, 692]					
		889	H_{377}	1	m_z	$r_y^2 t_x, m_z r_z^{-1} t_x^{-1}, r_z^{-1} t_x^{-1}, m_z r_z t_y, r_z t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[8, 28, 64, 112, 176, 252, 344, 448, 568, 700]					
		890	H_{364}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, it_z^{-1}$
	[8, 28, 67, 113, 178, 254, 346, 450, 570, 702]					

Nbr.	gr	№	H_i	L	m	X
		891	H_{370}	1	m_z	$it_x, r_z^2 t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
	[8, 28, 68, 114, 178, 254, 346, 450, 570, 702]					
		892	H_{368}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z^{-1}$
	[8, 29, 63, 109, 169, 242, 329, 429, 542, 669]					
		893	H_{350}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
		894	H_{370}	1	m_z	$it_x, r_z^2 t_x, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
		895	H_{359}	1	m_z	$r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
		896	H_{368}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z^{-1}$
	[8, 29, 64, 110, 173, 247, 337, 440, 556, 686]					
		897	H_{359}	1	m_z	$it_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
	[8, 29, 65, 111, 174, 249, 339, 442, 560, 690]					
		898	H_{330}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, it_y, it_y^{-1}, r_z^2 t_y^{-1}, m_z t_z^{-1}$
		899	H_{350}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
	[8, 29, 65, 111, 175, 250, 339, 443, 560, 689]					
		900	H_{382}	1	m_z	$r_y^2 t_x, m_z r_z^{-1} t_x^{-1}, r_z^{-1} t_x^{-1}, m_z r_z t_y, r_z t_y, m_y t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[8, 29, 65, 112, 175, 251, 342, 445, 564, 695]					
		901	H_{343}	1	m_z	$r_z^2 t_x, r_y^2 r_z t_x^{-1}, m_x r_z t_x^{-1}, it_y, r_y^2 r_z t_y^{-1}, m_x r_z t_y^{-1}, m_z t_z^{-1}$
	[8, 29, 65, 112, 176, 252, 344, 448, 568, 700]					
		902	H_{361}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, it_y, it_y^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
		903	H_{365}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
	[8, 29, 66, 113, 178, 254, 346, 450, 570, 702]					
		904	H_{370}	1	m_z	$it_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
		905	H_{378}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z^{-1}$
		906	H_{378}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, m_y t_y, m_y t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[8, 29, 67, 114, 178, 254, 346, 450, 570, 702]					
		907	H_{372}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z^{-1}$
		908	H_{373}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, it_z^{-1}$
	[8, 29, 67, 115, 179, 254, 346, 450, 570, 702]					
		909	H_{359}	1	m_z	$it_x, r_z^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
		910	H_{650}	$\langle m_z r_x \rangle$	m_x	$m_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_y t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_x^{-1} t_z^{-1}$
	[8, 30, 62, 109, 169, 242, 329, 429, 542, 669]					
		911	H_{365}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, r_z^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
		912	H_{370}	1	m_z	$r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
	[8, 30, 64, 111, 174, 249, 339, 442, 560, 690]					
		913	H_{361}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, r_z^2 t_y, it_y^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
		914	H_{372}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z^{-1}$
	[8, 30, 64, 112, 176, 252, 344, 448, 568, 700]					
		915	H_{332}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, it_y, it_y^{-1}, r_z^2 t_y^{-1}, it_z^{-1}$
		916	H_{364}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, it_z^{-1}$
	[8, 30, 65, 112, 175, 251, 341, 444, 563, 693]					
		917	H_{347}	1	m_z	$r_z^2 t_x, r_y^2 r_z t_x^{-1}, m_x r_z t_x^{-1}, it_y, r_y^2 r_z t_y^{-1}, m_x r_z t_y^{-1}, r_x^2 r_z t_z^{-1}$
	[8, 30, 65, 113, 176, 252, 344, 448, 568, 700]					
		918	H_{344}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, it_y, it_y^{-1}, r_z^2 t_y^{-1}, r_y^2 r_z t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		919	H_{344}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, it_y, r_z^2 t_y, it_y^{-1}, r_y^2 r_z t_z^{-1}$
	[8, 30, 66, 114, 178, 254, 346, 450, 570, 702]					
		920	H_{364}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, it_z^{-1}$
	[8, 30, 68, 114, 178, 254, 346, 450, 570, 702]					
		921	H_{648}	$\langle m_z r_x \rangle$	m_x	$m_x t_x^{-1}, it_y, it_y^{-1}, r_x^2 t_y^{-1}, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		922	H_{350}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
		923	H_{370}	1	m_z	$it_x, r_z^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
		924	H_{359}	1	m_z	$it_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
		925	H_{368}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z^{-1}$
		926	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z, m_x r_x t_z^{-1}$
	[8, 31, 67, 114, 178, 254, 346, 450, 570, 702]					
		927	H_{361}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, it_y, it_y^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
		928	H_{372}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z^{-1}$
		929	H_{365}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
		930	H_{370}	1	m_z	$it_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
		931	H_{652}	$\langle m_z r_x \rangle$	m_x	$r_z^2 r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_y t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_x^{-1} t_z^{-1}$
		932	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_y^2 r_x t_z^{-1}$
	[8, 32, 66, 114, 178, 254, 346, 450, 570, 702]					
		933	H_{649}	$\langle m_z r_x \rangle$	m_x	$r_z^2 r_x t_x^{-1}, it_y, it_y^{-1}, r_x^2 t_y^{-1}, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		934	H_{364}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, it_z^{-1}$

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972*,
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970*, 971*,
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977*, 978*,
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982*, 983*,
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974*, 975*,
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976*, 985*, 986*,
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1006*, 1007*,
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1008*, 1009*,
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1013*, 1014*,
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1032*, 1033*,
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1034*,
[7, 27, 62, 109, 171, 247, 337, 441, 559, 691]
1036*, 1037*, 1038*,
[7, 27, 62, 112, 181, 268, 372, 492, 628, 780]
1035*,
[7, 27, 63, 111, 173, 249, 339, 443, 561, 693]

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		1040*,				
	[7, 27, 63, 115, 185, 272, 376, 496, 632, 784]					
		1039*,				
	[7, 27, 64, 112, 173, 249, 339, 443, 561, 693]					
		1041*, 1042*, 1043*, 1044*,				
	[7, 27, 65, 118, 187, 274, 378, 498, 634, 786]					
		1045*, 1046*,				
	[7, 27, 65, 122, 194, 282, 386, 506, 642, 794]					
		1047*,				
	[7, 27, 66, 122, 194, 282, 386, 506, 642, 794]					
		1048*, 1049*,				
	[7, 27, 70, 127, 196, 284, 388, 508, 644, 796]					
		1050*,				
	[7, 28, 64, 111, 173, 249, 339, 443, 561, 693]					
		1051*, 1052*, 1053*, 1054*, 1055*,				
	[7, 28, 65, 117, 187, 274, 378, 498, 634, 786]					
		1056*, 1057*,				
	[7, 28, 65, 117, 188, 276, 380, 500, 636, 788]					
		1058*,				
	[7, 28, 66, 120, 192, 280, 384, 504, 640, 792]					
		1059*, 1060*, 1061*,				
	[7, 28, 67, 124, 196, 284, 388, 508, 644, 796]					
		1062*,				
	[7, 28, 68, 124, 196, 284, 388, 508, 644, 796]					
		1063*,				
	[7, 28, 68, 126, 198, 284, 388, 508, 644, 796]					
		1064*,				
	[7, 28, 69, 126, 197, 284, 388, 508, 644, 796]					
		1065*,				
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		1066*, 1067*, 1068*,				
	[7, 29, 70, 125, 196, 284, 388, 508, 644, 796]					
		1069*,				
	[7, 30, 70, 124, 196, 284, 388, 508, 644, 796]					
		1070*,				
	[8, 26, 56, 98, 152, 218, 296, 386, 488, 602]					
		935	H_{431}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		936	H_{461}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z, m_z t_z^{-1}$
	[8, 26, 57, 102, 159, 227, 308, 402, 509, 629]					
		937	H_{468}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
	[8, 26, 57, 102, 161, 234, 321, 421, 534, 661]					
		938	H_{460}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z, r_x^2 t_z, m_z t_z^{-1}$
	[8, 26, 59, 104, 163, 234, 319, 416, 527, 650]					
		939	H_{433}	1	r_z^2	$i t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1}, m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
	[8, 26, 59, 105, 165, 235, 319, 417, 529, 651]					
		940	H_{466}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_x^2 t_y^{-1}, m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
	[8, 27, 58, 102, 159, 227, 309, 403, 509, 629]					
		941	H_{469}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 27, 58, 103, 161, 232, 318, 417, 530, 657]					
		942	H_{460}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
	[8, 27, 59, 102, 160, 229, 310, 406, 513, 631]					
		943	H_{433}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y^{-1}, m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
	[8, 27, 59, 103, 162, 232, 315, 411, 520, 641]					
		944	H_{485}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 27, 59, 104, 161, 231, 315, 410, 518, 640]					
		945	H_{461}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
	[8, 27, 59, 104, 165, 239, 328, 430, 546, 674]					
		946	H_{462}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 27, 59, 105, 165, 238, 325, 425, 538, 665]					
		947	H_{425}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 27, 59, 105, 166, 238, 325, 425, 538, 663]					
		948	H_{475}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
	[8, 27, 60, 105, 164, 235, 320, 417, 528, 651]					
		949	H_{434}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, i t_y^{-1}, m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
	[8, 27, 60, 105, 165, 236, 321, 418, 529, 652]					
		950	H_{474}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
	[8, 27, 60, 107, 167, 240, 327, 427, 540, 667]					
		951	H_{481}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		952	H_{483}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z, m_z t_z^{-1}$
	[8, 27, 61, 106, 165, 236, 321, 418, 529, 652]					
		953	H_{427}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		954	H_{469}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 27, 61, 107, 171, 249, 340, 441, 563, 699]					
		955	H_{462}	1	r_z^2	$i t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 27, 61, 108, 170, 243, 332, 433, 548, 675]					
		956	H_{473}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_x^2 t_y^{-1}, m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
	[8, 27, 61, 108, 171, 247, 340, 444, 564, 696]					
		957	H_{471}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, i t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 27, 61, 112, 181, 268, 372, 492, 628, 780]					
		958	H_{452}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 r_z t_z, r_x^2 r_z t_z, m_z t_z^{-1}$
		959	H_{487}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, m_z t_z^{-1}$
	[8, 27, 62, 108, 169, 242, 329, 428, 542, 668]					
		960	H_{461}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
	[8, 27, 63, 108, 171, 246, 338, 442, 562, 694]					
		961	H_{460}	1	r_z^2	$r_z^2 t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
	[8, 27, 64, 110, 174, 250, 342, 446, 566, 698]					
		962	H_{425}	1	r_z^2	$r_z^2 t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 27, 65, 113, 177, 253, 345, 449, 569, 701]					
		963	H_{486}	1	r_z^2	$r_y^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
	[8, 28, 61, 106, 165, 236, 321, 418, 529, 652]					
		964	H_{427}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_x^2 t_y, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 28, 61, 108, 168, 241, 328, 428, 541, 668]					
		965	H_{483}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
		966	H_{482}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 28, 62, 106, 165, 236, 321, 418, 529, 652]					
		967	H_{433}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y^{-1}, i t_z, i t_z^{-1}, m_z t_z^{-1}$
		968	H_{485}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		969	H_{431}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, i t_z, i t_z^{-1}, m_z t_z^{-1}$
	[8, 28, 62, 109, 169, 242, 329, 429, 542, 669]					
		970	H_{468}	1	r_z^2	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		971	H_{461}	1	r_z^2	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z, m_z t_z^{-1}$
	[8, 28, 63, 108, 169, 242, 329, 428, 542, 668]					
		972	H_{461}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z, i t_z^{-1}$
	[8, 28, 63, 108, 171, 246, 338, 442, 562, 694]					
		973	H_{460}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z, r_x^2 t_z, i t_z^{-1}$
	[8, 28, 63, 110, 173, 248, 338, 441, 559, 689]					
		974	H_{486}	1	r_z^2	$r_x^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_x^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		975	H_{479}	1	r_z^2	$r_x^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 28, 63, 110, 174, 250, 342, 446, 566, 698]					
		976	H_{462}	1	r_z^2	$i t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 28, 63, 111, 175, 251, 343, 447, 567, 699]					
		977	H_{477}	1	r_z^2	$r_y^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, m_z t_z, i t_z^{-1}, m_z t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		978	H_{429}	1	r_z^2	$r_y^2t_x^{-1}, r_y^2t_y, r_y^2t_y^{-1}, r_x^2t_y^{-1}, r_x^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[8, 28, 63, 113, 181, 267, 370, 490, 626, 778]					
		979	H_{452}	1	r_z^2	$t_x, r_z^2t_x^{-1}, t_x^{-1}, r_z^2t_y^{-1}, r_x^2r_zt_z, it_z^{-1}, m_zt_z^{-1}$
	[8, 28, 63, 115, 185, 272, 376, 496, 632, 784]					
		980	H_{503}	1	r_z^2	$t_x, r_z^2t_x^{-1}, t_x^{-1}, r_z^2t_y^{-1}, r_y^2r_zt_z, r_x^2r_zt_z, r_y^2t_z^{-1}$
		981	H_{519}	1	r_z^2	$t_x, r_z^2t_x^{-1}, t_x^{-1}, r_z^2t_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, r_y^2t_z^{-1}$
	[8, 28, 64, 110, 171, 244, 333, 434, 549, 676]					
		982	H_{475}	1	r_z^2	$m_zt_x, it_x^{-1}, m_zt_x^{-1}, m_yt_y^{-1}, it_z, it_z^{-1}, m_zt_z^{-1}$
		983	H_{468}	1	r_z^2	$t_x, r_z^2t_x^{-1}, t_x^{-1}, m_yt_y^{-1}, it_z, it_z^{-1}, m_zt_z^{-1}$
	[8, 28, 64, 110, 174, 250, 342, 446, 566, 698]					
		984	H_{462}	1	r_z^2	$m_zt_x, it_x^{-1}, m_zt_x^{-1}, r_z^2t_y^{-1}, r_x^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[8, 28, 64, 112, 176, 252, 344, 448, 568, 700]					
		985	H_{483}	1	r_z^2	$m_xt_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, r_y^2t_z, it_z^{-1}, m_zt_z^{-1}$
		986	H_{482}	1	r_z^2	$m_xt_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, r_y^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[8, 28, 64, 115, 185, 271, 375, 494, 631, 782]					
		987	H_{503}	1	r_z^2	$t_x, r_z^2t_x^{-1}, t_x^{-1}, r_z^2t_y^{-1}, r_x^2r_zt_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[8, 28, 64, 117, 187, 274, 378, 498, 634, 786]					
		988	H_{527}	1	r_z^2	$m_xt_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, r_y^2r_zt_z, r_x^2r_zt_z, m_zt_z^{-1}$
		989	H_{528}	1	r_z^2	$m_xt_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, m_zt_z^{-1}$
	[8, 28, 65, 113, 174, 249, 341, 445, 561, 690]					
		990	H_{541}	1	r_z^2	$r_z^2r_xt_x, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, m_zt_z, it_z^{-1}, m_zt_z^{-1}$
		991	H_{541}	1	r_z^2	$r_z^2r_xt_x, m_xt_y, m_yt_y, m_xt_y^{-1}, m_zt_z, it_z^{-1}, m_zt_z^{-1}$
	[8, 28, 65, 113, 177, 253, 345, 449, 569, 701]					
		992	H_{479}	1	r_z^2	$r_y^2t_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, r_x^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[8, 28, 66, 114, 178, 254, 346, 450, 570, 702]					
		993	H_{475}	1	r_z^2	$it_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, m_zt_z, it_z^{-1}, m_zt_z^{-1}$
	[8, 28, 66, 117, 186, 273, 376, 496, 632, 784]					
		994	H_{503}	1	r_z^2	$r_z^2t_x^{-1}, t_y, r_z^2t_y^{-1}, t_y^{-1}, r_y^2r_zt_z, r_x^2r_zt_z, r_y^2t_z^{-1}$
		995	H_{519}	1	r_z^2	$r_z^2t_x^{-1}, t_y, r_z^2t_y^{-1}, t_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, r_y^2t_z^{-1}$
	[8, 29, 61, 106, 165, 236, 321, 418, 529, 652]					
		996	H_{434}	1	r_z^2	$m_zt_x, it_x^{-1}, m_zt_x^{-1}, it_y^{-1}, it_z, it_z^{-1}, m_zt_z^{-1}$
		997	H_{433}	1	r_z^2	$it_x^{-1}, t_y, r_z^2t_y^{-1}, t_y^{-1}, it_z, it_z^{-1}, m_zt_z^{-1}$
		998	H_{474}	1	r_z^2	$m_zt_x, it_x^{-1}, m_zt_x^{-1}, r_x^2t_y^{-1}, r_x^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[8, 29, 62, 109, 169, 242, 329, 429, 542, 669]					
		999	H_{461}	1	r_z^2	$r_z^2t_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, r_x^2t_z, it_z^{-1}, m_zt_z^{-1}$
		1000	H_{469}	1	r_z^2	$r_z^2t_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, r_x^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[8, 29, 63, 110, 171, 244, 333, 434, 549, 676]					
		1001	H_{473}	1	r_z^2	$m_zt_x, it_x^{-1}, m_zt_x^{-1}, r_x^2t_y^{-1}, it_z, it_z^{-1}, m_zt_z^{-1}$
		1002	H_{466}	1	r_z^2	$t_x, r_z^2t_x^{-1}, t_x^{-1}, r_x^2t_y^{-1}, it_z, it_z^{-1}, m_zt_z^{-1}$
	[8, 29, 63, 110, 174, 250, 342, 446, 566, 698]					
		1003	H_{471}	1	r_z^2	$it_x^{-1}, m_zt_y, it_y^{-1}, m_zt_y^{-1}, r_y^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[8, 29, 64, 111, 174, 249, 339, 442, 560, 690]					
		1004	H_{466}	1	r_z^2	$r_z^2t_x^{-1}, r_y^2t_y, r_y^2t_y^{-1}, r_x^2t_y^{-1}, m_zt_z, it_z^{-1}, m_zt_z^{-1}$
		1005	H_{427}	1	r_z^2	$r_z^2t_x^{-1}, r_y^2t_y, r_y^2t_y^{-1}, r_x^2t_y^{-1}, r_x^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[8, 29, 64, 112, 176, 252, 344, 448, 568, 700]					

Nbr.	gr	№	H_i	L	m	X
		1006	H_{473}	1	r_z^2	$it_x^{-1}, r_y^2t_y, r_y^2t_y^{-1}, r_x^2t_y^{-1}, m_zt_z, it_z^{-1}, m_zt_z^{-1}$
		1007	H_{474}	1	r_z^2	$it_x^{-1}, r_y^2t_y, r_y^2t_y^{-1}, r_x^2t_y^{-1}, r_x^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[8, 29, 65, 113, 176, 251, 343, 447, 566, 697]					
		1008	H_{511}	1	r_z^2	$r_z^2r_xt_x, r_y^2t_y, r_y^2t_y^{-1}, r_x^2t_y^{-1}, r_x^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
		1009	H_{511}	1	r_z^2	$r_z^2r_xt_x, r_y^2t_y, r_x^2t_y, r_y^2t_y^{-1}, r_x^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[8, 29, 65, 113, 177, 253, 345, 449, 569, 701]					
		1010	H_{479}	1	r_z^2	$r_y^2t_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, r_y^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[8, 29, 65, 115, 183, 269, 372, 492, 628, 780]					
		1011	H_{452}	1	r_z^2	$t_x, r_z^2t_x^{-1}, t_x^{-1}, r_z^2t_y^{-1}, r_y^2r_zt_z, r_x^2r_zt_z, it_z^{-1}$
		1012	H_{487}	1	r_z^2	$t_x, r_z^2t_x^{-1}, t_x^{-1}, r_z^2t_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, it_z^{-1}$
	[8, 29, 65, 118, 188, 275, 379, 499, 635, 787]					
		1013	H_{529}	1	r_z^2	$m_yt_x, m_xt_x^{-1}, m_yt_x^{-1}, m_yt_y^{-1}, r_y^2r_zt_z, r_x^2r_zt_z, r_y^2t_z^{-1}$
		1014	H_{530}	1	r_z^2	$m_yt_x, m_xt_x^{-1}, m_yt_x^{-1}, m_yt_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, r_y^2t_z^{-1}$
	[8, 29, 65, 121, 189, 278, 379, 500, 634, 788]					
		1015	H_{539}	1	r_z^2	$m_zt_x, it_x^{-1}, m_zt_x^{-1}, r_x^2t_y, m_zr_z^{-1}t_z, m_zr_zt_z, r_y^2r_zt_z^{-1}$
	[8, 29, 65, 121, 190, 280, 382, 504, 638, 792]					
		1016	H_{453}	1	r_z^2	$m_zt_x, it_x^{-1}, m_zt_x^{-1}, it_y^{-1}, r_x^2r_zt_z, r_y^2r_zt_z^{-1}, r_x^2r_zt_z^{-1}$
	[8, 29, 66, 113, 177, 253, 345, 449, 569, 701]					
		1017	H_{486}	1	r_z^2	$r_x^2t_x, r_y^2t_x^{-1}, r_x^2t_x^{-1}, m_yt_y^{-1}, it_z, it_z^{-1}, m_zt_z^{-1}$
		1018	H_{479}	1	r_z^2	$r_x^2t_x, r_y^2t_x^{-1}, r_x^2t_x^{-1}, m_yt_y^{-1}, r_x^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
		1019	H_{481}	1	r_z^2	$m_xt_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, it_z, it_z^{-1}, m_zt_z^{-1}$
		1020	H_{483}	1	r_z^2	$m_xt_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, r_y^2t_z, r_x^2t_z, it_z^{-1}$
	[8, 29, 66, 114, 178, 254, 346, 450, 570, 702]					
		1021	H_{485}	1	r_z^2	$it_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, r_x^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[8, 29, 66, 115, 179, 254, 346, 450, 570, 702]					
		1022	H_{511}	1	r_z^2	$r_z^2r_xt_x, r_y^2t_y, r_y^2t_y^{-1}, r_x^2t_y^{-1}, r_y^2t_z, r_x^2t_z, r_y^2t_z^{-1}$
		1023	H_{541}	1	r_z^2	$r_z^2r_xt_x, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, it_z, m_zt_z, it_z^{-1}$
	[8, 29, 66, 119, 188, 275, 378, 498, 634, 786]					
		1024	H_{529}	1	r_z^2	$m_xt_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, r_y^2r_zt_z, r_x^2r_zt_z, r_y^2t_z^{-1}$
		1025	H_{530}	1	r_z^2	$m_xt_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, r_y^2t_z^{-1}$
	[8, 29, 66, 120, 191, 279, 383, 503, 639, 791]					
		1026	H_{438}	1	r_z^2	$t_x, r_z^2t_x^{-1}, t_x^{-1}, r_z^2t_y^{-1}, r_x^2r_zt_z, r_y^2r_zt_z^{-1}, r_x^2r_zt_z^{-1}$
		1027	H_{495}	1	r_z^2	$t_x, r_z^2t_x^{-1}, t_x^{-1}, r_z^2t_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, r_x^2r_zt_z^{-1}$
	[8, 29, 67, 114, 178, 254, 346, 450, 570, 702]					
		1028	H_{461}	1	r_z^2	$r_z^2t_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, r_y^2t_z, it_z^{-1}, m_zt_z^{-1}$
		1029	H_{469}	1	r_z^2	$r_z^2t_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, r_y^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[8, 29, 67, 119, 189, 276, 379, 499, 635, 787]					
		1030	H_{527}	1	r_z^2	$m_xt_x^{-1}, m_xt_y, m_yt_y, m_xt_y^{-1}, r_y^2r_zt_z, it_z^{-1}, m_zt_z^{-1}$
		1031	H_{529}	1	r_z^2	$m_xt_x^{-1}, m_xt_y, m_yt_y, m_xt_y^{-1}, r_y^2r_zt_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
	[8, 29, 68, 124, 194, 281, 385, 506, 641, 793]					
		1032	H_{541}	1	r_z^2	$r_z^2r_xt_x, r_xt_x, r_x^{-1}t_x^{-1}, m_yt_y^{-1}, m_zt_z, it_z^{-1}, m_zt_z^{-1}$
		1033	H_{541}	1	r_z^2	$r_z^2r_xt_x, r_xt_x, r_x^{-1}t_x^{-1}, m_yt_y, m_zt_z, it_z^{-1}, m_zt_z^{-1}$
	[8, 29, 71, 126, 196, 284, 388, 508, 644, 796]					

Nbr.	gr	№	H_i	L	m	X
		1034	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 30, 64, 115, 183, 269, 372, 492, 628, 780]					
		1035	H_{452}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 r_z t_z, i t_z^{-1}, m_z t_z^{-1}$
	[8, 30, 65, 113, 177, 253, 345, 449, 569, 701]					
		1036	H_{477}	1	r_z^2	$r_y^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, i t_z, i t_z^{-1}, m_z t_z^{-1}$
		1037	H_{429}	1	r_z^2	$r_y^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		1038	H_{486}	1	r_z^2	$r_y^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, i t_z, i t_z^{-1}, m_z t_z^{-1}$
	[8, 30, 65, 117, 186, 273, 376, 496, 632, 784]					
		1039	H_{503}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 30, 66, 114, 178, 254, 346, 450, 570, 702]					
		1040	H_{485}	1	r_z^2	$i t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 30, 67, 114, 178, 254, 346, 450, 570, 702]					
		1041	H_{466}	1	r_z^2	$r_z^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, i t_z, i t_z^{-1}, m_z t_z^{-1}$
		1042	H_{427}	1	r_z^2	$r_z^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		1043	H_{468}	1	r_z^2	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, i t_z, i t_z^{-1}, m_z t_z^{-1}$
		1044	H_{461}	1	r_z^2	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z, i t_z^{-1}$
	[8, 30, 68, 120, 189, 276, 379, 499, 635, 787]					
		1045	H_{527}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_x^2 r_z t_z, i t_z^{-1}$
		1046	H_{528}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, i t_z^{-1}$
	[8, 30, 68, 125, 194, 284, 386, 508, 642, 796]					
		1047	H_{505}	1	r_z^2	$r_y^2 t_x^{-1}, r_y^2 t_y, r_x^2 t_y, r_y^2 t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
	[8, 30, 69, 124, 195, 283, 387, 507, 643, 795]					
		1048	H_{496}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		1049	H_{502}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}$
	[8, 30, 73, 125, 196, 284, 388, 508, 644, 796]					
		1050	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_y t_y^{-1}, i t_z, i t_z^{-1}, m_z t_z^{-1}$
	[8, 31, 66, 114, 178, 254, 346, 450, 570, 702]					
		1051	H_{473}	1	r_z^2	$i t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, i t_z, i t_z^{-1}, m_z t_z^{-1}$
		1052	H_{474}	1	r_z^2	$i t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		1053	H_{475}	1	r_z^2	$i t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, i t_z, i t_z^{-1}, m_z t_z^{-1}$
		1054	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		1055	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, i t_z, i t_z^{-1}, m_z t_z^{-1}$
	[8, 31, 67, 120, 189, 276, 379, 499, 635, 787]					
		1056	H_{527}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		1057	H_{529}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 31, 67, 121, 191, 278, 381, 500, 636, 788]					
		1058	H_{539}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_x^2 t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}$
	[8, 31, 67, 121, 192, 280, 384, 504, 640, 792]					
		1059	H_{453}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, i t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		1060	H_{438}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		1061	H_{495}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}$
	[8, 31, 69, 126, 195, 285, 387, 509, 643, 797]					
		1062	H_{539}	1	r_z^2	$i t_x^{-1}, r_y^2 t_y, r_x^2 t_y, r_y^2 t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}$
	[8, 31, 70, 125, 196, 284, 388, 508, 644, 796]					

Nbr.	gr	№	H_i	L	m	X
		1063	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_x^2 t_z, r_y^2 t_z^{-1}$
	[8, 31, 70, 127, 196, 284, 388, 508, 644, 796]					
		1064	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_x^2 t_y, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 31, 71, 126, 196, 284, 388, 508, 644, 796]					
		1065	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 32, 69, 124, 195, 283, 387, 507, 643, 795]					
		1066	H_{505}	1	r_z^2	$r_y^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		1067	H_{496}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		1068	H_{502}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}$
	[8, 32, 71, 125, 196, 284, 388, 508, 644, 796]					
		1069	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_y t_y^{-1}, i t_z, m_z t_z, i t_z^{-1}$
	[8, 33, 70, 125, 196, 284, 388, 508, 644, 796]					
		1070	H_{539}	1	r_z^2	$i t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}$
16						
	[8, 27, 59, 104, 163, 235, 320, 419, 531, 656]					
		1071*,				
	[8, 27, 60, 106, 167, 242, 329, 431, 547, 675]					
		1072*, 1075*,				
	[8, 27, 60, 107, 168, 243, 332, 435, 552, 683]					
		1077*,				
	[8, 27, 60, 107, 169, 245, 334, 436, 552, 682]					
		1073*,				
	[8, 27, 61, 108, 168, 243, 332, 434, 550, 680]					
		1074*, 1078*,				
	[8, 27, 61, 109, 169, 242, 331, 435, 551, 679]					
		1079*,				
	[8, 27, 61, 109, 170, 245, 335, 438, 554, 685]					
		1076*,				
	[8, 27, 61, 109, 170, 245, 335, 439, 556, 687]					
		1081*,				
	[8, 27, 61, 109, 171, 246, 335, 439, 556, 687]					
		1080*,				
	[8, 27, 61, 109, 172, 249, 339, 443, 561, 693]					
		1082*, 1083*,				
	[8, 27, 62, 111, 173, 249, 339, 443, 561, 693]					
		1084*,				
	[8, 28, 64, 112, 173, 249, 339, 443, 561, 693]					
		1086*, 1087*, 1088*, 1089*, 1090*,				
	[8, 28, 64, 117, 188, 276, 380, 500, 636, 788]					
		1085*,				
	[8, 29, 64, 111, 173, 249, 339, 443, 561, 693]					
		1091*, 1092*, 1093*, 1094*, 1095*, 1096*, 1097*, 1098*, 1099*, 1100*, 1101*,				
	[8, 29, 67, 120, 189, 276, 380, 500, 636, 788]					
		1103*,				
	[8, 29, 67, 121, 193, 282, 385, 505, 642, 793]					
		1102*,				
	[8, 29, 68, 124, 196, 284, 388, 508, 644, 796]					
		1104*,				
	[8, 30, 67, 119, 189, 276, 380, 500, 636, 788]					
		1105*, 1106*, 1107*, 1108*,				
	[8, 30, 70, 125, 196, 284, 388, 508, 644, 796]					
		1109*,				
	[8, 31, 70, 124, 196, 284, 388, 508, 644, 796]					
		1110*, 1111*, 1112*, 1113*, 1114*, 1115*, 1116*, 1117*, 1118*,				
	[9, 29, 62, 109, 169, 242, 329, 429, 542, 669]					
		1071	H_{680}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_x t_x, m_y t_x^{-1}, m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
	[9, 29, 63, 110, 173, 247, 337, 440, 556, 686]					
		1072	H_{359}	1	m_z	$i t_x, r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
	[9, 29, 63, 111, 174, 250, 341, 444, 562, 692]					
		1073	H_{377}	1	m_z	$r_y^2 t_x, m_x t_x, m_z r_z^{-1} t_x^{-1}, r_z^{-1} t_x^{-1}, m_z r_z t_y, r_z t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[9, 29, 64, 111, 174, 249, 339, 442, 560, 690]					
		1074	H_{682}	$\langle m_x \rangle$	r_z^2	$i t_x, r_y^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
	[9, 29, 64, 111, 175, 250, 339, 443, 560, 689]					
		1075	H_{382}	1	m_z	$r_y^2 t_x, m_x t_x, m_z r_z^{-1} t_x^{-1}, r_z^{-1} t_x^{-1}, m_z r_z t_y, r_z t_y, m_y t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[9, 29, 64, 112, 175, 251, 342, 445, 564, 695]					
		1076	H_{343}	1	m_z	$r_z^2 t_x, r_y^2 r_z t_x^{-1}, m_x r_z t_x^{-1}, i t_y, r_z^2 t_y, r_y^2 r_z t_y^{-1}, m_x r_z t_y^{-1}, m_z t_z^{-1}$
	[9, 29, 64, 112, 176, 252, 344, 448, 568, 700]					

Nbr.	gr	№	H_i	L	m	X
		1077	H_{683}	$\langle m_x \rangle$	r_z^2	$it_x, r_y^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_x^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
	[9, 29, 65, 112, 175, 251, 341, 444, 563, 693]					
		1078	H_{347}	1	m_z	$r_z^2 t_x, r_y^2 r_z t_x^{-1}, m_x r_z t_x^{-1}, it_y, r_z^2 t_y, r_y^2 r_z t_y^{-1}, m_x r_z t_y^{-1}, r_x^2 r_z t_z^{-1}$
	[9, 29, 65, 113, 174, 249, 341, 445, 561, 690]					
		1079	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_x t_y, m_y t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, it_z^{-1}, m_z t_z^{-1}$
	[9, 29, 65, 113, 176, 251, 343, 447, 566, 697]					
		1080	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_y^2 t_y, r_x^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[9, 29, 65, 113, 176, 252, 344, 448, 568, 700]					
		1081	H_{344}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, it_y, r_z^2 t_y, it_y^{-1}, r_z^2 t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[9, 29, 65, 113, 178, 254, 346, 450, 570, 702]					
		1082	H_{370}	1	m_z	$it_x, r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
		1083	H_{378}	1	m_z	$r_y^2 t_x, m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z^{-1}$
	[9, 29, 66, 114, 178, 254, 346, 450, 570, 702]					
		1084	H_{682}	$\langle m_y \rangle$	m_x	$r_y^2 t_x^{-1}, r_z^2 t_y, m_y t_y, m_x t_y^{-1}, t_y^{-1}, m_z t_z, r_y^2 t_z^{-1}, m_z t_z^{-1}$
	[9, 30, 66, 119, 189, 276, 380, 500, 636, 788]					
		1085	H_{690}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_x t_x, m_y t_x^{-1}, m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, m_z r_z^{-1} t_z, r_y^2 t_z^{-1}$
	[9, 30, 67, 114, 178, 254, 346, 450, 570, 702]					
		1086	H_{682}	$\langle m_x \rangle$	r_z^2	$it_x, r_y^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
		1087	H_{680}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_x t_x, m_y t_x^{-1}, m_x t_x^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
		1088	H_{359}	1	m_z	$it_x, r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
		1089	H_{343}	1	m_z	$it_x, r_y^2 r_z t_x^{-1}, m_x r_z t_x^{-1}, it_y, r_z^2 t_y, r_y^2 r_z t_y^{-1}, m_x r_z t_y^{-1}, m_z t_z^{-1}$
		1090	H_{377}	1	m_z	$r_y^2 t_x, m_x t_x, m_z r_z^{-1} t_x^{-1}, r_z^{-1} t_x^{-1}, m_z r_z t_y, r_z t_y, r_x^2 t_y^{-1}, m_z t_z^{-1}$
	[9, 31, 66, 114, 178, 254, 346, 450, 570, 702]					
		1091	H_{683}	$\langle m_x \rangle$	r_z^2	$it_x, r_y^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z, r_x^2 t_z^{-1}$
		1092	H_{344}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, it_y, r_z^2 t_y, it_y^{-1}, r_z^2 t_y^{-1}, r_y^2 r_z t_z^{-1}$
		1093	H_{344}	1	m_z	$it_x, r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, it_y, r_z^2 t_y, it_y^{-1}, r_y^2 r_z t_z^{-1}$
		1094	H_{683}	$\langle m_x \rangle$	r_z^2	$it_x, r_y^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
		1095	H_{682}	$\langle m_y \rangle$	m_x	$r_y^2 t_x^{-1}, r_z^2 t_y, m_y t_y, m_x t_y^{-1}, t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, m_z t_z^{-1}$
		1096	H_{370}	1	m_z	$it_x, r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
		1097	H_{347}	1	m_z	$it_x, r_y^2 r_z t_x^{-1}, m_x r_z t_x^{-1}, it_y, r_z^2 t_y, r_y^2 r_z t_y^{-1}, m_x r_z t_y^{-1}, r_x^2 r_z t_z^{-1}$
		1098	H_{378}	1	m_z	$r_y^2 t_x, m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z^{-1}$
		1099	H_{382}	1	m_z	$r_y^2 t_x, m_x t_x, m_z r_z^{-1} t_x^{-1}, r_z^{-1} t_x^{-1}, m_z r_z t_y, r_z t_y, r_x^2 t_y^{-1}, r_y^2 r_z t_z^{-1}$
		1100	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_y^2 t_y, r_x^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		1101	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_x t_y, m_y t_y, m_x t_y^{-1}, m_y t_y^{-1}, it_z, it_z^{-1}, m_z t_z^{-1}$
	[9, 31, 68, 122, 194, 281, 385, 506, 641, 793]					
		1102	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_y^2 r_x t_x^{-1}, r_x^{-1} t_x^{-1}, m_y t_y^{-1}, m_z t_z, it_z^{-1}, m_z t_z^{-1}$
	[9, 31, 69, 121, 190, 277, 380, 500, 636, 788]					
		1103	H_{690}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_x t_x, m_y t_x^{-1}, m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, m_z r_z^{-1} t_z, r_x^2 t_z^{-1}$
	[9, 31, 70, 125, 196, 284, 388, 508, 644, 796]					
		1104	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_y^2 r_x t_x^{-1}, r_x^{-1} t_x^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[9, 32, 68, 121, 190, 277, 380, 500, 636, 788]					

Nbr.	gr	№	H_i	L	m	X
		1105	H_{452}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 r_z t_z,$ $it_z^{-1}, m_z t_z^{-1}$
		1106	H_{503}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 r_z t_z,$ $r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		1107	H_{527}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z,$ $it_z^{-1}, m_z t_z^{-1}$
		1108	H_{529}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z,$ $r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[9, 32, 71, 125, 196, 284, 388, 508, 644, 796]					
		1109	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_y^2 r_x t_x^{-1}, r_x^{-1} t_x^{-1}, m_y t_y^{-1}, it_z,$ $it_z^{-1}, m_z t_z^{-1}$
	[9, 33, 70, 125, 196, 284, 388, 508, 644, 796]					
		1110	H_{453}	1	r_z^2	$it_x^{-1}, it_y, m_z t_y, it_y^{-1}, m_z t_y^{-1}, r_y^2 r_z t_z,$ $r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		1111	H_{539}	1	r_z^2	$it_x, m_z t_x, it_x^{-1}, m_z t_x^{-1}, r_x^2 t_y^{-1}, m_z r_z^{-1} t_z,$ $m_z r_z t_z, r_y^2 r_z t_z^{-1}$
		1112	H_{539}	1	r_z^2	$it_x^{-1}, r_y^2 t_y, r_x^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, m_z r_z^{-1} t_z,$ $m_z r_z t_z, r_y^2 r_z t_z^{-1}$
		1113	H_{438}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 r_z t_z,$ $r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		1114	H_{495}	1	r_z^2	$r_z^2 t_x^{-1}, r_z^2 t_y, t_y, r_z^2 t_y^{-1}, t_y^{-1}, m_z r_z^{-1} t_z,$ $m_z r_z t_z, r_y^2 r_z t_z^{-1}$
		1115	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_y^2 r_x t_x^{-1}, r_x^{-1} t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z,$ $r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		1116	H_{505}	1	r_z^2	$r_y^2 t_x^{-1}, r_y^2 t_y, r_x^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_z t_z,$ $r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		1117	H_{496}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z,$ $r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		1118	H_{502}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z r_z^{-1} t_z,$ $m_z r_z t_z, r_y^2 r_z t_z^{-1}$
17A						
	[5, 14, 29, 50, 77, 110, 149, 194, 245, 302]	1119*, 1120*,				
	[5, 14, 30, 52, 79, 114, 155, 200, 254, 314]	1121*,				
	[5, 14, 33, 67, 114, 168, 227, 302, 391, 481]	1122*,				
	[5, 16, 35, 60, 93, 134, 181, 236, 299, 368]	1123*, 1124*,				
	[5, 16, 36, 63, 97, 139, 189, 247, 312, 384]	1125*,				
	[5, 16, 38, 75, 128, 191, 266, 356, 456, 568]	1126*,				
	[6, 19, 41, 70, 110, 157, 212, 278, 351, 431]					
		1119	H_{307}	1	i	$r_z^2 r_x t_x^{-1}, r_z^2 r_x t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_z^2 r_x t_z^{-1}$
	[6, 19, 42, 72, 112, 160, 218, 284, 359, 442]					
		1120	H_{310}	1	i	$m_x t_x^{-1}, r_z^2 r_x t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_z^2 r_x t_z^{-1}$
	[6, 19, 43, 73, 114, 165, 222, 290, 368, 451]					
		1121	H_{322}	1	i	$m_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_x t_y^{-1}, m_x r_x t_z, r_x^{-1} t_z^{-1}$
	[6, 19, 45, 82, 132, 195, 268, 356, 455, 559]					
		1122	H_{325}	1	i	$r_z^2 r_x t_x^{-1}, m_x r_x t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x^{-1} t_z^{-1}$
	[6, 21, 45, 78, 122, 175, 236, 310, 391, 481]					
		1123	H_{306}	1	i	$it_x^{-1}, r_z^2 r_x t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_z^2 r_x t_z^{-1}$
	[6, 21, 46, 80, 125, 178, 243, 316, 401, 493]					
		1124	H_{309}	1	i	$r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_y^2 r_x t_z, m_z r_x^{-1} t_z^{-1}$
	[6, 21, 47, 82, 128, 183, 250, 325, 411, 507]					
		1125	H_{324}	1	i	$r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_x t_y^{-1}, m_x r_x t_z, r_x^{-1} t_z^{-1}$
	[6, 21, 48, 89, 144, 207, 288, 382, 486, 602]					
		1126	H_{321}	1	i	$it_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_x t_y^{-1}, m_x r_x t_z, r_x^{-1} t_z^{-1}$
17B						
	[5, 15, 37, 74, 122, 178, 244, 322, 410, 508]	1127*,				
	[5, 15, 38, 78, 132, 200, 282, 378, 488, 612]	1128*,				
	[5, 15, 40, 82, 134, 200, 278, 368, 472, 590]	1129*,				
	[5, 15, 40, 83, 142, 216, 300, 393, 500, 622]	1130*,				
	[5, 15, 40, 89, 152, 230, 319, 422, 541, 670]	1131*,				
	[5, 15, 41, 87, 146, 221, 306, 403, 513, 637]	1132*,				
	[5, 16, 39, 74, 119, 174, 239, 314, 399, 494]	1133*, 1134*,				
	[5, 16, 39, 76, 127, 192, 271, 364, 471, 592]	1135*,				
	[5, 16, 42, 80, 131, 196, 274, 364, 467, 584]					

Nbr.	gr	№	H_i	L	m	X
		1138*,				
	[5, 16, 42, 81, 128, 185, 253, 332, 421, 520]					
		1136*, 1137*,				
	[5, 17, 44, 83, 131, 190, 259, 339, 430, 531]					
		1139*,				
	[5, 17, 46, 93, 155, 230, 317, 421, 541, 670]					
		1140*,				
	[5, 17, 46, 95, 156, 229, 315, 419, 536, 665]					
		1141*,				
	[5, 17, 48, 95, 155, 227, 314, 415, 527, 655]					
		1142*,				
	[5, 18, 43, 78, 123, 178, 243, 318, 403, 498]					
		1143*, 1144*,				
	[5, 18, 45, 89, 148, 223, 311, 413, 528, 659]					
		1145*,				
	[5, 18, 47, 93, 151, 223, 312, 411, 523, 653]					
		1146*,				
	[6, 20, 50, 93, 148, 213, 291, 382, 484, 598]					
		1127	H_{420}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_x r_x t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, m_y t_z^{-1}$
	[6, 20, 51, 96, 157, 230, 319, 420, 537, 666]					
		1128	H_{421}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_x t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, r_x^{-1} t_z^{-1}$
	[6, 20, 52, 96, 151, 223, 305, 401, 507, 631]					
		1129	H_{423}	1	$r_z^2 r_x$	$r_z^2 t_x, m_x r_x t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, m_y t_z^{-1}$
	[6, 20, 52, 97, 158, 232, 318, 413, 523, 647]					
		1130	H_{423}	1	$r_z^2 r_x$	$r_z^2 t_x, m_z t_y, m_x r_x t_y^{-1}, m_z t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[6, 20, 52, 103, 163, 241, 328, 437, 554, 689]					
		1131	H_{416}	1	$r_z^2 r_x$	$i t_x^{-1}, m_x r_x t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, m_y t_z^{-1}$
	[6, 20, 53, 101, 161, 237, 320, 422, 533, 661]					
		1132	H_{411}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_x t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, r_x^{-1} t_z^{-1}$
	[6, 21, 50, 90, 142, 205, 280, 366, 464, 573]					
		1133	H_{387}	1	$r_z^2 r_x$	$i t_x^{-1}, t_y, r_z^2 r_x t_y^{-1}, t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[6, 21, 51, 92, 145, 209, 286, 374, 474, 585]					
		1134	H_{384}	1	$r_z^2 r_x$	$m_x t_x^{-1}, t_y, r_z^2 r_x t_y^{-1}, t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[6, 21, 51, 94, 154, 225, 313, 412, 528, 655]					
		1135	H_{386}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[6, 21, 53, 94, 148, 213, 291, 380, 481, 593]					
		1136	H_{406}	1	$r_z^2 r_x$	$r_z^2 t_x, t_y, r_z^2 r_x t_y^{-1}, t_y^{-1}, r_z^2 r_x t_z^{-1}$
		1137	H_{406}	1	$r_z^2 r_x$	$r_z^2 t_x, r_z^2 r_x t_y^{-1}, t_z, r_z^2 r_x t_z^{-1}, t_z^{-1}$
	[6, 21, 53, 94, 153, 220, 305, 398, 509, 628]					
		1138	H_{399}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[6, 22, 55, 97, 153, 220, 299, 391, 495, 610]					
		1139	H_{405}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, m_x r_x t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, m_y t_z^{-1}$
	[6, 22, 56, 102, 164, 239, 330, 435, 556, 687]					
		1140	H_{403}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_x r_x t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, m_y t_z^{-1}$
	[6, 22, 57, 106, 171, 245, 337, 442, 563, 693]					
		1141	H_{417}	1	$r_z^2 r_x$	$i t_x^{-1}, r_x t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, r_x^{-1} t_z^{-1}$
	[6, 22, 58, 104, 168, 238, 330, 430, 546, 674]					
		1142	H_{408}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_x t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, r_x^{-1} t_z^{-1}$
	[6, 23, 52, 92, 144, 207, 282, 368, 466, 575]					
		1143	H_{383}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, t_y, r_z^2 r_x t_y^{-1}, t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[6, 23, 53, 94, 147, 211, 288, 376, 476, 587]					
		1144	H_{390}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, t_y, r_z^2 r_x t_y^{-1}, t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[6, 23, 55, 102, 167, 243, 335, 438, 559, 691]					
		1145	H_{397}	1	$r_z^2 r_x$	$i t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[6, 23, 56, 104, 164, 238, 328, 428, 544, 674]					
		1146	H_{385}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
18A						
	[7, 22, 47, 82, 127, 182, 247, 322, 407, 502]					
		1147*, 1148*,				
	[7, 22, 48, 85, 132, 189, 257, 336, 425, 524]					
		1149*, 1150*,				
	[7, 23, 50, 87, 135, 194, 263, 343, 434, 535]					
		1152*,				
	[7, 23, 51, 90, 140, 202, 275, 359, 455, 562]					
		1151*,				
	[7, 23, 51, 91, 143, 206, 280, 366, 464, 574]					
		1153*,				
	[7, 23, 51, 91, 143, 207, 283, 371, 471, 583]					
		1154*,				
	[7, 23, 52, 94, 148, 214, 292, 382, 484, 598]					
		1156*,				
	[7, 23, 52, 94, 150, 220, 302, 396, 504, 626]					
		1157*,				
	[7, 23, 52, 95, 152, 222, 305, 401, 510, 632]					
		1155*,				
	[7, 23, 52, 96, 155, 226, 311, 411, 523, 647]					
		1158*,				
	[7, 23, 52, 97, 159, 234, 321, 425, 545, 674]					
		1159*,				
	[7, 23, 54, 99, 156, 228, 315, 414, 527, 655]					
		1160*,				
	[7, 23, 55, 103, 165, 241, 331, 435, 553, 685]					
		1161*,				

Nbr.	gr	№	H_i	L	m	X
	[7, 24, 54, 96, 150, 216, 294, 384, 486, 600]					
		1163*, 1165*,				
	[7, 24, 55, 99, 156, 226, 309, 405, 514, 636]					
		1162*, 1164*,				
	[7, 24, 55, 100, 159, 232, 319, 420, 535, 664]					
		1166*,				
	[7, 24, 56, 102, 161, 233, 319, 419, 532, 658]					
		1167*, 1168*,				
	[7, 24, 57, 104, 164, 239, 327, 428, 544, 673]					
		1171*,				
	[7, 24, 57, 105, 167, 243, 333, 437, 555, 687]					
		1169*, 1170*,				
	[7, 24, 58, 107, 168, 243, 333, 436, 552, 683]					
		1172*,				
	[7, 25, 56, 98, 152, 218, 296, 386, 488, 602]					
		1175*,				
	[7, 25, 57, 101, 158, 228, 311, 407, 516, 638]					
		1173*, 1174*,				
	[7, 25, 58, 104, 163, 235, 321, 421, 534, 660]					
		1176*, 1177*,				
	[7, 25, 59, 107, 169, 245, 334, 436, 552, 682]					
		1179*,				
	[7, 25, 59, 107, 169, 245, 335, 439, 557, 689]					
		1178*, 1180*, 1181*, 1182*,				
	[7, 25, 59, 108, 171, 247, 337, 441, 559, 691]					
		1183*,				
	[7, 25, 60, 113, 183, 269, 371, 489, 623, 773]					
		1184*,				
	[7, 25, 62, 117, 190, 278, 382, 502, 638, 790]					
		1185*,				
	[7, 26, 61, 109, 171, 247, 337, 441, 559, 691]					
		1186*, 1187*, 1188*, 1189*,				
	[7, 26, 61, 110, 173, 249, 339, 443, 561, 693]					
		1190*,				
	[7, 26, 63, 118, 190, 278, 382, 502, 638, 790]					
		1191*,				
	[7, 26, 65, 121, 194, 282, 386, 506, 642, 794]					
		1192*,				
	[7, 27, 63, 111, 173, 249, 339, 443, 561, 693]					
		1193*, 1194*,				
	[7, 27, 65, 120, 192, 280, 384, 504, 640, 792]					
		1195*, 1196*,				
	[7, 28, 67, 122, 194, 282, 386, 506, 642, 794]					
		1197*, 1198*,				
	[8, 25, 54, 94, 146, 209, 284, 370, 468, 577]					
		1147	H_{654}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_z r_x t_y, it_y^{-1}, t_y^{-1}, t_z, r_z^2 r_x t_z^{-1}, m_z r_x t_z^{-1}$
	[8, 25, 55, 96, 149, 213, 290, 378, 478, 589]					
		1148	H_{655}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$m_x t_x^{-1}, m_z r_x t_y, it_y^{-1}, t_y^{-1}, t_z, r_z^2 r_x t_z^{-1}, m_z r_x t_z^{-1}$
		1149	H_{301}	1	i	$t_x, it_x^{-1}, t_x^{-1}, t_y, it_y^{-1}, t_y^{-1}, r_y^2 t_z^{-1}$
	[8, 25, 55, 96, 150, 215, 293, 382, 483, 595]					
		1150	H_{406}	1	$r_z^2 r_x$	$r_z^2 t_x, t_y, r_z^2 r_x t_y^{-1}, t_y^{-1}, t_z, r_z^2 r_x t_z^{-1}, t_z^{-1}$
	[8, 26, 57, 99, 154, 221, 300, 391, 495, 610]					
		1151	H_{303}	1	i	$t_x, it_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z^{-1}$
	[8, 26, 57, 99, 155, 222, 301, 393, 497, 612]					
		1152	H_{660}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$m_x t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, m_z t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, r_x t_z^{-1}$
	[8, 26, 58, 102, 159, 227, 309, 403, 510, 629]					
		1153	H_{314}	1	i	$t_x, it_x^{-1}, t_x^{-1}, m_y t_y^{-1}, m_x t_z, m_x t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 26, 58, 102, 160, 230, 314, 410, 520, 642]					
		1154	H_{302}	1	i	$t_x, it_x^{-1}, t_x^{-1}, m_z t_y, r_z^2 t_y^{-1}, m_z t_y^{-1}, m_z t_z^{-1}$
	[8, 26, 58, 102, 160, 231, 316, 413, 524, 647]					
		1155	H_{301}	1	i	$it_x^{-1}, t_y, it_y^{-1}, t_y^{-1}, m_y t_z, r_y^2 t_z^{-1}, m_y t_z^{-1}$
	[8, 26, 58, 102, 161, 232, 317, 414, 525, 648]					
		1156	H_{315}	1	i	$r_z^2 t_x^{-1}, m_z t_y, r_z^2 t_y^{-1}, m_z t_y^{-1}, m_y t_z, r_y^2 t_z^{-1}, m_y t_z^{-1}$
	[8, 26, 58, 102, 161, 233, 319, 415, 525, 649]					
		1157	H_{423}	1	$r_z^2 r_x$	$r_z^2 t_x, m_z t_y, m_x r_x t_y^{-1}, m_z t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, m_y t_z^{-1}$
	[8, 26, 58, 104, 165, 237, 326, 427, 541, 667]					
		1158	H_{312}	1	i	$t_x, it_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, m_x t_z, m_x t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 26, 58, 104, 166, 241, 332, 437, 558, 689]					
		1159	H_{658}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, m_z t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, r_x t_z^{-1}$
	[8, 26, 61, 107, 168, 243, 332, 433, 551, 680]					

Nbr.	gr	№	H_i	L	m	X
		1160	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_y^2 r_x t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 26, 61, 108, 172, 248, 340, 444, 564, 696]					
		1161	H_{311}	1	i	$t_x, i t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, m_y t_z, r_y^2 t_z^{-1}, m_y t_z^{-1}$
	[8, 27, 60, 105, 164, 235, 320, 417, 528, 651]					
		1162	H_{302}	1	i	$t_x, i t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
		1163	H_{312}	1	i	$t_x, i t_x^{-1}, t_x^{-1}, m_z t_y, r_z^2 t_y^{-1}, m_z t_y^{-1}, r_x^2 t_z^{-1}$
		1164	H_{304}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
		1165	H_{317}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, m_y t_y^{-1}, m_y t_z, r_y^2 t_z^{-1}, m_y t_z^{-1}$
	[8, 27, 61, 108, 170, 245, 335, 438, 556, 687]					
		1166	H_{657}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$m_x t_x^{-1}, r_y^2 r_x t_y, m_x t_y^{-1}, r_x^2 t_y^{-1}, m_x t_z, r_y^2 r_x t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
	[8, 27, 62, 109, 170, 243, 332, 433, 548, 675]					
		1167	H_{313}	1	i	$t_x, i t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
		1168	H_{316}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, m_y t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
	[8, 27, 62, 109, 173, 249, 341, 445, 565, 697]					
		1169	H_{301}	1	i	$t_x, i t_x^{-1}, t_x^{-1}, i t_y^{-1}, m_y t_z, r_y^2 t_z^{-1}, m_y t_z^{-1}$
		1170	H_{315}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y^{-1}, m_y t_z, r_y^2 t_z^{-1}, m_y t_z^{-1}$
	[8, 27, 63, 110, 173, 249, 338, 441, 559, 688]					
		1171	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_x r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
	[8, 27, 63, 111, 174, 250, 341, 444, 563, 694]					
		1172	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 28, 61, 106, 165, 236, 321, 418, 529, 652]					
		1173	H_{300}	1	i	$t_x, i t_x^{-1}, t_x^{-1}, i t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
		1174	H_{302}	1	i	$i t_x^{-1}, m_z t_y, r_z^2 t_y^{-1}, m_z t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
		1175	H_{319}	1	i	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, r_x^2 t_y^{-1}, m_y t_z, r_y^2 t_z^{-1}, m_y t_z^{-1}$
	[8, 28, 63, 110, 171, 244, 333, 434, 549, 676]					
		1176	H_{314}	1	i	$t_x, i t_x^{-1}, t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z^{-1}$
		1177	H_{317}	1	i	$r_z^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, m_y t_z, r_y^2 t_z^{-1}, m_y t_z^{-1}$
	[8, 28, 63, 110, 174, 250, 342, 446, 566, 698]					
		1178	H_{312}	1	i	$i t_x^{-1}, m_z t_y, r_z^2 t_y^{-1}, m_z t_y^{-1}, m_x t_z, m_x t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 28, 63, 111, 174, 250, 341, 444, 562, 692]					
		1179	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
	[8, 28, 64, 112, 176, 252, 344, 448, 568, 700]					
		1180	H_{315}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, m_z t_y, r_z^2 t_y^{-1}, m_z t_y^{-1}, r_y^2 t_z^{-1}$
		1181	H_{316}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, m_z t_z^{-1}$
		1182	H_{661}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$m_x t_x^{-1}, m_x r_x^{-1} t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, r_z^2 t_z, m_x r_x t_z^{-1}, r_x^{-1} t_z^{-1}$
	[8, 28, 64, 113, 177, 253, 345, 449, 569, 701]					
		1183	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 28, 64, 117, 187, 274, 377, 496, 631, 782]					
		1184	H_{305}	1	i	$t_x, i t_x^{-1}, t_x^{-1}, i t_y^{-1}, m_x r_z^{-1} t_z, r_y^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
	[8, 28, 66, 119, 192, 278, 384, 502, 640, 790]					
		1185	H_{308}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y^{-1}, m_x r_z^{-1} t_z, r_y^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
	[8, 29, 65, 113, 177, 253, 345, 449, 569, 701]					
		1186	H_{656}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y, m_x t_y^{-1}, r_x^2 t_y^{-1}, m_x t_z, r_y^2 r_x t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		1187	H_{316}	1	i	$r_z^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		1188	H_{317}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z^{-1}$
		1189	H_{318}	1	i	$r_z^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, m_x t_z, m_x t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 29, 65, 114, 178, 254, 346, 450, 570, 702]					
		1190	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
	[8, 29, 67, 122, 193, 281, 385, 505, 641, 793]					
		1191	H_{323}	1	i	$r_z^2 t_x^{-1}, m_x r_y t_y, r_x^2 r_y t_y^{-1}, m_x r_y t_y^{-1}, m_x t_z, m_x t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 29, 69, 123, 196, 282, 388, 506, 644, 794]					
		1192	H_{326}	1	i	$m_z r_x t_x, r_z^2 r_x t_x^{-1}, m_z r_x t_x^{-1}, m_y t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
	[8, 30, 66, 114, 178, 254, 346, 450, 570, 702]					
		1193	H_{659}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, r_z^2 t_z, m_x r_x t_z^{-1}, r_x^{-1} t_z^{-1}$
		1194	H_{314}	1	i	$i t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, m_x t_z, m_x t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 30, 67, 121, 192, 280, 384, 504, 640, 792]					
		1195	H_{305}	1	i	$t_x, i t_x^{-1}, t_x^{-1}, i t_y, m_x r_z^{-1} t_z, r_y^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		1196	H_{308}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y, m_x r_z^{-1} t_z, r_y^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
	[8, 31, 69, 124, 195, 283, 387, 507, 643, 795]					
		1197	H_{323}	1	i	$r_z^2 t_x^{-1}, m_x r_y t_y, r_x^2 r_y t_y^{-1}, m_x r_y t_y^{-1}, m_x t_z, r_x^2 t_z, m_x t_z^{-1}$
		1198	H_{326}	1	i	$m_z r_x t_x, r_z^2 r_x t_x^{-1}, m_z r_x t_x^{-1}, m_y t_y^{-1}, r_z^2 t_z, m_z t_z, r_z^2 t_z^{-1}$

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[7, 25, 57, 103, 163, 237, 325, 427, 543, 673]
1200*,
[7, 25, 58, 103, 161, 235, 322, 421, 535, 663]
1199*,
[7, 26, 61, 107, 167, 242, 329, 431, 547, 675]
1201*,
[7, 26, 62, 109, 168, 243, 332, 434, 550, 680]
1202*,
[7, 27, 61, 107, 169, 245, 334, 436, 552, 682]
1203*,
[7, 27, 62, 109, 170, 245, 335, 438, 554, 685]
1204*,
[7, 27, 65, 113, 173, 249, 339, 443, 561, 693]
1205*,
[7, 29, 65, 111, 173, 249, 339, 443, 561, 693]
1206*,

Nbr.	gr	№	H_i	L	m	X
	[8, 28, 62, 108, 170, 244, 332, 434, 550, 678]					
		1199	H_{759}	$\langle m_z, r_x^2 \rangle$	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, m_x t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, r_x t_z^{-1}$
	[8, 28, 62, 110, 174, 250, 342, 446, 566, 698]					
		1200	H_{760}	$\langle m_z, r_x^2 \rangle$	$r_z^2 r_x$	$m_x t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, m_x t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, r_x t_z^{-1}$
	[8, 29, 65, 111, 175, 250, 339, 443, 560, 689]					
		1201	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}$
	[8, 29, 66, 112, 175, 251, 341, 444, 563, 693]					
		1202	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_y^2 r_x t_y, r_x^2 t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}$
	[8, 30, 63, 111, 174, 250, 341, 444, 562, 692]					
		1203	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}$
	[8, 30, 64, 112, 175, 251, 342, 445, 564, 695]					
		1204	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y, r_x^2 t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}$
	[8, 30, 68, 114, 178, 254, 346, 450, 570, 702]					
		1205	H_{758}	$\langle m_z, r_x^2 \rangle$	$r_z^2 r_x$	$m_x t_x^{-1}, m_x r_x t_y, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, m_x r_x^{-1} t_z, r_y^2 r_x t_z^{-1}$
	[8, 32, 66, 114, 178, 254, 346, 450, 570, 702]					
		1206	H_{757}	$\langle m_z, r_x^2 \rangle$	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, m_x r_x t_y, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, m_x r_x^{-1} t_z, r_y^2 r_x t_z^{-1}$

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[8, 26, 56, 98, 152, 218, 296, 386, 488, 602]
1208*,
[8, 26, 57, 101, 158, 228, 311, 407, 516, 638]
1207*,
[8, 26, 57, 101, 159, 231, 316, 414, 525, 649]
1209*,
[8, 26, 58, 104, 162, 232, 316, 414, 524, 646]
1213*,

Nbr.	gr	№	H_i	L	m	X
	[8, 26, 58, 104, 163, 235, 321, 421, 534, 660]					
		1211*, 1212*,				
	[8, 26, 58, 104, 164, 238, 326, 428, 543, 671]					
		1214*,				
	[8, 26, 58, 104, 165, 241, 331, 435, 553, 685]					
		1215*, 1210*,				
	[8, 26, 59, 107, 169, 245, 335, 439, 557, 689]					
		1216*,				
	[8, 27, 61, 109, 171, 247, 337, 441, 559, 691]					
		1219*, 1220*, 1221*,				
	[8, 27, 61, 112, 181, 268, 372, 492, 628, 780]					
		1217*, 1218*,				
	[8, 27, 62, 115, 185, 272, 376, 496, 632, 784]					
		1222*, 1223*,				
	[8, 28, 63, 111, 173, 249, 339, 443, 561, 693]					
		1224*, 1225*, 1226*, 1227*, 1228*, 1229*, 1230*,				
	[8, 28, 64, 117, 187, 274, 378, 498, 634, 786]					
		1231*, 1232*, 1233*, 1234*,				
	[8, 28, 64, 117, 188, 276, 380, 500, 636, 788]					
		1235*,				
	[8, 28, 65, 120, 192, 280, 384, 504, 640, 792]					
		1236*, 1237*, 1238*,				
	[8, 29, 67, 122, 194, 282, 386, 506, 642, 794]					
		1239*, 1240*, 1241*,				
	[8, 30, 69, 124, 196, 284, 388, 508, 644, 796]					
		1242*, 1243*, 1244*, 1245*, 1246*, 1247*, 1248*, 1249*, 1250*,				
	[9, 28, 61, 106, 165, 236, 321, 418, 529, 652]					
		1207	H_{610}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, i t_z, m_z t_z, r_z^2 t_z^{-1}, t_z^{-1}$
		1208	H_{616}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z, m_x t_z^{-1}, m_y t_z^{-1}$
	[9, 28, 62, 108, 169, 242, 329, 428, 542, 668]					
		1209	H_{461}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
	[9, 28, 62, 108, 171, 246, 338, 442, 562, 694]					
		1210	H_{460}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z, r_x^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
	[9, 28, 63, 110, 171, 244, 333, 434, 549, 676]					
		1211	H_{615}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_y t_y^{-1}, i t_z, m_z t_z, r_z^2 t_z^{-1}, t_z^{-1}$
		1212	H_{305}	1	i	$t_x, i t_x^{-1}, t_x^{-1}, i t_y, t_y, i t_y^{-1}, t_y^{-1}, r_y^2 r_z t_z^{-1}$
		1213	H_{540}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_x^2 r_y t_y^{-1}, m_x t_z, m_y t_z, m_x t_z^{-1}, m_y t_z^{-1}$
	[9, 28, 63, 110, 173, 248, 339, 442, 559, 688]					
		1214	H_{504}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_x^2 r_y t_y^{-1}, r_z^2 t_z, t_z, r_z^2 t_z^{-1}, t_z^{-1}$
	[9, 28, 63, 110, 173, 248, 339, 442, 562, 694]					
		1215	H_{323}	1	i	$r_z^2 t_x, m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_x^2 r_y t_y^{-1}, m_x t_z, m_x t_z^{-1}, r_x^2 t_z^{-1}$
	[9, 28, 63, 110, 174, 250, 342, 446, 566, 698]					
		1216	H_{614}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 t_z, r_x^2 t_z, m_x t_z^{-1}, m_y t_z^{-1}$
	[9, 29, 64, 115, 183, 269, 372, 492, 628, 780]					
		1217	H_{452}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 r_z t_z, r_x^2 r_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		1218	H_{487}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, i t_z^{-1}, m_z t_z^{-1}$
	[9, 29, 65, 113, 177, 253, 345, 449, 569, 701]					
		1219	H_{617}	$\langle m_z \rangle$	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, i t_z, m_z t_z, r_z^2 t_z^{-1}, t_z^{-1}$
		1220	H_{618}	$\langle m_z \rangle$	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z, m_x t_z^{-1}, m_y t_z^{-1}$
		1221	H_{483}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
	[9, 29, 65, 117, 186, 273, 376, 496, 632, 784]					
		1222	H_{503}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 r_z t_z, r_x^2 r_z t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		1223	H_{519}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[9, 30, 66, 114, 178, 254, 346, 450, 570, 702]					
		1224	H_{615}	$\langle m_z \rangle$	r_z^2	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, i t_z, m_z t_z, r_z^2 t_z^{-1}, t_z^{-1}$
		1225	H_{616}	$\langle m_z \rangle$	r_z^2	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z, m_x t_z^{-1}, m_y t_z^{-1}$
		1226	H_{308}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y, m_z t_y, r_z^2 t_y^{-1}, m_z t_y^{-1}, r_y^2 r_z t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		1227	H_{326}	1	i	$r_z^2 r_x t_x^{-1}, r_y^2 t_y, m_y t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
		1228	H_{461}	1	r_z^2	$r_z^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z, it_z^{-1}, m_z t_z^{-1}$
		1229	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		1230	H_{541}	1	r_z^2	$r_z^2 r_x t_x, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, it_z, m_z t_z, it_z^{-1}, m_z t_z^{-1}$
	[9, 30, 67, 120, 189, 276, 379, 499, 635, 787]					
		1231	H_{527}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_x^2 r_z t_z, it_z^{-1}, m_z t_z^{-1}$
		1232	H_{528}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, it_z^{-1}, m_z t_z^{-1}$
		1233	H_{529}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_x^2 r_z t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		1234	H_{530}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[9, 30, 67, 121, 191, 278, 381, 500, 636, 788]					
		1235	H_{539}	1	r_z^2	$m_z t_x, it_x^{-1}, m_z t_x^{-1}, r_x^2 t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
	[9, 30, 67, 121, 192, 280, 384, 504, 640, 792]					
		1236	H_{611}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_y^2 r_z t_z, r_x^2 r_z t_z, m_x r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		1237	H_{619}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_z^{-1} t_z^{-1}, r_z t_z^{-1}$
		1238	H_{495}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
	[9, 31, 69, 124, 195, 283, 387, 507, 643, 795]					
		1239	H_{622}	$\langle m_z \rangle$	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_x^2 r_z t_z, m_x r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		1240	H_{623}	$\langle m_z \rangle$	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_z^{-1} t_z^{-1}, r_z t_z^{-1}$
		1241	H_{502}	1	r_z^2	$m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
	[9, 32, 70, 125, 196, 284, 388, 508, 644, 796]					
		1242	H_{305}	1	i	$it_x^{-1}, it_y, t_y, it_y^{-1}, t_y^{-1}, m_x r_z^{-1} t_z, r_y^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		1243	H_{308}	1	i	$r_z^2 t_x^{-1}, r_z^2 t_y, m_z t_y, r_z^2 t_y^{-1}, m_z t_y^{-1}, m_x r_z^{-1} t_z, r_y^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		1244	H_{323}	1	i	$r_z^2 t_x, m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, m_x r_y t_y, r_x^2 r_y t_y^{-1}, m_x r_y t_y^{-1}, r_x^2 t_z^{-1}$
		1245	H_{326}	1	i	$m_z r_x t_x, r_z^2 r_x t_x^{-1}, m_z r_x t_x^{-1}, m_y t_y^{-1}, r_z^2 t_z, m_z t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
		1246	H_{539}	1	r_z^2	$it_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		1247	H_{540}	1	r_z^2	$it_x^{-1}, r_y t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} t_y^{-1}, m_x t_z, m_y t_z, m_x t_z^{-1}, m_y t_z^{-1}$
		1248	H_{504}	1	r_z^2	$r_z^2 t_x^{-1}, r_y t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} t_y^{-1}, r_z^2 t_z, t_z, r_z^2 t_z^{-1}, t_z^{-1}$
		1249	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		1250	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_y t_y^{-1}, it_z, m_z t_z, it_z^{-1}, m_z t_z^{-1}$
20						
	[8, 27, 59, 105, 165, 239, 327, 429, 545, 675]					
		1252*,				
	[8, 27, 60, 106, 167, 242, 329, 431, 547, 675]					
		1254*,				
	[8, 27, 60, 107, 168, 243, 332, 435, 552, 683]					
		1257*,				
	[8, 27, 60, 107, 169, 245, 334, 436, 552, 682]					
		1251*,				
	[8, 27, 61, 108, 168, 243, 332, 434, 550, 680]					
		1253*, 1258*,				
	[8, 27, 61, 108, 170, 247, 336, 440, 559, 690]					
		1255*,				
	[8, 27, 61, 109, 170, 245, 335, 438, 554, 685]					
		1256*,				
	[8, 27, 61, 109, 170, 245, 335, 439, 556, 687]					
		1259*, 1260*,				
	[8, 27, 61, 109, 172, 249, 339, 443, 561, 693]					
		1261*,				
	[8, 27, 62, 111, 173, 249, 339, 443, 561, 693]					
		1262*,				

Nbr.	gr	№	H_i	L	m	X
	[8, 28, 64, 112, 173, 249, 339, 443, 561, 693]					
		1263*, 1264*, 1265*, 1266*, 1267*, 1268*,				
	[8, 29, 64, 111, 173, 249, 339, 443, 561, 693]					
		1269*, 1270*, 1271*, 1272*, 1273*, 1274*, 1275*, 1276*, 1277*, 1278*,				
	[9, 29, 63, 111, 174, 250, 341, 444, 562, 692]					
		1251	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
	[9, 29, 63, 111, 174, 250, 342, 446, 566, 698]					
		1252	H_{418}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}, r_x t_z^{-1}$
	[9, 29, 64, 111, 174, 249, 339, 442, 560, 690]					
		1253	H_{388}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_y^{-1}, i t_z, m_z r_x t_z, i t_z^{-1}, m_z r_x t_z^{-1}$
	[9, 29, 64, 111, 175, 250, 339, 443, 560, 689]					
		1254	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
	[9, 29, 64, 111, 176, 251, 343, 448, 567, 699]					
		1255	H_{407}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}, r_x t_z^{-1}$
	[9, 29, 64, 112, 175, 251, 342, 445, 564, 695]					
		1256	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y, r_x^2 t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[9, 29, 64, 112, 176, 252, 344, 448, 568, 700]					
		1257	H_{389}	1	$r_z^2 r_x$	$i t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_y^{-1}, i t_z, m_z r_x t_z, i t_z^{-1}, m_z r_x t_z^{-1}$
	[9, 29, 65, 112, 175, 251, 341, 444, 563, 693]					
		1258	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_y^2 r_x t_y, r_x^2 t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[9, 29, 65, 113, 176, 252, 344, 448, 568, 700]					
		1259	H_{398}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_y^{-1}, i t_z, m_z r_x t_z, i t_z^{-1}, m_z r_x t_z^{-1}$
		1260	H_{400}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_y^{-1}, i t_z, m_z r_x t_z, i t_z^{-1}, m_z r_x t_z^{-1}$
	[9, 29, 65, 113, 178, 254, 346, 450, 570, 702]					
		1261	H_{410}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}, r_x t_z^{-1}$
	[9, 29, 66, 114, 178, 254, 346, 450, 570, 702]					
		1262	H_{414}	1	$r_z^2 r_x$	$i t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}, r_x t_z^{-1}$
	[9, 30, 67, 114, 178, 254, 346, 450, 570, 702]					
		1263	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_x r_x^{-1} t_y, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		1264	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 r_x t_y, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		1265	H_{395}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_y^2 r_x t_y, i t_y^{-1}, m_z r_x t_y^{-1}, i t_z, m_z r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		1266	H_{413}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_y^2 t_z, r_x t_z, m_x r_x t_z^{-1}$
		1267	H_{419}	1	$r_z^2 r_x$	$m_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		1268	H_{401}	1	$r_z^2 r_x$	$m_x t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[9, 31, 66, 114, 178, 254, 346, 450, 570, 702]					
		1269	H_{415}	1	$r_z^2 r_x$	$i t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		1270	H_{396}	1	$r_z^2 r_x$	$i t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		1271	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		1272	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		1273	H_{394}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y, i t_y^{-1}, m_z r_x t_y^{-1}, i t_z, m_z r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		1274	H_{412}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_y^2 t_z, r_x t_z, m_x r_x t_z^{-1}$
		1275	H_{402}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		1276	H_{391}	1	$r_z^2 r_x$	$r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		1277	H_{404}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		1278	H_{392}	1	$r_z^2 r_x$	$r_y^2 r_x t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
21						
	[9, 29, 63, 111, 173, 249, 339, 443, 561, 693]	1279*,				
	[9, 30, 66, 119, 189, 276, 380, 500, 636, 788]	1280*,				
	[9, 31, 69, 124, 196, 284, 388, 508, 644, 796]	1281*,				
	[10, 30, 66, 114, 178, 254, 346, 450, 570, 702]					
		1279	H_{779}	$\langle m_z, m_z r_x, r_x^2 \rangle$	$r_z^2 r_x$	$m_x t_x^{-1}, r_z^2 t_y, r_x^2 t_y, m_x t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_x r_x^{-1} t_z, m_z r_x^{-1} t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[10, 31, 68, 121, 190, 277, 380, 500, 636, 788]					
		1280	H_{690}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_x t_x, m_y t_x^{-1}, m_x t_x^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, m_z r_z^{-1} t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
	[10, 32, 70, 125, 196, 284, 388, 508, 644, 796]					
		1281	H_{750}	$\langle m_y, m_z \rangle$	r_z^2	$m_x t_x^{-1}, r_z^2 t_y, m_y t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, m_z r_z t_z, m_x r_z t_z^{-1}, r_z t_z^{-1}$
22						
	[5, 14, 34, 78, 153, 246, 345, 461, 602, 756]	1298*,				
	[5, 15, 42, 101, 174, 248, 340, 443, 558, 697]	1306*,				
	[5, 16, 43, 89, 147, 216, 296, 388, 499, 621]	1317*,				
	[5, 16, 45, 98, 167, 247, 340, 447, 569, 706]	1320*,				
	[5, 16, 45, 102, 182, 272, 371, 491, 635, 789]	1321*,				
	[5, 16, 46, 101, 170, 248, 340, 448, 570, 705]	1318*,				
	[5, 16, 48, 106, 172, 247, 339, 445, 567, 703]	1319*,				
	[5, 17, 44, 88, 146, 216, 298, 394, 504, 626]	1323*,				
	[5, 17, 44, 91, 163, 258, 365, 481, 615, 771]	1322*,				
	[5, 17, 47, 101, 172, 252, 344, 452, 575, 713]	1324*,				
	[5, 17, 48, 103, 169, 244, 333, 439, 557, 687]	1325*,				
	[5, 17, 50, 108, 173, 247, 336, 441, 563, 694]	1326*,				
	[5, 17, 51, 109, 177, 257, 356, 468, 591, 732]	1327*,				
	[5, 17, 53, 111, 178, 259, 357, 470, 597, 739]	1328*,				
	[5, 18, 47, 98, 171, 258, 362, 482, 618, 770]	1329*,				
	[5, 18, 48, 103, 171, 246, 339, 446, 566, 702]	1331*,				
	[5, 18, 49, 102, 169, 244, 336, 443, 560, 695]	1330*,				
	[5, 18, 51, 110, 180, 260, 359, 470, 596, 738]	1333*,				
	[5, 18, 52, 109, 174, 255, 361, 482, 618, 770]	1332*,				
	[5, 18, 53, 114, 183, 259, 355, 468, 595, 738]	1334*,				
	[5, 19, 51, 100, 161, 233, 321, 424, 539, 669]	1335*,				
	[5, 19, 52, 108, 172, 243, 337, 444, 559, 697]	1336*,				
	[5, 19, 53, 110, 178, 254, 349, 460, 581, 719]	1337*,				
	[5, 19, 53, 110, 183, 272, 376, 495, 632, 785]	1338*,				
	[5, 19, 57, 114, 178, 256, 351, 460, 586, 726]	1339*,				
	[5, 19, 57, 116, 184, 264, 361, 474, 601, 742]	1340*,				
	[5, 20, 50, 98, 156, 230, 316, 418, 532, 662]	1341*,				
	[5, 20, 56, 115, 180, 258, 353, 464, 589, 730]	1342*,				
	[5, 20, 56, 115, 185, 270, 373, 496, 632, 784]	1343*,				
	[5, 20, 56, 117, 186, 266, 363, 476, 604, 748]	1346*,				
	[5, 20, 57, 113, 177, 254, 349, 460, 583, 720]	1344*,				
	[5, 20, 57, 113, 182, 272, 376, 496, 632, 784]	1345*,				
	[5, 20, 63, 117, 177, 260, 356, 466, 592, 732]	1347*,				
	[6, 18, 39, 72, 120, 184, 264, 360, 472, 600]					
		1282	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$m_x t_x, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_y^2 t_z^{-1}$
	[6, 19, 44, 82, 130, 188, 258, 338, 428, 530]					

Nbr.	gr	№	H_i	L	m	X
		1283	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$m_x t_x, m_x t_x^{-1}, m_x r_x t_y, m_y t_y^{-1}, m_x r_x^{-1} t_z$
	[6, 19, 44, 83, 136, 205, 291, 392, 509, 643]					
		1284	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
		1285	H_{580}	1	$m_z r_x$	$i t_x, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[6, 19, 45, 89, 152, 232, 328, 440, 568, 712]					
		1286	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
		1287	H_{578}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[6, 20, 47, 87, 139, 203, 279, 367, 467, 579]					
		1288	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$m_x t_x, m_x t_x^{-1}, r_z^2 r_x t_y, r_x^2 t_y^{-1}, r_z^2 r_x t_z$
	[6, 20, 47, 88, 144, 216, 304, 408, 528, 664]					
		1289	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x, r_x^2 t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_y^2 t_z^{-1}$
		1290	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$m_x t_x, m_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[6, 20, 48, 92, 153, 232, 328, 440, 568, 712]					
		1291	H_{574}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
		1292	H_{580}	1	$m_z r_x$	$i t_x, r_y^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[6, 20, 49, 93, 147, 215, 301, 397, 503, 627]					
		1293	H_{578}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x^{-1} t_z$
	[6, 20, 49, 96, 160, 240, 336, 448, 576, 720]					
		1294	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_y^2 t_z^{-1}$
		1295	H_{422}	1	$r_z^2 r_x$	$r_x^{-1} t_x, r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
		1296	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_y^2 t_z^{-1}$
		1297	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[6, 20, 50, 103, 177, 263, 365, 490, 628, 774]					
		1298	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_z t_z$
	[6, 21, 50, 93, 152, 227, 317, 424, 547, 685]					
		1299	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
		1300	H_{560}	1	$m_z r_x$	$i t_x, m_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[6, 21, 51, 95, 152, 224, 311, 411, 524, 652]					
		1301	H_{557}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_z$
	[6, 21, 51, 96, 154, 227, 317, 421, 539, 673]					
		1302	H_{572}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, m_x r_x t_y, r_z^2 t_y^{-1}, m_x r_x^{-1} t_z$
	[6, 21, 51, 97, 160, 240, 336, 448, 576, 720]					
		1303	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
		1304	H_{557}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[6, 21, 52, 96, 152, 228, 316, 412, 532, 664]					
		1305	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, m_x r_x t_y, m_y t_y^{-1}, m_x r_x^{-1} t_z$
	[6, 21, 57, 116, 177, 256, 353, 452, 575, 717]					
		1306	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z$
	[6, 22, 51, 96, 156, 232, 324, 432, 556, 696]					
		1307	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x, r_x^2 t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[6, 22, 52, 97, 156, 230, 319, 422, 539, 671]					
		1308	H_{551}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, r_z^2 r_x t_y, i t_y^{-1}, r_z^2 r_x t_z$
	[6, 22, 52, 98, 158, 234, 323, 428, 547, 682]					
		1309	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_x^2 r_y t_x^{-1}, r_y^2 r_z t_y, r_y^2 r_z t_z, r_x^2 r_y t_z^{-1}$
	[6, 22, 52, 98, 161, 240, 336, 448, 576, 720]					
		1310	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
		1311	H_{560}	1	$m_z r_x$	$i t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[6, 22, 53, 97, 157, 233, 321, 425, 545, 677]					
		1312	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, r_z^2 r_x t_y, r_x^2 t_y^{-1}, r_z^2 r_x t_z$
	[6, 22, 53, 100, 164, 244, 340, 452, 580, 724]					
		1313	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
		1314	H_{409}	1	$r_z^2 r_x$	$r_x^{-1} t_x, r_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
		1315	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
		1316	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[6, 22, 55, 101, 159, 233, 316, 412, 528, 648]					
		1317	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x^{-1} t_z$
	[6, 22, 58, 111, 176, 255, 349, 459, 582, 719]					
		1318	H_{580}	1	$m_z r_x$	$i t_x, m_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x^{-1} t_z$
	[6, 22, 59, 115, 177, 256, 349, 457, 581, 717]					
		1319	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z$
	[6, 22, 60, 111, 179, 261, 355, 465, 591, 729]					
		1320	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, i t_y^{-1}, m_z r_x^{-1} t_z$
	[6, 22, 60, 115, 191, 278, 381, 506, 643, 790]					
		1321	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y, i t_y^{-1}, r_x^2 t_z$
	[6, 23, 54, 106, 182, 272, 374, 493, 632, 785]					
		1322	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[6, 23, 56, 102, 162, 235, 320, 420, 533, 658]					
		1323	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_z$
	[6, 23, 59, 112, 180, 260, 354, 464, 588, 728]					
		1324	H_{560}	1	$m_z r_x$	$i t_x, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_z$
	[6, 23, 60, 112, 176, 255, 344, 455, 571, 705]					
		1325	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x^{-1} t_z$
	[6, 23, 62, 115, 176, 257, 345, 455, 578, 708]					

Nbr.	gr	№	H_i	L	m	X
		1326	H_{422}	1	$r_z^2 r_x$	$r_x^{-1} t_x\,,\, r_x t_x^{-1}\,,\, m_y t_y\,,\, m_x r_x^{-1} t_y^{-1}\,,\, m_x r_x t_z$
	[6, 23, 63, 116, 182, 264, 364, 474, 598, 744]					
		1327	H_{580}	1	$m_z r_x$	$it_x\,,\, r_y^2 r_x t_x^{-1}\,,\, r_x t_y\,,\, m_y t_y^{-1}\,,\, r_x^{-1} t_z$
	[6, 23, 64, 116, 184, 266, 364, 477, 605, 749]					
		1328	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x\,,\, r_y^2 t_x^{-1}\,,\, r_y^2 r_x t_y^{-1}\,,\, r_y^2 r_x t_z\,,\, r_x^2 t_z^{-1}$
	[6, 24, 56, 111, 184, 270, 376, 494, 632, 782]					
		1329	H_{576}	1	$m_z r_x$	$m_x t_x\,,\, r_y^2 r_x t_x^{-1}\,,\, r_z^2 t_y\,,\, r_z^2 t_y^{-1}\,,\, r_y^2 t_z^{-1}$
	[6, 24, 59, 113, 177, 253, 351, 455, 574, 715]					
		1330	H_{571}	1	$m_z r_x$	$m_x t_x\,,\, r_y^2 r_x t_x^{-1}\,,\, m_y t_y\,,\, m_x r_x t_y^{-1}\,,\, m_x r_x^{-1} t_z^{-1}$
	[6, 24, 60, 114, 179, 257, 352, 460, 581, 720]					
		1331	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x\,,\, r_y^2 r_x t_x^{-1}\,,\, m_z r_x^{-1} t_y\,,\, r_x^2 t_y^{-1}\,,\, m_z r_x^{-1} t_z$
	[6, 24, 61, 115, 183, 269, 376, 494, 632, 782]					
		1332	H_{572}	1	$m_z r_x$	$r_z^2 r_x t_x\,,\, it_x^{-1}\,,\, r_z^2 t_y\,,\, r_z^2 t_y^{-1}\,,\, r_y^2 t_z^{-1}$
	[6, 24, 63, 118, 185, 268, 367, 478, 606, 749]					
		1333	H_{560}	1	$m_z r_x$	$it_x\,,\, r_y^2 r_x t_x^{-1}\,,\, m_z r_x^{-1} t_y\,,\, r_x^2 t_y^{-1}\,,\, m_z r_x^{-1} t_z$
	[6, 24, 65, 119, 185, 265, 363, 476, 603, 748]					
		1334	H_{409}	1	$r_z^2 r_x$	$r_x^{-1} t_x\,,\, r_x t_x^{-1}\,,\, r_y^2 r_x t_y^{-1}\,,\, r_y^2 r_x t_z\,,\, r_x^2 t_z^{-1}$
	[6, 25, 60, 108, 172, 246, 338, 442, 558, 692]					
		1335	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_z^2 r_x t_x\,,\, r_z^2 r_x t_x^{-1}\,,\, m_x r_x t_y\,,\, m_y t_y^{-1}\,,\, m_x r_x^{-1} t_z$
	[6, 25, 60, 118, 176, 253, 353, 454, 574, 718]					
		1336	H_{576}	1	$m_z r_x$	$m_x t_x\,,\, r_y^2 r_x t_x^{-1}\,,\, m_x r_x t_y\,,\, r_z^2 t_y^{-1}\,,\, m_x r_x^{-1} t_z$
	[6, 25, 63, 118, 183, 262, 361, 470, 592, 735]					
		1337	H_{561}	1	$m_z r_x$	$m_x t_x\,,\, r_y^2 r_x t_x^{-1}\,,\, r_z^2 r_x t_y^{-1}\,,\, r_x^2 t_z\,,\, r_z^2 r_x t_z^{-1}$
	[6, 25, 63, 119, 192, 280, 382, 505, 641, 792]					
		1338	H_{561}	1	$m_z r_x$	$m_x t_x\,,\, r_y^2 r_x t_x^{-1}\,,\, it_y^{-1}\,,\, r_x^2 t_z\,,\, it_z^{-1}$
	[6, 25, 65, 118, 182, 263, 359, 469, 597, 736]					
		1339	H_{574}	1	$m_z r_x$	$r_z^2 r_x t_x\,,\, it_x^{-1}\,,\, r_x t_y\,,\, m_y t_y^{-1}\,,\, r_x^{-1} t_z$
	[6, 25, 66, 120, 187, 268, 368, 481, 608, 751]					
		1340	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$it_x\,,\, r_x^2 t_x^{-1}\,,\, m_x r_x t_y\,,\, m_y t_y^{-1}\,,\, m_x r_x^{-1} t_z$
	[6, 26, 59, 109, 169, 247, 335, 441, 557, 691]					
		1341	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_z^2 r_x t_x\,,\, r_z^2 r_x t_x^{-1}\,,\, r_z^2 r_x t_y\,,\, r_x^2 t_y^{-1}\,,\, r_z^2 r_x t_z$
	[6, 26, 64, 121, 183, 266, 361, 474, 599, 742]					
		1342	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x\,,\, it_x^{-1}\,,\, m_z r_x^{-1} t_y\,,\, r_x^2 t_y^{-1}\,,\, m_z r_x^{-1} t_z$
	[6, 26, 64, 122, 192, 278, 383, 505, 639, 793]					
		1343	H_{551}	1	$m_z r_x$	$r_z^2 r_x t_x\,,\, it_x^{-1}\,,\, it_y^{-1}\,,\, it_z\,,\, it_z^{-1}$
	[6, 26, 65, 119, 182, 263, 360, 471, 594, 734]					
		1344	H_{556}	1	$m_z r_x$	$m_x t_x\,,\, r_y^2 r_x t_x^{-1}\,,\, r_z^2 r_x t_y\,,\, it_y^{-1}\,,\, r_z^2 r_x t_z$
	[6, 26, 65, 120, 191, 281, 383, 505, 639, 793]					
		1345	H_{556}	1	$m_z r_x$	$m_x t_x\,,\, r_y^2 r_x t_x^{-1}\,,\, it_y^{-1}\,,\, it_z\,,\, it_z^{-1}$
	[6, 26, 65, 123, 188, 272, 369, 484, 612, 757]					
		1346	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$it_x\,,\, r_x^2 t_x^{-1}\,,\, r_z^2 r_x t_y\,,\, r_x^2 t_y^{-1}\,,\, r_z^2 r_x t_z$
	[6, 26, 71, 119, 185, 271, 367, 479, 609, 750]					
		1347	H_{393}	1	$r_z^2 r_x$	$r_y r_x t_x\,,\, r_y^{-1} r_z^{-1} t_x^{-1}\,,\, r_y r_x t_y\,,\, r_y^2 r_z t_z\,,\, r_y^{-1} r_z^{-1} t_z^{-1}$
23						
	[6, 19, 44, 85, 146, 229, 332, 452, 588, 740]					
		1348*,				
	[6, 19, 44, 87, 154, 241, 341, 460, 602, 756]					
		1349*,				
	[6, 20, 49, 95, 154, 224, 308, 406, 516, 640]					
		1351*,				
	[6, 20, 49, 95, 156, 234, 333, 452, 588, 740]					
		1350*,				
	[6, 20, 49, 95, 157, 237, 336, 453, 588, 740]					
		1352*,				
	[6, 20, 50, 101, 172, 260, 364, 484, 620, 772]					
		1353*, 1354*,				
	[6, 20, 52, 108, 172, 244, 339, 443, 558, 697]					
		1355*,				
	[6, 21, 49, 94, 165, 259, 365, 481, 615, 771]					
		1356*,				
	[6, 21, 49, 97, 170, 258, 362, 482, 618, 770]					
		1357*,				
	[6, 21, 52, 100, 162, 237, 326, 429, 546, 677]					
		1359*,				
	[6, 21, 52, 100, 164, 244, 341, 456, 589, 740]					
		1358*,				
	[6, 21, 52, 101, 168, 253, 356, 476, 612, 764]					
		1361*,				
	[6, 21, 53, 103, 168, 247, 340, 448, 570, 705]					
		1360*,				
	[6, 21, 53, 104, 173, 260, 364, 484, 620, 772]					
		1362*, 1363*, 1364*,				
	[6, 21, 54, 105, 167, 244, 339, 442, 559, 697]					
		1365*,				
	[6, 21, 56, 107, 169, 247, 340, 447, 569, 706]					
		1366*,				
	[6, 21, 56, 110, 180, 267, 369, 491, 635, 789]					
		1367*,				
	[6, 22, 54, 103, 172, 260, 364, 484, 620, 772]					
		1368*,				
	[6, 22, 54, 104, 170, 246, 337, 443, 560, 695]					
		1369*,				
	[6, 22, 54, 107, 171, 243, 337, 444, 559, 697]					

Nbr.	gr	№	H_i	L	m	X
		1370*,				
	[6, 22, 55, 105, 170, 249, 343, 452, 575, 713]					
		1371*,				
	[6, 22, 55, 105, 172, 256, 357, 476, 612, 764]					
		1372*,				
	[6, 22, 55, 105, 173, 257, 358, 477, 612, 764]					
		1373*,				
	[6, 22, 56, 107, 172, 253, 348, 456, 580, 718]					
		1375*,				
	[6, 22, 56, 108, 175, 256, 354, 467, 591, 732]					
		1374*,				
	[6, 22, 56, 109, 180, 268, 372, 492, 628, 780]					
		1376*, 1377*,				
	[6, 22, 58, 111, 171, 245, 339, 442, 559, 697]					
		1378*,				
	[6, 23, 54, 102, 172, 260, 364, 484, 620, 772]					
		1379*,				
	[6, 23, 56, 108, 176, 260, 361, 478, 613, 764]					
		1381*,				
	[6, 23, 57, 106, 170, 255, 361, 482, 618, 770]					
		1380*,				
	[6, 23, 57, 109, 177, 259, 357, 469, 596, 738]					
		1384*,				
	[6, 23, 57, 110, 181, 268, 372, 492, 628, 780]					
		1386*, 1387*,				
	[6, 23, 58, 106, 168, 245, 333, 439, 557, 687]					
		1382*,				
	[6, 23, 58, 111, 178, 255, 349, 460, 581, 719]					
		1385*,				
	[6, 23, 58, 111, 183, 273, 376, 495, 632, 785]					
		1388*,				
	[6, 23, 59, 110, 170, 245, 339, 442, 559, 697]					
		1389*,				
	[6, 23, 59, 110, 175, 260, 364, 484, 620, 772]					
		1383*,				
	[6, 23, 59, 112, 176, 254, 349, 460, 583, 720]					
		1390*,				
	[6, 23, 59, 112, 181, 272, 376, 496, 632, 784]					
		1391*,				
	[6, 23, 60, 112, 176, 256, 350, 458, 582, 720]					
		1392*,				
	[6, 23, 60, 114, 184, 272, 376, 496, 632, 784]					
		1394*,				
	[6, 23, 61, 114, 178, 257, 354, 467, 591, 732]					
		1393*,				
	[6, 24, 59, 108, 172, 249, 341, 448, 568, 704]					
		1397*,				
	[6, 24, 59, 109, 170, 245, 339, 442, 559, 697]					
		1396*,				
	[6, 24, 59, 109, 173, 252, 347, 457, 584, 726]					
		1395*,				
	[6, 24, 60, 111, 176, 256, 351, 460, 586, 726]					
		1398*,				
	[6, 24, 62, 113, 176, 256, 350, 458, 582, 720]					
		1400*,				
	[6, 24, 62, 115, 184, 272, 376, 496, 632, 784]					
		1403*,				
	[6, 24, 62, 116, 182, 262, 359, 471, 598, 740]					
		1401*,				
	[6, 24, 62, 117, 184, 264, 361, 474, 601, 742]					
		1399*,				
	[6, 24, 63, 117, 183, 264, 361, 474, 601, 742]					
		1402*,				
	[6, 25, 59, 110, 173, 252, 344, 452, 573, 710]					
		1404*,				
	[6, 25, 60, 112, 177, 258, 353, 464, 589, 730]					
		1405*,				
	[6, 25, 61, 114, 185, 272, 376, 496, 632, 784]					
		1406*,				
	[6, 25, 62, 112, 176, 256, 350, 458, 582, 720]					
		1407*,				
	[6, 25, 62, 114, 184, 272, 376, 496, 632, 784]					
		1408*,				
	[6, 25, 62, 116, 184, 270, 373, 496, 632, 784]					
		1409*,				
	[6, 25, 62, 118, 185, 266, 363, 476, 604, 748]					
		1410*,				
	[6, 25, 63, 118, 184, 266, 363, 476, 604, 748]					
		1411*,				
	[7, 23, 52, 98, 165, 252, 356, 476, 612, 764]					
		1348	H_{578}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[7, 23, 54, 106, 177, 261, 364, 490, 628, 774]					
		1349	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_z t_z$
	[7, 24, 56, 104, 169, 253, 356, 476, 612, 764]					
		1350	H_{580}	1	$m_z r_x$	$i t_x, r_z^2 r_x t_x, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[7, 24, 57, 106, 166, 238, 326, 426, 538, 666]					
		1351	H_{578}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x^{-1} t_z$
	[7, 24, 57, 106, 171, 255, 357, 476, 612, 764]					
		1352	H_{580}	1	$m_z r_x$	$i t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[7, 24, 58, 112, 184, 272, 376, 496, 632, 784]					

Nbr.	gr	№	H_i	L	m	X
		1353	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
		1354	H_{578}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[7, 24, 61, 118, 176, 255, 353, 452, 575, 717]					
		1355	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z$
	[7, 25, 55, 107, 184, 273, 374, 493, 632, 785]					
		1356	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[7, 25, 57, 110, 184, 270, 376, 494, 632, 782]					
		1357	H_{576}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[7, 25, 59, 109, 175, 258, 359, 477, 612, 764]					
		1358	H_{574}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[7, 25, 60, 110, 173, 250, 341, 446, 565, 698]					
		1359	H_{557}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_z$
	[7, 25, 60, 111, 176, 255, 349, 459, 582, 719]					
		1360	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, m_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x^{-1} t_z$
	[7, 25, 60, 112, 181, 268, 372, 492, 628, 780]					
		1361	H_{557}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[7, 25, 60, 113, 184, 272, 376, 496, 632, 784]					
		1362	H_{574}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
		1363	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
		1364	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_z t_z$
	[7, 25, 62, 114, 175, 256, 352, 452, 576, 716]					
		1365	H_{578}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x^{-1} t_z$
	[7, 25, 65, 114, 179, 261, 355, 465, 591, 729]					
		1366	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, it_y^{-1}, m_z r_x^{-1} t_z$
	[7, 25, 65, 118, 189, 276, 381, 506, 643, 790]					
		1367	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, it_y^{-1}, r_x^2 t_z$
	[7, 26, 60, 112, 184, 272, 376, 496, 632, 784]					
		1368	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[7, 26, 60, 114, 179, 254, 351, 455, 574, 715]					
		1369	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[7, 26, 61, 117, 176, 253, 353, 454, 574, 718]					
		1370	H_{576}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_x r_x t_y, r_z^2 t_y^{-1}, m_x r_x^{-1} t_z$
	[7, 26, 62, 113, 179, 259, 354, 464, 588, 728]					
		1371	H_{560}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_z$
	[7, 26, 62, 114, 183, 269, 372, 492, 628, 780]					
		1372	H_{560}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, m_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[7, 26, 63, 114, 185, 269, 373, 492, 628, 780]					
		1373	H_{560}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[7, 26, 63, 116, 182, 263, 363, 474, 598, 744]					
		1374	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x^{-1} t_z$
	[7, 26, 64, 115, 181, 264, 358, 468, 594, 732]					
		1375	H_{557}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_z$
	[7, 26, 64, 118, 190, 278, 382, 502, 638, 790]					
		1376	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
		1377	H_{557}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[7, 26, 65, 117, 176, 256, 352, 452, 576, 716]					
		1378	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z$
	[7, 27, 59, 112, 184, 272, 376, 496, 632, 784]					
		1379	H_{576}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[7, 27, 62, 112, 183, 269, 376, 494, 632, 782]					
		1380	H_{572}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[7, 27, 63, 117, 185, 272, 373, 493, 628, 780]					
		1381	H_{555}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[7, 27, 64, 112, 177, 255, 344, 455, 571, 705]					
		1382	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x^{-1} t_z$
	[7, 27, 64, 115, 184, 272, 376, 496, 632, 784]					
		1383	H_{572}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[7, 27, 64, 117, 185, 267, 366, 478, 606, 749]					
		1384	H_{560}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_z$
	[7, 27, 64, 119, 184, 262, 361, 470, 592, 735]					
		1385	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z^{-1}$
	[7, 27, 64, 119, 190, 278, 382, 502, 638, 790]					
		1386	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
		1387	H_{560}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[7, 27, 64, 120, 193, 280, 382, 505, 641, 792]					
		1388	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, it_y^{-1}, r_x^2 t_z, it_z^{-1}$
	[7, 27, 65, 116, 176, 256, 352, 452, 576, 716]					
		1389	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[7, 27, 66, 118, 182, 263, 360, 471, 594, 734]					
		1390	H_{556}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 r_x t_y, it_y^{-1}, r_z^2 r_x t_z$
	[7, 27, 66, 119, 191, 281, 383, 505, 639, 793]					
		1391	H_{556}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, it_y^{-1}, it_z, it_z^{-1}$
	[7, 27, 67, 117, 183, 265, 359, 469, 595, 733]					
		1392	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, it_y^{-1}, m_z r_x^{-1} t_z$
	[7, 27, 67, 118, 183, 263, 363, 474, 598, 744]					

Nbr.	gr	№	H_i	L	m	X
		1393	H_{580}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x^{-1} t_z$
	[7, 27, 67, 120, 192, 280, 384, 504, 640, 792]					
		1394	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, it_y^{-1}, r_x^2 t_z$
	[7, 28, 64, 115, 180, 260, 356, 466, 594, 735]					
		1395	H_{572}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_x r_x t_y, r_z^2 t_y^{-1}, m_x r_x^{-1} t_z$
	[7, 28, 64, 116, 176, 256, 352, 452, 576, 716]					
		1396	H_{576}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_x r_x t_y, r_z^2 t_y^{-1}, m_x r_x^{-1} t_z$
	[7, 28, 65, 114, 181, 258, 353, 461, 582, 721]					
		1397	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_z$
	[7, 28, 65, 116, 182, 263, 359, 469, 597, 736]					
		1398	H_{574}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x^{-1} t_z$
	[7, 28, 67, 121, 187, 268, 368, 481, 608, 751]					
		1399	H_{572}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_x r_x t_y, r_z^2 t_y^{-1}, m_x r_x^{-1} t_z$
	[7, 28, 68, 117, 183, 265, 359, 469, 595, 733]					
		1400	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z^{-1}$
	[7, 28, 68, 120, 187, 268, 367, 479, 607, 750]					
		1401	H_{560}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_z$
	[7, 28, 68, 120, 187, 268, 368, 481, 608, 751]					
		1402	H_{574}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x^{-1} t_z$
	[7, 28, 68, 120, 192, 280, 384, 504, 640, 792]					
		1403	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, it_y^{-1}, r_x^2 t_z, it_z^{-1}$
	[7, 29, 64, 117, 180, 262, 354, 465, 586, 726]					
		1404	H_{551}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 r_x t_y, it_y^{-1}, r_z^2 r_x t_z$
	[7, 29, 65, 118, 183, 266, 361, 474, 599, 742]					
		1405	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_z$
	[7, 29, 66, 121, 192, 280, 384, 504, 640, 792]					
		1406	H_{551}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, it_y^{-1}, it_z, it_z^{-1}$
	[7, 29, 67, 117, 183, 265, 359, 469, 595, 733]					
		1407	H_{556}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 r_x t_y, it_y^{-1}, r_z^2 r_x t_z$
	[7, 29, 67, 120, 192, 280, 384, 504, 640, 792]					
		1408	H_{556}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, it_y^{-1}, it_z, it_z^{-1}$
	[7, 29, 67, 121, 192, 278, 383, 505, 639, 793]					
		1409	H_{551}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, it_y^{-1}, it_z, it_z^{-1}$
	[7, 29, 67, 123, 188, 272, 369, 484, 612, 757]					
		1410	H_{551}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 r_x t_y, it_y^{-1}, r_z^2 r_x t_z$
	[7, 29, 68, 122, 188, 272, 369, 484, 612, 757]					
		1411	H_{555}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_z$

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[6, 18, 39, 72, 120, 184, 264, 360, 472, 600]
1412*,
[6, 18, 39, 73, 128, 209, 308, 417, 545, 700]
1413*,
[6, 19, 44, 82, 130, 188, 258, 338, 428, 530]
1414*,
[6, 19, 45, 89, 152, 232, 328, 440, 568, 712]
1415*, 1416*,
[6, 19, 47, 97, 161, 235, 328, 432, 548, 686]
1417*,
[6, 20, 46, 88, 152, 238, 344, 465, 598, 749]
1418*,
[6, 20, 46, 90, 161, 249, 353, 473, 609, 761]
1419*,
[6, 20, 47, 87, 139, 203, 279, 367, 467, 579]
1423*,
[6, 20, 47, 88, 144, 216, 304, 408, 528, 664]
1424*, 1420*,
[6, 20, 48, 92, 153, 232, 328, 440, 568, 712]
1421*, 1422*,
[6, 20, 49, 93, 148, 219, 307, 404, 517, 649]
1425*,
[6, 20, 50, 101, 172, 260, 364, 484, 620, 772]
1426*,
[6, 20, 51, 97, 154, 225, 309, 406, 517, 641]
1427*,
[6, 20, 51, 100, 166, 250, 349, 465, 602, 760]
1428*,
[6, 21, 51, 95, 153, 227, 315, 417, 535, 667]
1432*,
[6, 21, 51, 97, 160, 240, 336, 448, 576, 720]
1433*, 1434*,
[6, 21, 51, 98, 160, 235, 327, 432, 549, 685]
1431*,
[6, 21, 51, 100, 163, 238, 332, 437, 553, 691]
1430*,
[6, 21, 51, 100, 171, 260, 364, 484, 620, 772]
1429*,
[6, 21, 55, 108, 170, 245, 339, 442, 559, 697]
1435*,
[6, 21, 56, 106, 167, 246, 336, 441, 563, 694]
1436*,
[6, 22, 51, 96, 156, 232, 324, 432, 556, 696]
1437*,
[6, 22, 52, 98, 161, 240, 336, 448, 576, 720]
1439*, 1440*,

Nbr.	gr	№	H_i	L	m	X
	[6, 22, 53, 102, 172, 260, 364, 484, 620, 772]					
		1438*,				
	[6, 22, 55, 106, 172, 250, 344, 454, 576, 714]					
		1444*,				
	[6, 22, 55, 106, 175, 263, 368, 488, 623, 775]					
		1446*,				
	[6, 22, 56, 106, 170, 255, 362, 482, 618, 770]					
		1441*,				
	[6, 22, 56, 107, 169, 245, 339, 442, 559, 697]					
		1442*,				
	[6, 22, 56, 107, 171, 249, 343, 453, 577, 715]					
		1443*,				
	[6, 22, 56, 107, 174, 262, 367, 487, 623, 775]					
		1445*,				
	[6, 22, 57, 109, 175, 256, 350, 458, 582, 720]					
		1448*,				
	[6, 22, 57, 111, 184, 273, 376, 496, 632, 784]					
		1449*,				
	[6, 22, 58, 110, 175, 260, 364, 484, 620, 772]					
		1447*,				
	[6, 22, 59, 112, 177, 258, 355, 468, 595, 738]					
		1450*,				
	[6, 23, 57, 107, 171, 250, 345, 455, 582, 724]					
		1451*,				
	[6, 23, 58, 109, 170, 245, 339, 442, 559, 697]					
		1452*,				
	[6, 23, 59, 111, 176, 256, 350, 458, 582, 720]					
		1454*,				
	[6, 23, 59, 111, 176, 256, 351, 460, 586, 726]					
		1453*,				
	[6, 23, 59, 113, 184, 272, 376, 496, 632, 784]					
		1456*,				
	[6, 23, 60, 115, 183, 264, 361, 474, 601, 742]					
		1455*,				
	[6, 23, 62, 117, 183, 264, 361, 474, 601, 742]					
		1457*,				
	[6, 24, 57, 107, 169, 247, 338, 445, 565, 701]					
		1458*,				
	[6, 24, 59, 112, 177, 258, 353, 464, 589, 730]					
		1459*,				
	[6, 24, 60, 114, 185, 272, 376, 496, 632, 784]					
		1461*,				
	[6, 24, 61, 112, 176, 256, 350, 458, 582, 720]					
		1462*,				
	[6, 24, 61, 113, 178, 258, 354, 465, 589, 729]					
		1460*,				
	[6, 24, 61, 114, 184, 272, 376, 496, 632, 784]					
		1463*,				
	[6, 24, 61, 116, 183, 266, 363, 476, 604, 748]					
		1464*,				
	[6, 24, 61, 116, 184, 270, 374, 496, 632, 784]					
		1465*,				
	[6, 24, 63, 118, 183, 266, 363, 476, 604, 748]					
		1466*,				
	[6, 25, 62, 115, 184, 267, 366, 481, 611, 756]					
		1467*,				
	[7, 22, 49, 92, 152, 228, 320, 428, 552, 692]					
		1412	H_{402}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[7, 22, 49, 94, 161, 246, 344, 459, 596, 750]					
		1413	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_z t_z^{-1}$
	[7, 23, 54, 99, 153, 222, 305, 395, 502, 623]					
		1414	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_y t_y, r_x^{-1} t_y^{-1}, r_x t_z$
	[7, 23, 54, 104, 172, 256, 356, 472, 604, 752]					
		1415	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
		1416	H_{419}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[7, 23, 56, 109, 169, 245, 342, 442, 564, 706]					
		1417	H_{407}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x t_z^{-1}$
	[7, 24, 54, 103, 173, 261, 366, 485, 620, 773]					
		1418	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_y^2 t_z$
	[7, 24, 54, 106, 178, 266, 370, 490, 626, 778]					
		1419	H_{407}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[7, 24, 55, 102, 166, 246, 342, 454, 582, 726]					
		1420	H_{404}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
	[7, 24, 56, 105, 172, 256, 356, 472, 604, 752]					
		1421	H_{415}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z^{-1}$
		1422	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_y t_y^{-1}, m_z t_z, m_z t_z^{-1}$
	[7, 24, 57, 102, 161, 234, 319, 418, 531, 656]					
		1423	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_x^2 t_z^{-1}$
	[7, 24, 57, 104, 168, 248, 344, 456, 584, 728]					
		1424	H_{391}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[7, 24, 58, 106, 164, 242, 334, 432, 554, 690]					
		1425	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_y t_y, r_x^{-1} t_y^{-1}, r_x t_z$
	[7, 24, 58, 112, 184, 272, 376, 496, 632, 784]					
		1426	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_z t_z^{-1}$
	[7, 24, 60, 106, 166, 240, 326, 426, 540, 666]					

Nbr.	gr	№	H_i	L	m	X
		1427	H_{388}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_z^{-1}$
	[7, 24, 60, 110, 180, 268, 369, 488, 626, 780]					
		1428	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_x^2 t_y, i t_y^{-1}, r_x^2 t_z^{-1}$
	[7, 25, 58, 111, 184, 272, 376, 496, 632, 784]					
		1429	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_y^2 t_z$
	[7, 25, 58, 112, 173, 252, 349, 450, 571, 714]					
		1430	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_x r_x^{-1} t_y, r_z^2 t_y^{-1}, m_x r_x t_z^{-1}$
	[7, 25, 59, 110, 172, 250, 346, 448, 570, 710]					
		1431	H_{402}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z$
	[7, 25, 60, 107, 170, 249, 340, 447, 570, 705]					
		1432	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_x^2 t_z^{-1}$
	[7, 25, 60, 110, 178, 262, 362, 478, 610, 758]					
		1433	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, r_x^2 t_z^{-1}$
		1434	H_{401}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[7, 25, 63, 116, 176, 256, 352, 452, 576, 716]					
		1435	H_{418}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x t_z^{-1}$
	[7, 25, 64, 112, 175, 257, 345, 455, 578, 708]					
		1436	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z$
	[7, 26, 59, 110, 174, 258, 354, 470, 598, 746]					
		1437	H_{392}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[7, 26, 59, 112, 184, 272, 376, 496, 632, 784]					
		1438	H_{418}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[7, 26, 60, 111, 178, 262, 362, 478, 610, 758]					
		1439	H_{396}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
		1440	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}$
	[7, 26, 62, 113, 182, 270, 376, 494, 632, 782]					
		1441	H_{410}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[7, 26, 63, 115, 176, 256, 352, 452, 576, 716]					
		1442	H_{419}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z$
	[7, 26, 63, 115, 180, 261, 356, 467, 591, 731]					
		1443	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_y^2 r_x t_y, i t_y^{-1}, r_y^2 r_x t_z^{-1}$
	[7, 26, 63, 115, 181, 261, 357, 467, 591, 731]					
		1444	H_{391}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[7, 26, 63, 116, 186, 276, 378, 500, 634, 788]					
		1445	H_{388}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, i t_y^{-1}, i t_z, i t_z^{-1}$
	[7, 26, 63, 116, 187, 276, 379, 500, 635, 788]					
		1446	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, i t_y^{-1}, i t_z, r_x^2 t_z^{-1}$
	[7, 26, 64, 115, 184, 272, 376, 496, 632, 784]					
		1447	H_{414}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}$
	[7, 26, 65, 116, 183, 265, 359, 469, 595, 733]					
		1448	H_{400}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_z^{-1}$
	[7, 26, 65, 119, 193, 280, 384, 504, 640, 792]					
		1449	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_x^2 t_y, i t_y^{-1}, r_x^2 t_z^{-1}$
	[7, 26, 67, 116, 184, 265, 363, 476, 603, 748]					
		1450	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z$
	[7, 27, 63, 114, 179, 259, 355, 465, 593, 734]					
		1451	H_{414}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x t_z^{-1}$
	[7, 27, 64, 116, 176, 256, 352, 452, 576, 716]					
		1452	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_x r_x^{-1} t_y, r_z^2 t_y^{-1}, m_x r_x t_z^{-1}$
	[7, 27, 65, 116, 182, 263, 359, 469, 597, 736]					
		1453	H_{415}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z$
	[7, 27, 66, 117, 183, 265, 359, 469, 595, 733]					
		1454	H_{401}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[7, 27, 66, 120, 187, 268, 368, 481, 608, 751]					
		1455	H_{410}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x t_z^{-1}$
	[7, 27, 66, 120, 192, 280, 384, 504, 640, 792]					
		1456	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, i t_y^{-1}, i t_z, r_x^2 t_z^{-1}$
	[7, 27, 68, 120, 187, 268, 368, 481, 608, 751]					
		1457	H_{404}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z$
	[7, 28, 63, 115, 178, 259, 351, 461, 582, 721]					
		1458	H_{389}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_z^{-1}$
	[7, 28, 65, 118, 183, 266, 361, 474, 599, 742]					
		1459	H_{396}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[7, 28, 66, 118, 183, 265, 362, 473, 598, 741]					
		1460	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[7, 28, 66, 121, 192, 280, 384, 504, 640, 792]					
		1461	H_{389}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, i t_y^{-1}, i t_z, i t_z^{-1}$
	[7, 28, 67, 117, 183, 265, 359, 469, 595, 733]					
		1462	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_y^2 r_x t_y, i t_y^{-1}, r_y^2 r_x t_z^{-1}$
	[7, 28, 67, 120, 192, 280, 384, 504, 640, 792]					
		1463	H_{400}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, i t_y^{-1}, i t_z, i t_z^{-1}$
	[7, 28, 67, 121, 188, 272, 369, 484, 612, 757]					
		1464	H_{398}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_z^{-1}$
	[7, 28, 67, 122, 191, 279, 383, 505, 639, 793]					
		1465	H_{398}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, i t_y^{-1}, i t_z, i t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
	[7, 28, 69, 121, 188, 272, 369, 484, 612, 757]					
		1466	H_{392}	1	$r_z^2 r_x$	$r_x^2 t_x,\ r_y^2 r_x t_x^{-1},\ r_x^2 t_x^{-1},\ r_y^2 r_x t_y^{-1},\ r_y^2 r_x t_z,\ r_x^2 t_z^{-1}$
	[7, 29, 67, 120, 189, 271, 372, 487, 617, 763]					
		1467	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x,\ r_x^{-1} t_x,\ r_x t_x^{-1},\ r_y^2 r_x t_y^{-1},\ r_y^2 r_x t_z,\ r_x^2 t_z^{-1}$
25						
	[7, 23, 53, 102, 172, 260, 364, 484, 620, 772]					
		1468*,				
	[7, 24, 56, 105, 173, 260, 364, 484, 620, 772]					
		1469*, 1470*,				
	[7, 24, 58, 109, 170, 245, 339, 442, 559, 697]					
		1471*,				
	[7, 25, 59, 108, 174, 260, 364, 484, 620, 772]					
		1472*,				
	[7, 25, 60, 112, 178, 257, 354, 467, 591, 732]					
		1473*,				
	[7, 25, 61, 112, 176, 256, 350, 458, 582, 720]					
		1475*,				
	[7, 25, 61, 113, 178, 258, 354, 465, 589, 729]					
		1474*,				
	[7, 25, 61, 114, 184, 272, 376, 496, 632, 784]					
		1476*,				
	[7, 26, 62, 114, 181, 262, 359, 471, 598, 740]					
		1478*,				
	[7, 26, 62, 115, 183, 264, 361, 474, 601, 742]					
		1477*,				
	[7, 26, 62, 115, 184, 267, 366, 481, 611, 756]					
		1479*,				
	[7, 26, 62, 115, 185, 272, 376, 496, 632, 784]					
		1480*, 1481*,				
	[7, 27, 63, 116, 183, 266, 363, 476, 604, 748]					
		1482*,				
	[7, 27, 63, 116, 186, 272, 376, 496, 632, 784]					
		1483*,				
	[8, 26, 59, 112, 184, 272, 376, 496, 632, 784]					
		1468	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x,\ m_x t_x,\ m_z r_x t_x^{-1},\ m_x t_x^{-1},\ m_y t_y,\ m_y t_y^{-1},$ $r_y^2 t_z^{-1}$
	[8, 27, 61, 113, 184, 272, 376, 496, 632, 784]					
		1469	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x,\ r_x^{-1} t_x,\ r_y^2 t_x^{-1},\ r_x t_x^{-1},\ m_y t_y,\ m_y t_y^{-1},$ $m_z t_z^{-1}$
		1470	H_{580}	1	$m_z r_x$	$i t_x,\ r_z^2 r_x t_x,\ r_y^2 r_x t_x^{-1},\ m_x t_x^{-1},\ m_y t_y,\ m_y t_y^{-1},$ $m_z t_z^{-1}$
	[8, 27, 64, 116, 176, 256, 352, 452, 576, 716]					
		1471	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x,\ m_x t_x,\ m_z r_x t_x^{-1},\ m_x t_x^{-1},\ m_x r_x t_y,\ m_y t_y^{-1},$ $m_x r_x^{-1} t_z$
	[8, 28, 63, 114, 184, 272, 376, 496, 632, 784]					
		1472	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x,\ r_z^2 r_x t_x,\ r_x^2 t_x^{-1},\ r_z^2 r_x t_x^{-1},\ m_y t_y,\ m_y t_y^{-1},$ $r_y^2 t_z^{-1}$
	[8, 28, 65, 118, 183, 263, 363, 474, 598, 744]					
		1473	H_{580}	1	$m_z r_x$	$i t_x,\ r_z^2 r_x t_x,\ r_y^2 r_x t_x^{-1},\ m_x t_x^{-1},\ r_x t_y,\ m_y t_y^{-1},$ $r_x^{-1} t_z$
	[8, 28, 66, 118, 183, 265, 362, 473, 598, 741]					
		1474	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x,\ r_x^{-1} t_x,\ r_y^2 t_x^{-1},\ r_x t_x^{-1},\ m_y t_y,\ m_x r_x^{-1} t_y^{-1},$ $m_x r_x t_z$
	[8, 28, 67, 117, 183, 265, 359, 469, 595, 733]					
		1475	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x,\ m_x t_x,\ m_z r_x t_x^{-1},\ m_x t_x^{-1},\ r_z^2 r_x t_y,\ r_x^2 t_y^{-1},$ $r_z^2 r_x t_z$
	[8, 28, 67, 120, 192, 280, 384, 504, 640, 792]					
		1476	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x,\ m_x t_x,\ m_z r_x t_x^{-1},\ m_x t_x^{-1},\ r_x^2 t_y^{-1},\ r_x^2 t_z,$ $r_x^2 t_z^{-1}$
	[8, 29, 66, 120, 187, 268, 368, 481, 608, 751]					
		1477	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x,\ r_z^2 r_x t_x,\ r_x^2 t_x^{-1},\ r_z^2 r_x t_x^{-1},\ m_x r_x t_y,\ m_y t_y^{-1},$ $m_x r_x^{-1} t_z$
	[8, 29, 67, 119, 187, 268, 367, 479, 607, 750]					
		1478	H_{560}	1	$m_z r_x$	$i t_x,\ r_z^2 r_x t_x,\ r_y^2 r_x t_x^{-1},\ m_x t_x^{-1},\ m_z r_x^{-1} t_y,\ r_x^2 t_y^{-1},$ $m_z r_x^{-1} t_z$
	[8, 29, 67, 120, 189, 271, 372, 487, 617, 763]					
		1479	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x,\ r_x^{-1} t_x,\ r_y^2 t_x^{-1},\ r_x t_x^{-1},\ r_y^2 r_x t_y^{-1},\ r_y^2 r_x t_z,$ $r_x^2 t_z^{-1}$
	[8, 29, 67, 121, 192, 280, 384, 504, 640, 792]					
		1480	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x,\ r_x^{-1} t_x,\ r_y^2 t_x^{-1},\ r_x t_x^{-1},\ r_x^2 t_y^{-1},\ r_x^2 t_z,$ $r_x^2 t_z^{-1}$
		1481	H_{560}	1	$m_z r_x$	$i t_x,\ r_z^2 r_x t_x,\ r_y^2 r_x t_x^{-1},\ m_x t_x^{-1},\ r_x^2 t_y^{-1},\ r_x^2 t_z,$ $r_x^2 t_z^{-1}$
	[8, 30, 67, 121, 188, 272, 369, 484, 612, 757]					
		1482	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x,\ r_z^2 r_x t_x,\ r_x^2 t_x^{-1},\ r_z^2 r_x t_x^{-1},\ r_z^2 r_x t_y,\ r_x^2 t_y^{-1},$ $r_z^2 r_x t_z$
	[8, 30, 67, 122, 192, 280, 384, 504, 640, 792]					
		1483	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x,\ r_z^2 r_x t_x,\ r_x^2 t_x^{-1},\ r_z^2 r_x t_x^{-1},\ r_x^2 t_y^{-1},\ r_x^2 t_z,$ $r_x^2 t_z^{-1}$
26A						

Nbr.	gr	№	H_i	L	m	X
	[5, 14, 29, 50, 77, 110, 149, 194, 245, 302]					
		1484*,				
	[6, 19, 42, 74, 112, 162, 221, 288, 362, 447]					
		1484	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y^{-1} r_z^{-1} t_x^{-1}, r_y^2 r_z t_y, r_y r_x t_y, r_y^2 r_z t_z$
26B						
	[5, 14, 32, 66, 112, 171, 242, 327, 423, 533]					
		1485*,				
	[5, 18, 41, 74, 121, 176, 241, 316, 399, 500]					
		1486*,				
	[6, 19, 48, 90, 149, 216, 306, 397, 520, 632]					
		1485	H_{393}	1	$r_z^2 r_x$	$r_x^2 r_y t_x^{-1}, r_y^{-1} r_z^{-1} t_x^{-1}, r_y r_x t_y, r_y^2 r_z t_z, r_x^2 r_y t_z^{-1}$
	[6, 23, 51, 93, 146, 210, 284, 370, 472, 581]					
		1486	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y r_x t_x, r_y^2 r_z t_y, r_y^2 r_z t_z, r_y^{-1} r_z^{-1} t_z^{-1}$
26C						
	[5, 18, 54, 122, 212, 299, 398, 519, 649, 804]					
		1487*,				
	[6, 23, 66, 131, 213, 291, 398, 517, 649, 806]					
		1487	H_{393}	1	$r_z^2 r_x$	$r_y r_x t_x, r_x^2 r_y t_x^{-1}, r_y^2 r_z t_z, r_x^2 r_y t_z^{-1}, r_y^{-1} r_z^{-1} t_z^{-1}$
27A						
	[6, 18, 39, 71, 114, 167, 231, 306, 391, 487]					
		1488*,				
	[6, 20, 46, 84, 134, 196, 270, 356, 454, 564]					
		1489*,				
	[6, 20, 48, 90, 145, 215, 296, 388, 499, 621]					
		1490*,				
	[6, 20, 49, 94, 151, 221, 307, 406, 516, 640]					
		1491*,				
	[6, 21, 52, 102, 167, 243, 336, 443, 560, 695]					
		1492*,				
	[6, 21, 52, 107, 172, 244, 339, 443, 558, 697]					
		1493*,				
	[6, 22, 52, 94, 150, 220, 302, 398, 508, 630]					
		1494*,				
	[6, 22, 53, 99, 160, 233, 321, 424, 539, 669]					
		1495*,				
	[6, 22, 53, 107, 172, 243, 337, 444, 559, 697]					
		1496*,				
	[6, 22, 55, 103, 164, 240, 330, 433, 550, 681]					
		1498*,				
	[6, 22, 55, 104, 168, 247, 340, 448, 570, 705]					
		1497*,				
	[6, 22, 55, 105, 168, 245, 339, 442, 559, 697]					
		1500*,				
	[6, 22, 56, 106, 169, 247, 339, 445, 567, 703]					
		1499*,				
	[6, 22, 56, 109, 174, 252, 347, 457, 584, 726]					
		1501*,				
	[6, 22, 57, 106, 167, 246, 336, 441, 563, 694]					
		1502*,				
	[6, 22, 58, 107, 168, 245, 333, 439, 557, 687]					
		1503*,				
	[6, 23, 57, 108, 172, 249, 342, 449, 571, 708]					
		1504*,				
	[6, 23, 58, 111, 178, 256, 351, 462, 583, 721]					
		1505*,				
	[6, 24, 54, 100, 158, 232, 318, 420, 534, 664]					
		1506*,				
	[6, 24, 59, 114, 177, 254, 346, 454, 575, 712]					
		1509*,				
	[6, 24, 60, 110, 174, 253, 347, 456, 579, 717]					
		1507*,				
	[6, 24, 60, 111, 176, 256, 351, 460, 586, 726]					
		1508*,				
	[6, 24, 60, 112, 178, 258, 352, 460, 584, 722]					
		1512*,				
	[6, 24, 60, 114, 179, 256, 351, 462, 585, 722]					
		1513*,				
	[6, 24, 61, 111, 174, 251, 343, 450, 570, 706]					
		1514*,				
	[6, 24, 61, 113, 178, 257, 354, 467, 591, 732]					
		1511*,				
	[6, 24, 61, 113, 179, 261, 359, 472, 599, 741]					
		1510*,				
	[6, 24, 62, 114, 179, 260, 357, 470, 597, 740]					
		1515*,				
	[6, 26, 62, 114, 179, 260, 355, 466, 591, 732]					
		1516*,				
	[6, 26, 63, 115, 183, 264, 361, 474, 601, 742]					
		1517*,				
	[6, 26, 65, 117, 183, 264, 361, 473, 600, 742]					
		1518*,				
	[6, 28, 66, 118, 185, 268, 365, 478, 606, 750]					
		1519*,				
	[7, 22, 48, 86, 134, 192, 262, 342, 432, 534]					
		1488	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$m_x t_x, m_x t_x^{-1}, m_y t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
	[7, 24, 54, 96, 150, 216, 294, 384, 486, 600]					
		1489	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$m_x t_x, m_x t_x^{-1}, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z^{-1}$
	[7, 24, 56, 101, 159, 233, 316, 412, 528, 648]					

Nbr.	gr	№	H_i	L	m	X
		1490	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[7, 24, 57, 105, 164, 237, 326, 426, 538, 666]					
		1491	H_{578}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[7, 25, 59, 113, 177, 253, 351, 455, 574, 715]					
		1492	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_z t_z, m_x r_x^{-1} t_z^{-1}$
	[7, 25, 60, 118, 176, 255, 353, 452, 575, 717]					
		1493	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z, m_z t_z$
	[7, 26, 59, 104, 164, 237, 322, 422, 535, 660]					
		1494	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$
	[7, 26, 60, 108, 172, 246, 338, 442, 558, 692]					
		1495	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, m_y t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
	[7, 26, 60, 118, 176, 253, 353, 454, 574, 718]					
		1496	H_{576}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
	[7, 26, 61, 111, 176, 255, 349, 459, 582, 719]					
		1497	H_{580}	1	$m_z r_x$	$i t_x, m_x t_x^{-1}, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[7, 26, 62, 111, 174, 252, 343, 448, 567, 700]					
		1498	H_{557}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$
	[7, 26, 62, 113, 177, 256, 349, 457, 581, 717]					
		1499	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[7, 26, 62, 114, 176, 256, 352, 452, 576, 716]					
		1500	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, m_y t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
	[7, 26, 63, 116, 180, 260, 356, 466, 594, 735]					
		1501	H_{572}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
	[7, 26, 64, 112, 175, 257, 345, 455, 578, 708]					
		1502	H_{422}	1	$r_z^2 r_x$	$r_x^{-1} t_x, r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[7, 26, 65, 112, 177, 255, 344, 455, 571, 705]					
		1503	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[7, 27, 64, 116, 180, 262, 356, 466, 592, 730]					
		1504	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, i t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z$
	[7, 27, 64, 119, 184, 263, 362, 471, 593, 736]					
		1505	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, i t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z^{-1}$
	[7, 28, 60, 110, 170, 248, 336, 442, 558, 692]					
		1506	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z^{-1}$
	[7, 28, 65, 115, 181, 261, 356, 466, 590, 730]					
		1507	H_{560}	1	$m_z r_x$	$i t_x, m_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$
	[7, 28, 65, 116, 182, 263, 359, 469, 597, 736]					
		1508	H_{574}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[7, 28, 65, 120, 181, 263, 355, 466, 587, 727]					
		1509	H_{551}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, i t_y^{-1}, r_z^2 r_x t_y^{-1}, i t_z, r_z^2 r_x t_z^{-1}$
	[7, 28, 66, 117, 185, 267, 365, 478, 606, 750]					
		1510	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[7, 28, 66, 118, 183, 263, 363, 474, 598, 744]					
		1511	H_{580}	1	$m_z r_x$	$i t_x, r_y^2 r_x t_x^{-1}, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[7, 28, 66, 118, 184, 266, 360, 470, 596, 734]					
		1512	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z^{-1}$
	[7, 28, 66, 120, 183, 264, 361, 472, 595, 735]					
		1513	H_{556}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, i t_y^{-1}, r_z^2 r_x t_y^{-1}, i t_z, r_z^2 r_x t_z^{-1}$
	[7, 28, 67, 115, 182, 259, 354, 462, 583, 722]					
		1514	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$
	[7, 28, 68, 117, 185, 266, 364, 477, 604, 749]					
		1515	H_{409}	1	$r_z^2 r_x$	$r_x^{-1} t_x, r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[7, 30, 66, 119, 184, 267, 362, 475, 600, 743]					
		1516	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$
	[7, 30, 66, 120, 187, 268, 368, 481, 608, 751]					
		1517	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x, r_x^2 t_x^{-1}, m_y t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
	[7, 30, 69, 120, 188, 269, 368, 480, 608, 751]					
		1518	H_{560}	1	$m_z r_x$	$i t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$
	[7, 32, 68, 122, 189, 273, 370, 485, 613, 758]					
		1519	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x, r_x^2 t_x^{-1}, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z^{-1}$

27B

[6, 19, 47, 95, 160, 240, 336, 448, 576, 720]
1520*,
[6, 20, 51, 107, 184, 274, 378, 498, 634, 786]
1521*,
[6, 21, 58, 119, 193, 281, 387, 508, 644, 796]
1522*,
[6, 21, 58, 120, 196, 284, 388, 508, 644, 796]
1523*,
[6, 21, 58, 124, 201, 288, 392, 512, 648, 800]
1524*,
[6, 22, 60, 120, 195, 285, 391, 512, 648, 800]
1525*,
[6, 22, 60, 126, 208, 296, 397, 516, 652, 804]
1526*,
[6, 22, 62, 128, 198, 283, 393, 517, 647, 795]
1527*,
[6, 22, 62, 129, 207, 293, 396, 516, 652, 804]
1528*,
[6, 22, 64, 130, 205, 292, 396, 516, 652, 804]

Nbr.	gr	№	H_i	L	m	X
		1529*,				
	[6, 23, 61, 125, 197, 284, 388, 508, 644, 796]					
		1531*,				
	[6, 23, 62, 122, 196, 284, 388, 508, 644, 796]					
		1530*,				
	[6, 23, 65, 125, 198, 288, 392, 512, 648, 800]					
		1532*,				
	[6, 23, 65, 129, 200, 288, 392, 512, 648, 800]					
		1533*,				
	[6, 23, 65, 131, 205, 292, 395, 515, 653, 805]					
		1534*,				
	[6, 23, 65, 133, 204, 288, 392, 512, 648, 800]					
		1535*,				
	[6, 23, 67, 135, 206, 291, 397, 517, 651, 803]					
		1536*,				
	[6, 23, 69, 132, 200, 288, 392, 512, 648, 800]					
		1537*,				
	[6, 24, 65, 130, 208, 294, 396, 516, 652, 804]					
		1538*,				
	[6, 24, 65, 135, 208, 292, 396, 516, 652, 804]					
		1539*,				
	[6, 24, 65, 139, 212, 292, 396, 516, 652, 804]					
		1540*,				
	[6, 24, 67, 135, 207, 292, 396, 516, 652, 804]					
		1541*,				
	[6, 24, 69, 133, 206, 292, 396, 516, 652, 804]					
		1542*,				
	[6, 24, 71, 138, 207, 292, 396, 516, 652, 804]					
		1543*,				
	[6, 25, 69, 130, 200, 288, 392, 512, 648, 800]					
		1544*,				
	[6, 25, 69, 131, 200, 288, 392, 512, 648, 800]					
		1545*,				
	[6, 25, 70, 129, 200, 288, 392, 512, 648, 800]					
		1546*,				
	[6, 26, 70, 137, 207, 292, 396, 516, 652, 804]					
		1547*,				
	[6, 26, 72, 136, 206, 292, 396, 516, 652, 804]					
		1548*, 1549*,				
	[6, 27, 69, 129, 200, 288, 392, 512, 648, 800]					
		1550*,				
	[6, 28, 71, 135, 206, 292, 396, 516, 652, 804]					
		1551*,				
	[7, 23, 57, 110, 178, 262, 362, 478, 610, 758]					
		1520	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$m_x t_x, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[7, 24, 61, 120, 194, 282, 386, 506, 642, 794]					
		1521	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$m_x t_x, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[7, 25, 67, 127, 198, 287, 392, 512, 648, 800]					
		1522	H_{578}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}$
	[7, 25, 67, 128, 200, 288, 392, 512, 648, 800]					
		1523	H_{580}	1	$m_z r_x$	$i t_x, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}$
	[7, 25, 67, 133, 200, 292, 392, 516, 648, 804]					
		1524	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z$
	[7, 26, 68, 127, 201, 289, 393, 514, 651, 802]					
		1525	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[7, 26, 69, 133, 207, 293, 396, 516, 652, 804]					
		1526	H_{560}	1	$m_z r_x$	$i t_x, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[7, 26, 71, 133, 196, 291, 395, 518, 644, 803]					
		1527	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, r_x t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z$
	[7, 26, 71, 134, 205, 292, 396, 516, 652, 804]					
		1528	H_{557}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[7, 26, 73, 133, 204, 292, 396, 516, 652, 804]					
		1529	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z$
	[7, 27, 69, 128, 200, 288, 392, 512, 648, 800]					
		1530	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}$
	[7, 27, 69, 132, 197, 291, 389, 515, 645, 803]					
		1531	H_{576}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[7, 27, 73, 128, 202, 290, 394, 514, 650, 802]					
		1532	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[7, 27, 73, 132, 200, 292, 392, 516, 648, 804]					
		1533	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x, r_x^2 t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[7, 27, 73, 134, 204, 292, 394, 517, 653, 804]					
		1534	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y, i t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[7, 27, 73, 136, 200, 292, 392, 516, 648, 804]					
		1535	H_{572}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[7, 27, 76, 135, 202, 293, 397, 516, 650, 805]					
		1536	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, i t_y^{-1}, m_z r_x^{-1} t_z$
	[7, 27, 77, 131, 201, 291, 393, 515, 649, 803]					
		1537	H_{580}	1	$m_z r_x$	$i t_x, r_y^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}$
	[7, 28, 72, 134, 206, 292, 396, 516, 652, 804]					
		1538	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[7, 28, 73, 138, 202, 294, 394, 518, 650, 806]					
		1539	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x, r_x^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[7, 28, 73, 142, 202, 294, 394, 518, 650, 806]					

Nbr.	gr	№	H_i	L	m	X
		1540	H_{551}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, i t_y, i t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[7, 28, 75, 136, 203, 293, 395, 517, 651, 805]					
		1541	H_{556}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, i t_y, i t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[7, 28, 77, 132, 206, 290, 398, 514, 654, 802]					
		1542	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[7, 28, 79, 135, 204, 292, 396, 516, 652, 804]					
		1543	H_{560}	1	$m_z r_x$	$i t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[7, 29, 75, 131, 201, 291, 393, 515, 649, 803]					
		1544	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}$
	[7, 29, 75, 132, 200, 292, 392, 516, 648, 804]					
		1545	H_{574}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}$
	[7, 29, 76, 129, 203, 289, 395, 513, 651, 801]					
		1546	H_{422}	1	$r_z^2 r_x$	$r_x^{-1} t_x, r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z$
	[7, 30, 76, 137, 202, 294, 394, 518, 650, 806]					
		1547	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[7, 30, 78, 134, 204, 292, 396, 516, 652, 804]					
		1548	H_{409}	1	$r_z^2 r_x$	$r_x^{-1} t_x, r_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z$
		1549	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[7, 31, 73, 132, 200, 292, 392, 516, 648, 804]					
		1550	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[7, 32, 75, 136, 202, 294, 394, 518, 650, 806]					
		1551	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z^{-1}$
28A						
	[7, 23, 52, 96, 154, 224, 308, 406, 516, 640]					
		1552*,				
	[7, 23, 54, 107, 171, 244, 339, 443, 558, 697]					
		1553*,				
	[7, 24, 55, 104, 170, 246, 337, 443, 560, 695]					
		1554*,				
	[7, 24, 55, 107, 171, 243, 337, 444, 559, 697]					
		1556*,				
	[7, 24, 56, 104, 168, 247, 340, 448, 570, 705]					
		1555*,				
	[7, 25, 58, 105, 166, 241, 330, 433, 550, 681]					
		1557*,				
	[7, 25, 59, 106, 168, 245, 333, 439, 557, 687]					
		1558*,				
	[7, 25, 59, 108, 171, 249, 342, 449, 571, 708]					
		1559*,				
	[7, 25, 60, 110, 170, 245, 339, 442, 559, 697]					
		1560*, 1561*,				
	[7, 26, 60, 109, 170, 245, 339, 442, 559, 697]					
		1563*, 1564*,				
	[7, 26, 60, 109, 173, 252, 347, 457, 584, 726]					
		1562*,				
	[7, 26, 61, 110, 174, 253, 347, 456, 579, 717]					
		1565*,				
	[7, 26, 61, 111, 176, 256, 351, 460, 586, 726]					
		1566*,				
	[7, 26, 61, 113, 180, 257, 351, 462, 583, 721]					
		1567*,				
	[7, 26, 62, 113, 178, 257, 354, 467, 591, 732]					
		1568*,				
	[7, 26, 62, 114, 178, 256, 351, 462, 585, 722]					
		1569*,				
	[7, 27, 62, 110, 174, 251, 343, 450, 570, 706]					
		1571*,				
	[7, 27, 62, 112, 178, 257, 354, 467, 591, 732]					
		1570*,				
	[7, 27, 65, 115, 178, 258, 352, 460, 584, 722]					
		1572*, 1573*,				
	[7, 28, 62, 112, 175, 254, 346, 454, 575, 712]					
		1574*,				
	[7, 28, 63, 114, 179, 260, 355, 466, 591, 732]					
		1575*,				
	[7, 28, 64, 115, 183, 264, 361, 474, 601, 742]					
		1576*, 1577*,				
	[7, 28, 65, 114, 178, 258, 352, 460, 584, 722]					
		1578*, 1579*,				
	[7, 28, 66, 117, 183, 264, 361, 473, 600, 742]					
		1580*,				
	[7, 29, 66, 116, 183, 264, 361, 473, 600, 742]					
		1581*,				
	[7, 30, 67, 118, 185, 268, 365, 478, 606, 750]					
		1582*, 1583*,				
	[8, 26, 58, 106, 166, 238, 326, 426, 538, 666]					
		1552	H_{578}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z,$ $r_x^{-1} t_z^{-1}$
	[8, 26, 61, 117, 176, 255, 353, 452, 575, 717]					
		1553	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z,$ $m_z t_z$
	[8, 27, 60, 114, 179, 254, 351, 455, 574, 715]					
		1554	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_z t_z,$ $m_x r_x^{-1} t_z^{-1}$
	[8, 27, 61, 111, 176, 255, 349, 459, 582, 719]					

Nbr.	gr	№	H_i	L	m	X
		1555	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, m_x t_x^{-1}, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[8, 27, 61, 117, 176, 253, 353, 454, 574, 718]					
		1556	H_{576}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
	[8, 28, 63, 112, 175, 252, 343, 448, 567, 700]					
		1557	H_{557}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$
	[8, 28, 64, 112, 177, 255, 344, 455, 571, 705]					
		1558	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[8, 28, 65, 115, 180, 262, 356, 466, 592, 730]					
		1559	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, it_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z$
	[8, 28, 65, 116, 176, 256, 352, 452, 576, 716]					
		1560	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_z t_z, m_x r_x^{-1} t_z^{-1}$
		1561	H_{578}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[8, 29, 64, 115, 180, 260, 356, 466, 594, 735]					
		1562	H_{572}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
	[8, 29, 64, 116, 176, 256, 352, 452, 576, 716]					
		1563	H_{576}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
		1564	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z, m_z t_z$
	[8, 29, 65, 115, 181, 261, 356, 466, 590, 730]					
		1565	H_{560}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, m_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$
	[8, 29, 65, 116, 182, 263, 359, 469, 597, 736]					
		1566	H_{574}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[8, 29, 65, 120, 185, 263, 362, 471, 593, 736]					
		1567	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, it_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z^{-1}$
	[8, 29, 66, 118, 183, 263, 363, 474, 598, 744]					
		1568	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[8, 29, 67, 119, 183, 264, 361, 472, 595, 735]					
		1569	H_{556}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, it_y^{-1}, r_z^2 r_x t_y^{-1}, it_z, r_z^2 r_x t_z^{-1}$
	[8, 30, 65, 118, 183, 263, 363, 474, 598, 744]					
		1570	H_{580}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[8, 30, 66, 115, 182, 259, 354, 462, 583, 722]					
		1571	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$
	[8, 30, 69, 118, 184, 266, 360, 470, 596, 734]					
		1572	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, it_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z^{-1}$
		1573	H_{557}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$
	[8, 31, 65, 118, 181, 263, 355, 466, 587, 727]					
		1574	H_{551}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, it_y^{-1}, r_z^2 r_x t_y^{-1}, it_z, r_z^2 r_x t_z^{-1}$
	[8, 31, 66, 119, 184, 267, 362, 475, 600, 743]					
		1575	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$
	[8, 31, 66, 120, 187, 268, 368, 481, 608, 751]					
		1576	H_{572}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
		1577	H_{574}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[8, 31, 68, 118, 184, 266, 360, 470, 596, 734]					
		1578	H_{556}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, it_y^{-1}, r_z^2 r_x t_y^{-1}, it_z, r_z^2 r_x t_z^{-1}$
		1579	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, it_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z$
	[8, 31, 69, 120, 188, 269, 368, 480, 608, 751]					
		1580	H_{560}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$
	[8, 32, 68, 120, 188, 269, 368, 480, 608, 751]					
		1581	H_{560}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
	[8, 33, 68, 122, 189, 273, 370, 485, 613, 758]					
		1582	H_{551}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, it_y^{-1}, r_z^2 r_x t_y^{-1}, it_z, r_z^2 r_x t_z^{-1}$
		1583	H_{555}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$
28B						
	[7, 24, 61, 121, 196, 284, 388, 508, 644, 796]					
		1584*,				
	[7, 24, 64, 128, 197, 283, 393, 517, 647, 795]					
		1585*,				
	[7, 25, 63, 122, 196, 284, 388, 508, 644, 796]					
		1586*,				
	[7, 25, 63, 122, 198, 288, 392, 512, 648, 800]					
		1587*,				
	[7, 25, 63, 125, 196, 284, 388, 508, 644, 796]					
		1588*,				
	[7, 25, 65, 131, 209, 294, 396, 516, 652, 804]					
		1589*,				
	[7, 25, 69, 135, 205, 291, 397, 517, 651, 803]					
		1590*,				
	[7, 26, 66, 130, 208, 294, 396, 516, 652, 804]					
		1591*,				
	[7, 26, 68, 133, 207, 293, 395, 515, 653, 805]					
		1592*,				
	[7, 26, 69, 135, 206, 292, 396, 516, 652, 804]					
		1596*,				
	[7, 26, 70, 130, 200, 288, 392, 512, 648, 800]					
		1593*, 1594*,				
	[7, 26, 70, 131, 200, 288, 392, 512, 648, 800]					
		1595*,				
	[7, 27, 69, 131, 201, 288, 392, 512, 648, 800]					
		1597*,				
	[7, 27, 70, 129, 200, 288, 392, 512, 648, 800]					
		1598*, 1599*,				
	[7, 27, 70, 130, 200, 288, 392, 512, 648, 800]					
		1600*,				
	[7, 27, 70, 131, 200, 288, 392, 512, 648, 800]					
		1601*,				
	[7, 27, 72, 137, 207, 292, 396, 516, 652, 804]					
		1602*,				
	[7, 27, 74, 136, 206, 292, 396, 516, 652, 804]					
		1603*, 1604*,				
	[7, 28, 70, 129, 200, 288, 392, 512, 648, 800]					
		1605*,				
	[7, 28, 70, 137, 208, 292, 396, 516, 652, 804]					
		1606*,				
	[7, 28, 71, 137, 207, 292, 396, 516, 652, 804]					
		1607*,				
	[7, 28, 73, 136, 206, 292, 396, 516, 652, 804]					
		1608*,				
	[7, 28, 74, 135, 206, 292, 396, 516, 652, 804]					
		1609*, 1610*,				
	[7, 29, 70, 129, 200, 288, 392, 512, 648, 800]					
		1611*, 1612*,				
	[7, 29, 73, 135, 206, 292, 396, 516, 652, 804]					
		1613*,				
	[7, 30, 72, 135, 206, 292, 396, 516, 652, 804]					
		1614*, 1615*,				
	[8, 27, 68, 128, 200, 288, 392, 512, 648, 800]					
		1584	H_{578}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}$
	[8, 27, 72, 132, 196, 291, 395, 518, 644, 803]					
		1585	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z$
	[8, 28, 69, 128, 200, 288, 392, 512, 648, 800]					
		1586	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}$
	[8, 28, 69, 128, 203, 290, 393, 514, 651, 802]					
		1587	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[8, 28, 70, 131, 197, 291, 389, 515, 645, 803]					
		1588	H_{576}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[8, 28, 72, 135, 206, 292, 396, 516, 652, 804]					
		1589	H_{557}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[8, 28, 77, 134, 202, 293, 397, 516, 650, 805]					
		1590	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, it_y^{-1}, m_z r_x^{-1} t_z$
	[8, 29, 72, 134, 206, 292, 396, 516, 652, 804]					
		1591	H_{560}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[8, 29, 74, 135, 205, 292, 394, 517, 653, 804]					
		1592	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
	[8, 29, 76, 130, 202, 290, 394, 514, 650, 802]					
		1593	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
		1594	H_{578}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}$
	[8, 29, 76, 131, 201, 291, 393, 515, 649, 803]					
		1595	H_{580}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}$
	[8, 29, 76, 135, 203, 293, 395, 517, 651, 805]					
		1596	H_{556}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, it_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[8, 30, 74, 133, 200, 292, 392, 516, 648, 804]					
		1597	H_{572}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[8, 30, 75, 130, 202, 290, 394, 514, 650, 802]					
		1598	H_{576}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
		1599	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z$
	[8, 30, 75, 131, 201, 291, 393, 515, 649, 803]					
		1600	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}$
	[8, 30, 75, 132, 200, 292, 392, 516, 648, 804]					
		1601	H_{574}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}$
	[8, 30, 78, 135, 204, 292, 396, 516, 652, 804]					
		1602	H_{560}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[8, 30, 80, 132, 206, 290, 398, 514, 654, 802]					
		1603	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z^{-1}$
		1604	H_{557}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[8, 31, 74, 131, 201, 291, 393, 515, 649, 803]					
		1605	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}$
	[8, 31, 75, 138, 202, 294, 394, 518, 650, 806]					
		1606	H_{551}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, it_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[8, 31, 76, 137, 202, 294, 394, 518, 650, 806]					
		1607	H_{555}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[8, 31, 78, 134, 204, 292, 396, 516, 652, 804]					
		1608	H_{560}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[8, 31, 79, 132, 206, 290, 398, 514, 654, 802]					
		1609	H_{556}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, it_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z^{-1}$
		1610	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, it_y^{-1}, m_z r_x^{-1} t_z$
	[8, 32, 73, 132, 200, 292, 392, 516, 648, 804]					
		1611	H_{572}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
		1612	H_{574}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}$
	[8, 32, 77, 134, 204, 292, 396, 516, 652, 804]					
		1613	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[8, 33, 75, 136, 202, 294, 394, 518, 650, 806]					
		1614	H_{551}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, it_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z^{-1}$
		1615	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$

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[7, 22, 48, 86, 134, 192, 262, 342, 432, 534]
1616*,
[7, 22, 50, 98, 161, 235, 328, 432, 548, 686]
1617*,
[7, 23, 52, 98, 160, 235, 327, 432, 549, 685]
1619*,
[7, 23, 52, 100, 163, 238, 332, 437, 553, 691]
1618*,
[7, 23, 57, 106, 167, 246, 336, 441, 563, 694]
1620*,
[7, 24, 54, 96, 150, 216, 294, 384, 486, 600]
1622*,
[7, 24, 55, 99, 156, 227, 311, 408, 519, 643]

Nbr.	gr	№	H_i	L	m	X
		1621*,				
	[7, 24, 57, 107, 169, 245, 339, 442, 559, 697]					
		1623*, 1624*,				
	[7, 25, 58, 107, 171, 250, 345, 455, 582, 724]					
		1625*,				
	[7, 25, 58, 108, 174, 252, 346, 456, 578, 716]					
		1629*,				
	[7, 25, 59, 109, 170, 245, 339, 442, 559, 697]					
		1626*, 1627*,				
	[7, 25, 59, 109, 173, 251, 345, 455, 579, 717]					
		1628*,				
	[7, 25, 60, 109, 173, 252, 345, 453, 576, 713]					
		1631*,				
	[7, 25, 60, 111, 176, 256, 351, 460, 586, 726]					
		1630*,				
	[7, 25, 62, 114, 179, 260, 357, 470, 597, 740]					
		1632*,				
	[7, 26, 62, 113, 178, 258, 352, 460, 584, 722]					
		1634*, 1635*,				
	[7, 26, 62, 113, 178, 258, 354, 465, 589, 729]					
		1633*,				
	[7, 27, 60, 109, 171, 249, 340, 447, 567, 703]					
		1636*,				
	[7, 27, 62, 114, 179, 260, 355, 466, 591, 732]					
		1637*,				
	[7, 27, 63, 112, 179, 260, 354, 466, 592, 734]					
		1640*,				
	[7, 27, 63, 115, 183, 264, 361, 474, 601, 742]					
		1638*, 1639*,				
	[7, 27, 64, 114, 178, 258, 352, 460, 584, 722]					
		1641*, 1642*,				
	[7, 28, 65, 117, 186, 269, 368, 483, 613, 758]					
		1643*,				
	[7, 29, 66, 118, 185, 268, 365, 478, 606, 750]					
		1644*, 1645*,				
	[8, 25, 56, 101, 155, 224, 307, 397, 504, 625]					
		1616	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z,$ $m_z t_z^{-1}$
	[8, 25, 57, 109, 169, 245, 342, 442, 564, 706]					
		1617	H_{407}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z,$ $r_y^2 t_z^{-1}$
	[8, 26, 58, 112, 173, 252, 349, 450, 571, 714]					
		1618	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_x r_x^{-1} t_y, r_z^2 t_y^{-1}, m_x r_x t_z^{-1},$ $m_z t_z^{-1}$
	[8, 26, 59, 110, 172, 250, 346, 448, 570, 710]					
		1619	H_{402}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z,$ $m_z t_z^{-1}$
	[8, 26, 64, 112, 175, 257, 345, 455, 578, 708]					
		1620	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z,$ $m_z t_z$
	[8, 27, 61, 107, 167, 241, 327, 427, 541, 667]					
		1621	H_{388}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z,$ $i t_z^{-1}$
		1622	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z,$ $r_x^2 t_z^{-1}$
	[8, 27, 63, 115, 176, 256, 352, 452, 576, 716]					
		1623	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z,$ $m_z t_z^{-1}$
		1624	H_{419}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z,$ $m_z t_z^{-1}$
	[8, 28, 63, 114, 179, 259, 355, 465, 593, 734]					
		1625	H_{414}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z,$ $r_y^2 t_z^{-1}$
	[8, 28, 64, 116, 176, 256, 352, 452, 576, 716]					
		1626	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_x r_x^{-1} t_y, r_z^2 t_y^{-1}, m_x r_x t_z^{-1},$ $m_z t_z^{-1}$
		1627	H_{418}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z,$ $r_y^2 t_z^{-1}$
	[8, 28, 64, 116, 181, 262, 357, 468, 592, 732]					
		1628	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_y^2 r_x t_y, i t_y^{-1}, r_y^2 r_x t_z^{-1},$ $r_x^2 t_z^{-1}$
	[8, 28, 64, 116, 182, 262, 358, 468, 592, 732]					
		1629	H_{391}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z,$ $r_x^2 t_z^{-1}$
	[8, 28, 65, 116, 182, 263, 359, 469, 597, 736]					
		1630	H_{415}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z,$ $m_z t_z^{-1}$
	[8, 28, 66, 115, 183, 262, 359, 467, 594, 731]					
		1631	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_x^2 r_y t_x^{-1}, r_y^{-1} r_z^{-1} t_x^{-1}, r_y^2 r_z t_y, r_y r_x t_y, r_y^2 r_z t_z,$ $r_x^2 r_y t_z^{-1}$
	[8, 28, 68, 117, 185, 266, 364, 477, 604, 749]					

Nbr.	gr	№	H_i	L	m	X
		1632	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z$
	[8, 29, 66, 118, 183, 265, 362, 473, 598, 741]					
		1633	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[8, 29, 67, 118, 184, 266, 360, 470, 596, 734]					
		1634	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, it_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_x^2 t_z^{-1}$
		1635	H_{401}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[8, 30, 64, 116, 179, 260, 352, 462, 583, 722]					
		1636	H_{389}	1	$r_z^2 r_x$	$m_z r_x t_x, it_x^{-1}, m_z r_x t_x^{-1}, it_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, it_z^{-1}$
	[8, 30, 66, 119, 184, 267, 362, 475, 600, 743]					
		1637	H_{396}	1	$r_z^2 r_x$	$m_z r_x t_x, it_x^{-1}, m_z r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[8, 30, 66, 120, 187, 268, 368, 481, 608, 751]					
		1638	H_{410}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}$
		1639	H_{404}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[8, 30, 67, 119, 187, 269, 367, 479, 609, 752]					
		1640	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y r_x t_x, r_y^{-1} r_z^{-1} t_x^{-1}, r_y^2 r_z t_y, r_y r_x t_y, r_y^2 r_z t_z, r_y^{-1} r_z^{-1} t_z^{-1}$
	[8, 30, 68, 118, 184, 266, 360, 470, 596, 734]					
		1641	H_{400}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, it_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, it_z^{-1}$
		1642	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_y^2 r_x t_y, it_y^{-1}, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 31, 68, 121, 190, 272, 373, 488, 618, 764]					
		1643	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[8, 32, 68, 122, 189, 273, 370, 485, 613, 758]					
		1644	H_{398}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, it_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, it_z^{-1}$
		1645	H_{392}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$

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[7, 23, 57, 110, 182, 273, 376, 493, 630, 785]
1646*,
[7, 23, 60, 119, 192, 282, 385, 505, 641, 793]
1647*,
[7, 24, 60, 114, 184, 272, 376, 496, 632, 784]
1649*,
[7, 24, 60, 116, 190, 281, 384, 503, 639, 792]
1648*,
[7, 24, 61, 121, 196, 284, 387, 507, 644, 796]
1650*,
[7, 24, 65, 126, 197, 283, 387, 507, 643, 795]
1651*,
[7, 25, 65, 127, 198, 284, 388, 508, 644, 796]
1653*,
[7, 25, 66, 127, 197, 283, 388, 508, 643, 795]
1652*,
[7, 25, 67, 127, 199, 288, 392, 512, 648, 800]
1654*, 1655*,
[7, 26, 67, 129, 200, 288, 392, 512, 648, 800]
1656*,
[7, 26, 69, 129, 200, 288, 392, 512, 648, 800]
1657*, 1658*,
[7, 26, 69, 131, 200, 288, 392, 512, 648, 800]
1659*,
[7, 26, 70, 129, 200, 288, 392, 512, 648, 800]
1660*,
[7, 26, 71, 134, 206, 292, 396, 516, 652, 804]
1661*, 1662*,
[7, 27, 69, 135, 206, 292, 396, 516, 652, 804]
1664*,
[7, 27, 70, 128, 200, 288, 392, 512, 648, 800]
1663*,
[7, 27, 71, 137, 206, 292, 396, 516, 652, 804]
1665*,
[7, 27, 72, 136, 206, 292, 396, 516, 652, 804]
1666*,
[7, 27, 73, 135, 206, 292, 396, 516, 652, 804]
1667*, 1668*,
[7, 28, 69, 129, 200, 288, 392, 512, 648, 800]
1669*, 1670*,
[7, 28, 72, 135, 206, 292, 396, 516, 652, 804]
1671*,
[7, 29, 71, 135, 206, 292, 396, 516, 652, 804]
1672*, 1673*,
[7, 29, 71, 135, 210, 291, 395, 518, 651, 803]

Nbr.	gr	№	H_i	L	m	X
		1674*,				
	[7, 29, 75, 135, 206, 291, 395, 518, 651, 803]					
		1675*,				
	[8, 26, 66, 120, 193, 282, 385, 504, 641, 794]					
		1646	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z$
	[8, 26, 68, 126, 197, 288, 388, 512, 644, 800]					
		1647	H_{407}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z$
	[8, 27, 67, 124, 198, 287, 388, 510, 645, 799]					
		1648	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, m_x r_x t_z^{-1}$
	[8, 27, 68, 122, 194, 282, 386, 506, 642, 794]					
		1649	H_{402}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z$
	[8, 27, 70, 127, 200, 287, 392, 511, 648, 799]					
		1650	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_x^2 t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z$
	[8, 27, 73, 128, 200, 286, 392, 510, 648, 798]					
		1651	H_{388}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, i t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z$
	[8, 28, 73, 129, 200, 287, 392, 511, 648, 799]					
		1652	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_y^2 r_x t_y, r_x^2 t_y, i t_y^{-1}, r_y^2 r_x t_z^{-1}$
	[8, 28, 73, 130, 200, 288, 392, 512, 648, 800]					
		1653	H_{391}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z$
	[8, 28, 74, 129, 202, 290, 394, 514, 650, 802]					
		1654	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z$
		1655	H_{419}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z$
	[8, 29, 73, 132, 200, 292, 392, 516, 648, 804]					
		1656	H_{410}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z$
	[8, 29, 75, 130, 202, 290, 394, 514, 650, 802]					
		1657	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, m_x r_x t_z^{-1}$
		1658	H_{418}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z$
	[8, 29, 75, 132, 200, 292, 392, 516, 648, 804]					
		1659	H_{404}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z$
	[8, 29, 76, 129, 203, 289, 395, 513, 651, 801]					
		1660	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z$
	[8, 29, 78, 132, 206, 290, 398, 514, 654, 802]					
		1661	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_x^2 t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z$
		1662	H_{401}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z$
	[8, 30, 75, 129, 203, 289, 395, 513, 651, 801]					
		1663	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z, m_z t_z, m_z t_z^{-1}$
	[8, 30, 75, 136, 202, 294, 394, 518, 650, 806]					
		1664	H_{398}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, i t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z$
	[8, 30, 77, 136, 202, 294, 394, 518, 650, 806]					
		1665	H_{392}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z$
	[8, 30, 78, 134, 204, 292, 396, 516, 652, 804]					
		1666	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z$
	[8, 30, 79, 132, 206, 290, 398, 514, 654, 802]					
		1667	H_{400}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, i t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z$
		1668	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_y^2 r_x t_y, r_x^2 t_y, i t_y^{-1}, r_y^2 r_x t_z^{-1}$
	[8, 31, 73, 132, 200, 292, 392, 516, 648, 804]					
		1669	H_{414}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z$
		1670	H_{415}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z$
	[8, 31, 77, 134, 204, 292, 396, 516, 652, 804]					
		1671	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$
	[8, 32, 75, 136, 202, 294, 394, 518, 650, 806]					

Nbr.	gr	№	H_i	L	m	X
		1672	H_{389}	1	$r_z^2 r_x$	$m_z r_x t_x, it_x^{-1}, m_z r_x t_x^{-1}, it_y, it_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z$
		1673	H_{396}	1	$r_z^2 r_x$	$m_z r_x t_x, it_x^{-1}, m_z r_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z$
	[8, 32, 75, 137, 204, 291, 397, 516, 651, 805]					
		1674	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y r_x t_x, r_x^2 r_y t_x^{-1}, r_y^2 r_z t_y, r_y^2 r_z t_z, r_x^2 r_y t_z^{-1}, r_y^{-1} r_z^{-1} t_z^{-1}$
	[8, 32, 79, 133, 204, 291, 397, 516, 651, 805]					
		1675	H_{393}	1	$r_z^2 r_x$	$r_y r_x t_x, r_x^2 r_y t_x^{-1}, r_y^{-1} r_z^{-1} t_x^{-1}, r_y r_x t_y, r_y^2 r_z t_z, r_x^2 r_y t_z^{-1}, r_y^{-1} r_z^{-1} t_z^{-1}$
30A						
	[8, 26, 59, 109, 170, 245, 339, 442, 559, 697]					
		1676*,				
	[8, 27, 61, 112, 178, 257, 354, 467, 591, 732]					
		1677*,				
	[8, 27, 62, 113, 178, 258, 354, 465, 589, 729]					
		1678*,				
	[8, 28, 63, 115, 183, 264, 361, 474, 601, 742]					
		1679*,				
	[8, 28, 64, 114, 178, 258, 352, 460, 584, 722]					
		1680*,				
	[8, 29, 65, 116, 183, 264, 361, 473, 600, 742]					
		1681*,				
	[8, 29, 65, 117, 186, 269, 368, 483, 613, 758]					
		1682*,				
	[8, 30, 66, 118, 185, 268, 365, 478, 606, 750]					
		1683*,				
	[9, 28, 64, 116, 176, 256, 352, 452, 576, 716]					
		1676	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_x t_x, m_z r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
	[9, 29, 65, 118, 183, 263, 363, 474, 598, 744]					
		1677	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[9, 29, 66, 118, 183, 265, 362, 473, 598, 741]					
		1678	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_y^2 t_x^{-1}, r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[9, 30, 66, 120, 187, 268, 368, 481, 608, 751]					
		1679	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$it_x, r_z^2 r_x t_x, r_x^2 t_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
	[9, 30, 68, 118, 184, 266, 360, 470, 596, 734]					
		1680	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_x t_x, m_z r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z^{-1}$
	[9, 31, 68, 120, 188, 269, 368, 480, 608, 751]					
		1681	H_{560}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$
	[9, 31, 68, 121, 190, 272, 373, 488, 618, 764]					
		1682	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_y^2 t_x^{-1}, r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[9, 32, 68, 122, 189, 273, 370, 485, 613, 758]					
		1683	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$it_x, r_z^2 r_x t_x, r_x^2 t_x^{-1}, r_z^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z^{-1}$
30B						
	[8, 27, 69, 129, 200, 288, 392, 512, 648, 800]					
		1684*,				
	[8, 28, 69, 129, 200, 288, 392, 512, 648, 800]					
		1685*,				
	[8, 28, 70, 128, 200, 288, 392, 512, 648, 800]					
		1686*,				
	[8, 28, 73, 135, 206, 292, 396, 516, 652, 804]					
		1687*,				
	[8, 29, 69, 129, 200, 288, 392, 512, 648, 800]					
		1688*,				
	[8, 29, 72, 135, 206, 292, 396, 516, 652, 804]					
		1689*, 1690*,				
	[8, 30, 71, 135, 206, 292, 396, 516, 652, 804]					
		1691*,				
	[9, 29, 75, 130, 202, 290, 394, 514, 650, 802]					
		1684	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_x t_x, m_z r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[9, 30, 74, 131, 201, 291, 393, 515, 649, 803]					
		1685	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}$
	[9, 30, 75, 129, 203, 289, 395, 513, 651, 801]					
		1686	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_y^2 t_x^{-1}, r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z$
	[9, 30, 79, 132, 206, 290, 398, 514, 654, 802]					
		1687	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_x t_x, m_z r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[9, 31, 73, 132, 200, 292, 392, 516, 648, 804]					

Nbr.	gr	№	H_i	L	m	X
		1688	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x, r_z^2 r_x t_x, r_x^2 t_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[9, 31, 77, 134, 204, 292, 396, 516, 652, 804]					
		1689	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_y^2 t_x^{-1}, r_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z$
		1690	H_{560}	1	$m_z r_x$	$i t_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[9, 32, 75, 136, 202, 294, 394, 518, 650, 806]					
		1691	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x, r_z^2 r_x t_x, r_x^2 t_x^{-1}, r_z^2 r_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z^{-1}$
31						
	[7, 22, 50, 96, 160, 240, 336, 448, 576, 720]					
		1692*,				
	[7, 23, 58, 117, 192, 281, 387, 508, 644, 796]					
		1693*,				
	[7, 23, 59, 119, 195, 285, 391, 512, 648, 800]					
		1694*,				
	[7, 24, 60, 124, 197, 284, 388, 508, 644, 796]					
		1695*,				
	[7, 24, 61, 126, 198, 283, 393, 517, 647, 795]					
		1696*,				
	[7, 24, 64, 124, 198, 288, 392, 512, 648, 800]					
		1697*,				
	[7, 25, 60, 114, 186, 274, 378, 498, 634, 786]					
		1698*,				
	[7, 25, 62, 120, 195, 284, 388, 508, 644, 796]					
		1699*, 1700*,				
	[7, 25, 63, 124, 199, 288, 392, 512, 648, 800]					
		1701*,				
	[7, 26, 66, 127, 202, 291, 396, 516, 652, 804]					
		1702*,				
	[7, 26, 66, 128, 203, 292, 395, 515, 653, 805]					
		1703*,				
	[7, 26, 68, 129, 200, 288, 392, 512, 648, 800]					
		1704*, 1705*,				
	[7, 26, 69, 128, 200, 288, 392, 512, 648, 800]					
		1706*,				
	[7, 27, 68, 131, 204, 291, 397, 517, 651, 803]					
		1707*,				
	[7, 27, 68, 132, 205, 292, 396, 516, 652, 804]					
		1708*,				
	[7, 27, 70, 130, 204, 292, 396, 516, 652, 804]					
		1709*,				
	[7, 28, 68, 128, 200, 288, 392, 512, 648, 800]					
		1710*, 1711*, 1712*, 1713*,				
	[7, 28, 69, 128, 203, 292, 396, 516, 652, 804]					
		1714*, 1715*, 1716*, 1717*,				
	[7, 29, 73, 133, 204, 292, 396, 516, 652, 804]					
		1718*, 1719*, 1720*, 1721*,				
	[7, 31, 72, 132, 204, 292, 396, 516, 652, 804]					
		1722*, 1723*, 1724*, 1725*, 1726*, 1727*, 1728*,				
	[8, 25, 58, 110, 178, 262, 362, 478, 610, 758]					
		1692	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$m_x t_x, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
	[8, 26, 66, 126, 198, 287, 392, 512, 648, 800]					
		1693	H_{578}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
	[8, 26, 67, 127, 201, 289, 393, 514, 651, 802]					
		1694	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
	[8, 27, 68, 132, 197, 291, 389, 515, 645, 803]					
		1695	H_{576}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
	[8, 27, 69, 133, 196, 291, 395, 518, 644, 803]					
		1696	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, r_x t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z, m_z t_z$
	[8, 27, 72, 128, 202, 290, 394, 514, 650, 802]					
		1697	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
	[8, 28, 66, 122, 194, 282, 386, 506, 642, 794]					
		1698	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$m_x t_x, m_x t_x^{-1}, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_z^2 r_x t_z^{-1}$
	[8, 28, 68, 127, 200, 288, 392, 512, 648, 800]					
		1699	H_{580}	1	$m_z r_x$	$i t_x, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
		1700	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
	[8, 28, 69, 131, 200, 292, 392, 516, 648, 804]					
		1701	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z$
	[8, 29, 72, 131, 203, 292, 396, 516, 652, 804]					

Nbr.	gr	№	H_i	L	m	X
		1702	H_{557}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
	[8, 29, 72, 132, 204, 292, 394, 517, 653, 804]					
		1703	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, i t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, i t_z^{-1}, r_z^2 r_x t_z^{-1}$
	[8, 29, 74, 131, 201, 291, 393, 515, 649, 803]					
		1704	H_{580}	1	$m_z r_x$	$i t_x, r_y^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
		1705	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
	[8, 29, 75, 129, 203, 289, 395, 513, 651, 801]					
		1706	H_{422}	1	$r_z^2 r_x$	$r_x^{-1} t_x, r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z$
	[8, 30, 74, 133, 202, 293, 397, 516, 650, 805]					
		1707	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, i t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z$
	[8, 30, 74, 134, 203, 293, 395, 517, 651, 805]					
		1708	H_{556}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, i t_y^{-1}, r_z^2 r_x t_y^{-1}, i t_z, i t_z^{-1}, r_z^2 r_x t_z^{-1}$
	[8, 30, 76, 130, 206, 290, 398, 514, 654, 802]					
		1709	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_z^2 r_x t_z^{-1}$
	[8, 31, 72, 132, 200, 292, 392, 516, 648, 804]					
		1710	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x, r_x^2 t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		1711	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		1712	H_{572}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		1713	H_{574}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
	[8, 31, 73, 131, 204, 292, 396, 516, 652, 804]					
		1714	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$
		1715	H_{560}	1	$m_z r_x$	$i t_x, m_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		1716	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		1717	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z$
	[8, 32, 77, 132, 204, 292, 396, 516, 652, 804]					
		1718	H_{409}	1	$r_z^2 r_x$	$r_x^{-1} t_x, r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$
		1719	H_{560}	1	$m_z r_x$	$i t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		1720	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		1721	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z$
	[8, 34, 74, 134, 202, 294, 394, 518, 650, 806]					
		1722	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x, r_x^2 t_x^{-1}, r_x^2 t_y, r_z^2 r_x t_y, r_x^2 t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z$
		1723	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_z^2 r_x t_z^{-1}$
		1724	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x, r_x^2 t_x^{-1}, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_z^2 r_x t_z^{-1}$
		1725	H_{551}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, i t_y^{-1}, r_z^2 r_x t_y^{-1}, i t_z, i t_z^{-1}, r_z^2 r_x t_z^{-1}$
		1726	H_{551}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, i t_y, r_z^2 r_x t_y, i t_y^{-1}, i t_z, r_z^2 r_x t_z$
		1727	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		1728	H_{555}	1	$m_z r_x$	$i t_x, r_z^2 r_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z$

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[8, 26, 61, 119, 195, 284, 388, 508, 644, 796]
1729*,
[8, 26, 62, 121, 198, 288, 392, 512, 648, 800]
1730*,
[8, 26, 62, 124, 196, 284, 388, 508, 644, 796]
1731*,
[8, 26, 63, 126, 197, 283, 393, 517, 647, 795]
1732*,
[8, 27, 63, 120, 195, 284, 388, 508, 644, 796]

Nbr.	gr	№	H_i	L	m	X
		1733*,				
	[8, 27, 69, 129, 200, 288, 392, 512, 648, 800]					
		1734*, 1735*,				
	[8, 28, 69, 128, 200, 288, 392, 512, 648, 800]					
		1736*, 1737*,				
	[8, 28, 69, 129, 200, 288, 392, 512, 648, 800]					
		1738*,				
	[8, 29, 69, 128, 200, 288, 392, 512, 648, 800]					
		1739*, 1740*,				
	[8, 29, 69, 129, 204, 292, 396, 516, 652, 804]					
		1741*,				
	[8, 29, 69, 130, 205, 293, 395, 515, 653, 805]					
		1742*,				
	[8, 29, 70, 131, 203, 291, 397, 517, 651, 803]					
		1743*,				
	[8, 29, 70, 132, 204, 292, 396, 516, 652, 804]					
		1744*,				
	[8, 30, 69, 128, 200, 288, 392, 512, 648, 800]					
		1745*, 1746*, 1747*, 1748*,				
	[8, 30, 70, 128, 203, 292, 396, 516, 652, 804]					
		1749*,				
	[8, 30, 75, 133, 204, 292, 396, 516, 652, 804]					
		1750*, 1751*,				
	[8, 31, 74, 133, 204, 292, 396, 516, 652, 804]					
		1752*,				
	[8, 31, 75, 132, 204, 292, 396, 516, 652, 804]					
		1753*, 1754*,				
	[8, 32, 74, 132, 204, 292, 396, 516, 652, 804]					
		1755*, 1756*, 1757*,				
	[8, 33, 73, 132, 204, 292, 396, 516, 652, 804]					
		1758*, 1759*, 1760*, 1761*, 1762*, 1763*,				
	[9, 28, 67, 127, 200, 288, 392, 512, 648, 800]					
		1729	H_{578}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
	[9, 28, 68, 128, 203, 290, 393, 514, 651, 802]					
		1730	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
	[9, 28, 69, 131, 197, 291, 389, 515, 645, 803]					
		1731	H_{576}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
	[9, 28, 70, 132, 196, 291, 395, 518, 644, 803]					
		1732	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z, m_z t_z$
	[9, 29, 68, 127, 200, 288, 392, 512, 648, 800]					
		1733	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
	[9, 29, 75, 130, 202, 290, 394, 514, 650, 802]					
		1734	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		1735	H_{578}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
	[9, 30, 74, 130, 202, 290, 394, 514, 650, 802]					
		1736	H_{576}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		1737	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z, m_z t_z$
	[9, 30, 74, 131, 201, 291, 393, 515, 649, 803]					
		1738	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
	[9, 31, 73, 131, 201, 291, 393, 515, 649, 803]					
		1739	H_{580}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
		1740	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
	[9, 31, 73, 132, 204, 292, 396, 516, 652, 804]					
		1741	H_{557}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
	[9, 31, 73, 133, 205, 292, 394, 517, 653, 804]					
		1742	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, it_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, it_z^{-1}, r_z^2 r_x t_z^{-1}$
	[9, 31, 75, 132, 202, 293, 397, 516, 650, 805]					
		1743	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, it_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z$
	[9, 31, 75, 133, 203, 293, 395, 517, 651, 805]					
		1744	H_{556}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, it_y^{-1}, r_z^2 r_x t_y^{-1}, it_z, it_z^{-1}, r_z^2 r_x t_z^{-1}$
	[9, 32, 72, 132, 200, 292, 392, 516, 648, 804]					
		1745	H_{572}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		1746	H_{572}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		1747	H_{574}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
		1748	H_{574}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
	[9, 32, 73, 131, 204, 292, 396, 516, 652, 804]					
		1749	H_{560}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, m_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
	[9, 32, 79, 130, 206, 290, 398, 514, 654, 802]					
		1750	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, it_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, it_z^{-1}, r_z^2 r_x t_z^{-1}$
		1751	H_{557}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
	[9, 33, 77, 132, 204, 292, 396, 516, 652, 804]					
		1752	H_{560}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
	[9, 33, 78, 130, 206, 290, 398, 514, 654, 802]					
		1753	H_{556}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, it_y^{-1}, r_z^2 r_x t_y^{-1}, it_z, it_z^{-1}, r_z^2 r_x t_z^{-1}$
		1754	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, it_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z$
	[9, 34, 76, 132, 204, 292, 396, 516, 652, 804]					
		1755	H_{560}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		1756	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		1757	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z$
	[9, 35, 74, 134, 202, 294, 394, 518, 650, 806]					
		1758	H_{551}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, it_y^{-1}, r_z^2 r_x t_y^{-1}, it_z, it_z^{-1}, r_z^2 r_x t_z^{-1}$
		1759	H_{551}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, it_y^{-1}, r_z^2 r_x t_y^{-1}, it_z, it_z^{-1}, r_z^2 r_x t_z^{-1}$
		1760	H_{551}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, it_y, r_z^2 r_x t_y, it_y^{-1}, it_z, r_z^2 r_x t_z$
		1761	H_{555}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		1762	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		1763	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z$

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[8, 25, 58, 110, 182, 273, 376, 493, 630, 785]
1764*,
[8, 25, 59, 113, 184, 272, 376, 496, 632, 784]
1766*,
[8, 25, 59, 115, 190, 281, 384, 503, 639, 792]
1765*,
[8, 25, 60, 118, 192, 282, 385, 505, 641, 793]
1767*,
[8, 26, 66, 126, 199, 288, 392, 512, 648, 800]
1768*, 1769*,
[8, 27, 68, 128, 200, 288, 392, 512, 648, 800]
1770*, 1771*,
[8, 27, 69, 128, 200, 288, 392, 512, 648, 800]
1772*,
[8, 28, 66, 123, 196, 284, 387, 507, 644, 796]
1774*,
[8, 28, 66, 124, 196, 284, 388, 508, 644, 796]
1776*,
[8, 28, 67, 123, 195, 283, 387, 507, 643, 795]
1773*,
[8, 28, 67, 124, 195, 283, 388, 508, 643, 795]
1775*,
[8, 28, 69, 127, 200, 288, 392, 512, 648, 800]
1777*,
[8, 29, 68, 128, 200, 288, 392, 512, 648, 800]
1778*, 1779*, 1780*, 1781*,
[8, 29, 72, 131, 204, 292, 396, 516, 652, 804]
1782*, 1783*,
[8, 30, 73, 133, 204, 292, 396, 516, 652, 804]
1784*,
[8, 30, 74, 132, 204, 292, 396, 516, 652, 804]
1785*, 1786*,
[8, 31, 73, 132, 204, 292, 396, 516, 652, 804]
1787*,
[8, 32, 72, 132, 204, 292, 396, 516, 652, 804]
1788*, 1789*, 1790*, 1791*,
[9, 27, 66, 120, 193, 282, 385, 504, 641, 794]

Nbr.	gr	№	H_i	L	m	X
		1764	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_y^2 t_z, r_x t_z$
	[9, 27, 66, 124, 198, 287, 388, 510, 645, 799]					
		1765	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, m_x r_x t_z^{-1}, m_z t_z^{-1}$
	[9, 27, 67, 122, 194, 282, 386, 506, 642, 794]					
		1766	H_{402}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z$
	[9, 27, 67, 126, 197, 288, 388, 512, 644, 800]					
		1767	H_{407}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}, r_x t_z^{-1}$
	[9, 28, 73, 129, 202, 290, 394, 514, 650, 802]					
		1768	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_y^2 t_z, r_x t_z$
		1769	H_{419}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z$
	[9, 29, 74, 130, 202, 290, 394, 514, 650, 802]					
		1770	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		1771	H_{418}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}, r_x t_z^{-1}$
	[9, 29, 75, 129, 203, 289, 395, 513, 651, 801]					
		1772	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z$
	[9, 30, 72, 126, 200, 286, 392, 510, 648, 798]					
		1773	H_{388}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, i t_y^{-1}, m_z r_x t_y^{-1}, i t_z, m_z r_x t_z, i t_z^{-1}$
	[9, 30, 72, 127, 200, 287, 392, 511, 648, 799]					
		1774	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, i t_y^{-1}, m_z r_x t_y^{-1}, i t_z, m_z r_x t_z, r_x^2 t_z^{-1}$
		1775	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_y^2 r_x t_y, r_x^2 t_y, i t_y^{-1}, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[9, 30, 72, 128, 200, 288, 392, 512, 648, 800]					
		1776	H_{391}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$
	[9, 30, 74, 129, 203, 289, 395, 513, 651, 801]					
		1777	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z, m_z t_z^{-1}$
	[9, 31, 72, 132, 200, 292, 392, 516, 648, 804]					
		1778	H_{414}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}, r_x t_z^{-1}$
		1779	H_{415}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z$
		1780	H_{410}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_y^2 t_z^{-1}, r_x t_z^{-1}$
		1781	H_{404}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z$
	[9, 31, 77, 130, 206, 290, 398, 514, 654, 802]					
		1782	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, i t_y^{-1}, m_z r_x t_y^{-1}, i t_z, m_z r_x t_z, r_x^2 t_z^{-1}$
		1783	H_{401}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$
	[9, 32, 77, 132, 204, 292, 396, 516, 652, 804]					
		1784	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z$
	[9, 32, 78, 130, 206, 290, 398, 514, 654, 802]					
		1785	H_{400}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, i t_y^{-1}, m_z r_x t_y^{-1}, i t_z, m_z r_x t_z, i t_z^{-1}$
		1786	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_y^2 r_x t_y, r_x^2 t_y, i t_y^{-1}, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[9, 33, 76, 132, 204, 292, 396, 516, 652, 804]					
		1787	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$
	[9, 34, 74, 134, 202, 294, 394, 518, 650, 806]					
		1788	H_{389}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, i t_y^{-1}, m_z r_x t_y^{-1}, i t_z, m_z r_x t_z, i t_z^{-1}$
		1789	H_{396}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$
		1790	H_{398}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, i t_y^{-1}, m_z r_x t_y^{-1}, i t_z, m_z r_x t_z, i t_z^{-1}$
		1791	H_{392}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
	[9, 28, 68, 128, 200, 288, 392, 512, 648, 800]					
		1792*,				
	[9, 29, 68, 128, 200, 288, 392, 512, 648, 800]					
		1793*,				
	[9, 29, 69, 127, 200, 288, 392, 512, 648, 800]					
		1794*,				
	[9, 30, 68, 128, 200, 288, 392, 512, 648, 800]					
		1795*,				
	[9, 31, 74, 132, 204, 292, 396, 516, 652, 804]					
		1796*,				
	[9, 32, 73, 132, 204, 292, 396, 516, 652, 804]					
		1797*, 1798*,				
	[9, 33, 72, 132, 204, 292, 396, 516, 652, 804]					
		1799*,				
	[9, 33, 73, 131, 206, 291, 395, 518, 651, 803]					
		1800*,				
	[10, 29, 74, 130, 202, 290, 394, 514, 650, 802]					
		1792	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_x t_x, m_z r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
	[10, 30, 73, 131, 201, 291, 393, 515, 649, 803]					
		1793	H_{580}	1	$m_z r_x$	$i t_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
	[10, 30, 74, 129, 203, 289, 395, 513, 651, 801]					
		1794	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_y^2 t_x^{-1}, r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z$
	[10, 31, 72, 132, 200, 292, 392, 516, 648, 804]					
		1795	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x, r_z^2 r_x t_x, r_x^2 t_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
	[10, 32, 78, 130, 206, 290, 398, 514, 654, 802]					
		1796	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_x t_x, m_z r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_z^2 r_x t_z^{-1}$
	[10, 33, 76, 132, 204, 292, 396, 516, 652, 804]					
		1797	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_y^2 t_x^{-1}, r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$
		1798	H_{560}	1	$m_z r_x$	$i t_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
	[10, 34, 74, 134, 202, 294, 394, 518, 650, 806]					
		1799	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x, r_z^2 r_x t_x, r_x^2 t_x^{-1}, r_z^2 r_x t_x^{-1}, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_z^2 r_x t_z^{-1}$
	[10, 34, 75, 133, 204, 291, 397, 516, 651, 805]					
		1800	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y r_x t_x, r_x^2 r_y t_x^{-1}, r_y^{-1} r_z^{-1} t_x^{-1}, r_y^2 r_z t_y, r_y r_x t_y, r_y^2 r_z t_z, r_x^2 r_y t_z^{-1}, r_y^{-1} r_z^{-1} t_z^{-1}$
35						
	[7, 24, 56, 104, 168, 248, 344, 456, 584, 728]					
		1801*,				
	[7, 25, 60, 112, 180, 264, 364, 480, 612, 760]					
		1802*,				
	[7, 25, 60, 113, 184, 273, 379, 500, 636, 788]					
		1803*,				
	[7, 25, 61, 116, 188, 276, 380, 500, 636, 788]					
		1804*,				
	[7, 26, 62, 114, 182, 266, 366, 482, 614, 762]					
		1805*,				
	[7, 26, 64, 120, 192, 280, 384, 504, 640, 792]					
		1806*, 1807*,				
	[7, 26, 64, 122, 196, 284, 388, 508, 644, 796]					
		1808*,				
	[7, 26, 65, 123, 196, 284, 388, 508, 644, 796]					
		1809*, 1810*,				
	[7, 26, 65, 123, 197, 286, 390, 510, 646, 798]					
		1811*,				
	[7, 26, 65, 124, 198, 286, 390, 510, 646, 798]					
		1812*,				
	[7, 26, 66, 124, 196, 284, 388, 508, 644, 796]					
		1813*,				
	[7, 26, 66, 126, 198, 284, 388, 508, 644, 796]					
		1814*,				
	[7, 27, 67, 124, 196, 284, 388, 508, 644, 796]					
		1815*, 1816*, 1817*, 1818*, 1819*, 1820*,				
	[7, 27, 67, 125, 199, 289, 395, 516, 652, 804]					
		1821*,				
	[7, 27, 68, 125, 196, 284, 388, 508, 644, 796]					
		1822*, 1823*,				
	[7, 27, 68, 127, 200, 288, 392, 512, 648, 800]					
		1824*,				
	[7, 27, 70, 130, 203, 292, 396, 516, 652, 804]					
		1825*,				
	[7, 28, 68, 124, 196, 284, 388, 508, 644, 796]					
		1826*, 1827*, 1828*, 1829*, 1830*, 1831*, 1832*, 1833*,				
	[7, 28, 70, 128, 200, 288, 392, 512, 648, 800]					
		1834*, 1835*, 1836*,				
	[7, 28, 70, 129, 203, 292, 396, 516, 652, 804]					
		1837*,				
	[7, 28, 70, 130, 204, 292, 396, 516, 652, 804]					
		1838*, 1839*,				

Nbr.	gr	№	H_i	L	m	X
	[7, 28, 71, 131, 204, 292, 396, 516, 652, 804]					
		1840*,				
	[7, 28, 72, 132, 204, 292, 396, 516, 652, 804]					
		1841*,				
	[7, 28, 73, 133, 204, 292, 396, 516, 652, 804]					
		1842*,				
	[7, 29, 71, 128, 200, 288, 392, 512, 648, 800]					
		1843*,				
	[7, 29, 71, 129, 203, 292, 396, 516, 652, 804]					
		1844*,				
	[7, 29, 73, 132, 204, 292, 396, 516, 652, 804]					
		1845*, 1846*, 1847*, 1848*, 1849*,				
	[7, 29, 75, 134, 204, 292, 396, 516, 652, 804]					
		1850*, 1851*, 1852*,				
	[7, 30, 72, 128, 200, 288, 392, 512, 648, 800]					
		1853*, 1854*, 1855*,				
	[7, 30, 74, 132, 204, 292, 396, 516, 652, 804]					
		1856*, 1857*, 1858*, 1859*, 1860*, 1861*, 1862*,				
	[7, 30, 75, 134, 205, 292, 396, 516, 652, 804]					
		1863*,				
	[7, 30, 76, 134, 204, 292, 396, 516, 652, 804]					
		1864*, 1865*, 1866*,				
	[7, 31, 75, 132, 204, 292, 396, 516, 652, 804]					
		1867*, 1868*, 1869*, 1870*,				
	[7, 32, 76, 132, 204, 292, 396, 516, 652, 804]					
		1871*, 1872*, 1873*, 1874*, 1875*, 1876*, 1877*,				
	[8, 28, 64, 116, 184, 268, 368, 484, 616, 764]					
		1801	H_{779}	$\langle m_z, m_z r_x, r_x^2\rangle$	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z,$ $r_x^2 t_z^{-1}$
	[8, 29, 67, 121, 191, 277, 379, 497, 631, 781]					
		1802	H_{452}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, t_y, t_y^{-1}, r_y^2 r_z t_z,$ $m_z t_z^{-1}$
	[8, 29, 67, 122, 194, 283, 388, 508, 644, 796]					
		1803	H_{503}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, t_y, t_y^{-1}, r_y^2 r_z t_z,$ $r_x^2 t_z^{-1}$
	[8, 29, 68, 124, 196, 284, 388, 508, 644, 796]					
		1804	H_{680}	$\langle m_x\rangle$	r_z^2	$m_x t_x, m_x t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_y^2 t_z,$ $r_x^2 t_z^{-1}$
	[8, 30, 68, 122, 192, 278, 380, 498, 632, 782]					
		1805	H_{611}	$\langle m_z\rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, t_y, t_y^{-1}, r_y^2 r_z t_z,$ $m_x r_z t_z^{-1}$
	[8, 30, 70, 126, 198, 286, 390, 510, 646, 798]					
		1806	H_{749}	$\langle m_y, r_z^2\rangle$	i	$r_y^2 t_x, m_z t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_z^2 t_z, m_z t_z^{-1},$ $r_z^2 t_z^{-1}$
		1807	H_{682}	$\langle m_y\rangle$	m_x	$m_z t_x, r_y^2 t_x^{-1}, m_z t_x^{-1}, m_y t_y, t_y^{-1}, m_z t_z,$ $r_y^2 t_z^{-1}$
	[8, 30, 70, 128, 200, 288, 392, 512, 648, 800]					
		1808	H_{598}	$\langle r_y^2\rangle$	r_z^2	$r_y^2 t_x, r_y^2 t_x^{-1}, r_y^2 t_y, r_x^2 t_y^{-1}, r_y^2 t_y^{-1}, r_x^2 r_z t_z,$ $r_z t_z^{-1}$
	[8, 30, 71, 128, 200, 288, 392, 512, 648, 800]					
		1809	H_{650}	$\langle m_z r_x\rangle$	m_x	$t_x, m_x t_x^{-1}, t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z,$ $m_x r_x^{-1} t_z^{-1}$
		1810	H_{378}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1},$ $m_x r_z t_z^{-1}$
	[8, 30, 71, 128, 201, 289, 393, 513, 649, 801]					
		1811	H_{503}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, t_y, t_y^{-1}, r_y^2 r_z t_z,$ $r_y^2 t_z^{-1}$
	[8, 30, 71, 129, 201, 289, 393, 513, 649, 801]					
		1812	H_{452}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, t_y, t_y^{-1}, r_y^2 r_z t_z,$ $i t_z^{-1}$
	[8, 30, 72, 128, 200, 288, 392, 512, 648, 800]					
		1813	H_{648}	$\langle m_z r_x\rangle$	m_x	$t_x, m_x t_x^{-1}, t_x^{-1}, r_x^2 t_y, i t_y^{-1}, m_z r_x^{-1} t_z,$ $r_z^2 r_x t_z^{-1}$
	[8, 30, 72, 130, 200, 288, 392, 512, 648, 800]					
		1814	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z,$ $i t_z^{-1}$
	[8, 31, 72, 128, 200, 288, 392, 512, 648, 800]					
		1815	H_{361}	1	m_z	$r_z^2 t_x, i t_x^{-1}, r_z^2 t_y, i t_y^{-1}, m_x t_z, r_y^2 t_z^{-1},$ $m_x t_z^{-1}$
		1816	H_{680}	$\langle m_x\rangle$	r_z^2	$r_z^2 t_x, m_y t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_y^2 t_z,$ $r_x^2 t_z^{-1}$
		1817	H_{368}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_x t_z, r_y^2 t_z^{-1},$ $m_x t_z^{-1}$
		1818	H_{527}	1	r_z^2	$m_x t_x, m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z,$ $m_z t_z^{-1}$
		1819	H_{527}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, r_y^2 r_z t_z,$ $m_z t_z^{-1}$
		1820	H_{529}	1	r_z^2	$m_x t_x, m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z,$ $r_y^2 t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
	[8, 31, 72, 129, 202, 291, 396, 516, 652, 804]					
		1821	H_{529}	1	r_z^2	$m_y t_x, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[8, 31, 73, 128, 200, 288, 392, 512, 648, 800]					
		1822	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
		1823	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[8, 31, 73, 130, 202, 290, 394, 514, 650, 802]					
		1824	H_{359}	1	m_z	$r_z^2 t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
	[8, 31, 75, 131, 204, 292, 396, 516, 652, 804]					
		1825	H_{377}	1	m_z	$r_y^2 t_x, r_z^{-1} t_x^{-1}, r_z t_y, m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
	[8, 32, 72, 128, 200, 288, 392, 512, 648, 800]					
		1826	H_{779}	$\langle m_z, m_z r_x, r_x^2 \rangle$	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_z^2 t_y, m_x t_y^{-1}, m_x r_x^{-1} t_z, r_y^2 r_x t_z^{-1}$
		1827	H_{750}	$\langle m_y, r_z^2 \rangle$	i	$r_y^2 t_x, m_z t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_z t_z, r_x^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		1828	H_{622}	$\langle m_z \rangle$	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, r_y^2 r_z t_z, m_x r_z t_z^{-1}$
		1829	H_{649}	$\langle m_z r_x \rangle$	m_x	$m_z r_x^{-1} t_x, r_z^2 r_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_x^2 t_y, i t_y^{-1}, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}$
		1830	H_{682}	$\langle m_y \rangle$	m_x	$m_z t_x, r_y^2 t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y, m_x t_y^{-1}, m_z t_z, r_y^2 t_z^{-1}$
		1831	H_{652}	$\langle m_z r_x \rangle$	m_x	$m_z r_x^{-1} t_x, r_z^2 r_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
		1832	H_{378}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		1833	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_z t_z, i t_z^{-1}$
	[8, 32, 74, 130, 202, 290, 394, 514, 650, 802]					
		1834	H_{370}	1	m_z	$r_z^2 t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		1835	H_{527}	1	r_z^2	$m_x t_x, m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, i t_z^{-1}$
		1836	H_{529}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[8, 32, 74, 131, 204, 292, 396, 516, 652, 804]					
		1837	H_{529}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[8, 32, 74, 132, 204, 292, 396, 516, 652, 804]					
		1838	H_{604}	$\langle r_y^2 \rangle$	r_z^2	$i t_x, m_y t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_x^2 r_z t_z, r_z t_z^{-1}$
		1839	H_{527}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, r_y^2 r_z t_z, i t_z^{-1}$
	[8, 32, 75, 132, 204, 292, 396, 516, 652, 804]					
		1840	H_{359}	1	m_z	$i t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
	[8, 32, 76, 132, 204, 292, 396, 516, 652, 804]					
		1841	H_{359}	1	m_z	$r_z^2 t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
	[8, 32, 77, 132, 204, 292, 396, 516, 652, 804]					
		1842	H_{382}	1	m_z	$r_y^2 t_x, r_z^{-1} t_x^{-1}, r_z t_y, m_y t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
	[8, 33, 74, 130, 202, 290, 394, 514, 650, 802]					
		1843	H_{682}	$\langle m_x \rangle$	r_z^2	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}$
	[8, 33, 74, 131, 204, 292, 396, 516, 652, 804]					
		1844	H_{343}	1	m_z	$r_z^2 t_x, m_x r_z t_x^{-1}, i t_y, m_x r_z t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
	[8, 33, 76, 132, 204, 292, 396, 516, 652, 804]					
		1845	H_{370}	1	m_z	$i t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		1846	H_{370}	1	m_z	$r_z^2 t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		1847	H_{359}	1	m_z	$i t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		1848	H_{452}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 r_z t_z, m_z t_z^{-1}$
		1849	H_{503}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 r_z t_z, r_x^2 t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
	[8, 33, 78, 132, 204, 292, 396, 516, 652, 804]					
		1850	H_{377}	1	m_z	$r_y^2 t_x, m_z r_z^{-1} t_x^{-1}, m_z r_z t_y, m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		1851	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, it_z^{-1}$
		1852	H_{541}	1	r_z^2	$r_x t_x, r_x^{-1} t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, it_z^{-1}$
	[8, 34, 74, 130, 202, 290, 394, 514, 650, 802]					
		1853	H_{604}	$\langle r_y^2 \rangle$	r_z^2	$m_x t_x, m_x t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_x^2 r_z t_z, r_z t_z^{-1}$
		1854	H_{622}	$\langle m_z \rangle$	r_z^2	$m_x t_x, m_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, m_x r_z t_z^{-1}$
		1855	H_{683}	$\langle m_x \rangle$	r_z^2	$r_y^2 t_x, r_y^2 t_x^{-1}, r_y^2 t_y, r_x^2 t_y^{-1}, r_y^2 t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}$
	[8, 34, 76, 132, 204, 292, 396, 516, 652, 804]					
		1856	H_{344}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		1857	H_{350}	1	m_z	$r_z^2 t_x, it_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		1858	H_{350}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_x^2 t_y, m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		1859	H_{370}	1	m_z	$it_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		1860	H_{347}	1	m_z	$r_z^2 t_x, m_x r_z t_x^{-1}, it_y, m_x r_z t_y^{-1}, m_x r_z^{-1} t_z, r_x^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		1861	H_{452}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 r_z t_z, it_z^{-1}$
		1862	H_{503}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[8, 34, 77, 133, 204, 292, 396, 516, 652, 804]					
		1863	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[8, 34, 78, 132, 204, 292, 396, 516, 652, 804]					
		1864	H_{382}	1	m_z	$r_y^2 t_x, m_z r_z^{-1} t_x^{-1}, m_z r_z t_y, m_y t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		1865	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
		1866	H_{511}	1	r_z^2	$r_x t_x, r_x^{-1} t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
	[8, 35, 76, 132, 204, 292, 396, 516, 652, 804]					
		1867	H_{682}	$\langle m_x \rangle$	r_z^2	$it_x, r_x^2 t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}$
		1868	H_{372}	1	m_z	$r_z^2 t_x, it_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_x t_z, r_y^2 t_z^{-1}, m_x t_z^{-1}$
		1869	H_{365}	1	m_z	$r_z^2 t_x, it_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		1870	H_{343}	1	m_z	$r_z^2 t_x, r_y^2 r_z t_x^{-1}, it_y, r_y^2 r_z t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
	[8, 36, 76, 132, 204, 292, 396, 516, 652, 804]					
		1871	H_{598}	$\langle r_y^2 \rangle$	r_z^2	$r_z^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_y, r_x^2 t_y^{-1}, r_y^2 t_y^{-1}, r_x^2 r_z t_z, r_z t_z^{-1}$
		1872	H_{611}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_y^2 r_z t_z, m_x r_z t_z^{-1}$
		1873	H_{683}	$\langle m_x \rangle$	r_z^2	$it_x, r_x^2 t_x^{-1}, r_y^2 t_y, r_x^2 t_y^{-1}, r_y^2 t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}$
		1874	H_{344}	1	m_z	$r_z^2 t_x, it_x^{-1}, it_y, it_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		1875	H_{364}	1	m_z	$r_z^2 t_x, it_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, r_z^2 t_z, it_z^{-1}, r_z^2 t_z^{-1}$
		1876	H_{347}	1	m_z	$r_z^2 t_x, r_y^2 r_z t_x^{-1}, it_y, r_y^2 r_z t_y^{-1}, m_x r_z^{-1} t_z, r_x^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		1877	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$

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[7, 25, 62, 121, 199, 291, 396, 516, 652, 804]
1878*,
[7, 26, 63, 116, 184, 268, 368, 484, 616, 764]
1879*,
[7, 26, 65, 123, 196, 284, 388, 508, 644, 796]
1880*,
[7, 26, 65, 125, 202, 292, 396, 516, 652, 804]
1881*,
[7, 26, 67, 131, 209, 296, 397, 516, 652, 804]

Nbr.	gr	№	H_i	L	m	X
		1882*,				
	[7, 27, 65, 117, 184, 268, 368, 484, 616, 764]					
		1883*,				
	[7, 27, 68, 126, 197, 284, 388, 508, 644, 796]					
		1884*,				
	[7, 27, 68, 127, 200, 288, 392, 512, 648, 800]					
		1885*, 1886*,				
	[7, 27, 69, 129, 202, 290, 394, 514, 650, 802]					
		1887*,				
	[7, 27, 69, 130, 204, 292, 396, 516, 652, 804]					
		1888*,				
	[7, 27, 70, 132, 205, 292, 396, 516, 652, 804]					
		1889*,				
	[7, 27, 70, 133, 207, 293, 396, 516, 652, 804]					
		1890*, 1891*,				
	[7, 27, 70, 134, 209, 294, 396, 516, 652, 804]					
		1892*,				
	[7, 27, 71, 132, 204, 292, 396, 516, 652, 804]					
		1893*,				
	[7, 27, 71, 139, 212, 293, 396, 516, 652, 804]					
		1894*,				
	[7, 28, 65, 116, 184, 268, 368, 484, 616, 764]					
		1895*,				
	[7, 28, 69, 125, 196, 284, 388, 508, 644, 796]					
		1896*,				
	[7, 28, 70, 130, 202, 288, 392, 512, 648, 800]					
		1897*, 1898*,				
	[7, 28, 71, 126, 193, 279, 381, 499, 633, 783]					
		1899*,				
	[7, 28, 71, 130, 202, 290, 394, 514, 650, 802]					
		1900*, 1901*, 1902*,				
	[7, 28, 71, 131, 204, 292, 396, 516, 652, 804]					
		1903*, 1904*,				
	[7, 28, 71, 132, 204, 290, 394, 514, 650, 802]					
		1905*,				
	[7, 28, 72, 135, 207, 292, 396, 516, 652, 804]					
		1906*,				
	[7, 28, 72, 135, 210, 296, 397, 516, 652, 804]					
		1907*, 1908*,				
	[7, 28, 72, 139, 211, 292, 396, 516, 652, 804]					
		1909*,				
	[7, 28, 73, 133, 204, 292, 396, 516, 652, 804]					
		1910*,				
	[7, 28, 73, 134, 204, 290, 394, 514, 650, 802]					
		1911*,				
	[7, 28, 73, 135, 206, 292, 396, 516, 652, 804]					
		1912*, 1913*, 1914*, 1915*,				
	[7, 28, 74, 137, 207, 292, 396, 516, 652, 804]					
		1916*,				
	[7, 28, 74, 137, 209, 294, 396, 516, 652, 804]					
		1917*,				
	[7, 29, 74, 136, 209, 294, 396, 516, 652, 804]					
		1918*, 1919*, 1920*,				
	[7, 29, 75, 137, 208, 293, 396, 516, 652, 804]					
		1921*, 1922*, 1923*,				
	[7, 29, 76, 137, 207, 293, 396, 516, 652, 804]					
		1924*,				
	[7, 30, 76, 136, 207, 293, 396, 516, 652, 804]					
		1925*,				
	[7, 30, 77, 137, 206, 292, 396, 516, 652, 804]					
		1926*, 1927*, 1928*, 1929*,				
	[7, 31, 75, 131, 202, 290, 394, 514, 650, 802]					
		1930*,				
	[7, 31, 76, 135, 207, 293, 396, 516, 652, 804]					
		1931*, 1932*, 1933*, 1934*,				
	[7, 31, 77, 134, 204, 292, 396, 516, 652, 804]					
		1935*,				
	[7, 31, 77, 136, 206, 292, 396, 516, 652, 804]					
		1936*,				
	[7, 32, 75, 130, 202, 290, 394, 514, 650, 802]					
		1937*, 1938*,				
	[7, 32, 77, 133, 204, 292, 396, 516, 652, 804]					
		1939*, 1940*,				
	[7, 32, 77, 135, 206, 292, 396, 516, 652, 804]					
		1941*, 1942*, 1943*, 1944*, 1945*, 1946*,				
	[7, 32, 78, 134, 204, 292, 396, 516, 652, 804]					
		1947*,				
	[8, 29, 69, 128, 203, 292, 396, 516, 652, 804]					
		1878	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$m_x t_x, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
	[8, 30, 69, 123, 193, 279, 381, 499, 633, 783]					
		1879	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$m_x t_x, m_x t_x^{-1}, r_z^2 r_x t_y, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
	[8, 30, 71, 128, 200, 288, 392, 512, 648, 800]					
		1880	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$m_x t_x, m_x t_x^{-1}, m_x r_x t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
	[8, 30, 71, 130, 204, 292, 396, 516, 652, 804]					
		1881	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$m_x t_x, m_x t_x^{-1}, r_z^2 r_x t_y, r_x^2 t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z, r_x^2 t_z^{-1}$
	[8, 30, 73, 134, 207, 293, 396, 516, 652, 804]					

Nbr.	gr	№	H_i	L	m	X
		1882	H_{578}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[8, 31, 70, 123, 193, 279, 381, 499, 633, 783]					
		1883	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
	[8, 31, 73, 129, 200, 288, 392, 512, 648, 800]					
		1884	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}$
	[8, 31, 73, 130, 202, 290, 394, 514, 650, 802]					
		1885	H_{560}	1	$m_z r_x$	$i t_x, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
		1886	H_{557}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
	[8, 31, 74, 131, 203, 291, 395, 515, 651, 803]					
		1887	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}$
	[8, 31, 74, 132, 204, 292, 396, 516, 652, 804]					
		1888	H_{578}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}$
	[8, 31, 75, 133, 204, 292, 396, 516, 652, 804]					
		1889	H_{580}	1	$m_z r_x$	$i t_x, m_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}$
	[8, 31, 75, 134, 205, 292, 396, 516, 652, 804]					
		1890	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
		1891	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_z t_z, m_x r_x^{-1} t_z^{-1}$
	[8, 31, 75, 135, 206, 292, 396, 516, 652, 804]					
		1892	H_{557}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}$
	[8, 31, 76, 132, 204, 292, 396, 516, 652, 804]					
		1893	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 t_x^{-1}, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}$
	[8, 31, 76, 139, 205, 292, 396, 516, 652, 804]					
		1894	H_{572}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
	[8, 32, 69, 123, 193, 279, 381, 499, 633, 783]					
		1895	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, r_z^2 r_x t_y, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
	[8, 32, 73, 128, 200, 288, 392, 512, 648, 800]					
		1896	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, m_x r_x t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
	[8, 32, 74, 132, 202, 290, 394, 514, 650, 802]					
		1897	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
		1898	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
	[8, 32, 75, 127, 198, 285, 388, 507, 642, 793]					
		1899	H_{393}	1	$r_z^2 r_x$	$r_y r_x t_x, r_y^{-1} r_z^{-1} t_x^{-1}, r_y r_x t_y, r_y^{-1} r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y r_x t_z, r_y^{-1} r_z^{-1} t_z^{-1}$
	[8, 32, 75, 131, 203, 291, 395, 515, 651, 803]					
		1900	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x, r_x^2 t_x^{-1}, r_z^2 r_x t_y, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
		1901	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, r_z^2 r_x t_y, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
		1902	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, i t_y^{-1}, r_z^2 r_x t_y^{-1}, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}$
	[8, 32, 75, 132, 204, 292, 396, 516, 652, 804]					
		1903	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, m_x r_x t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
		1904	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
	[8, 32, 75, 133, 203, 291, 395, 515, 651, 803]					
		1905	H_{409}	1	$r_z^2 r_x$	$r_x^{-1} t_x, r_x t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}$
	[8, 32, 76, 135, 204, 292, 396, 516, 652, 804]					
		1906	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}$
	[8, 32, 76, 135, 207, 293, 396, 516, 652, 804]					
		1907	H_{580}	1	$m_z r_x$	$i t_x, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
		1908	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[8, 32, 76, 139, 204, 292, 396, 516, 652, 804]					

Nbr.	gr	№	H_i	L	m	X
		1909	H_{551}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_y, it_y^{-1}, it_z, r_z^2 r_x t_z, it_z^{-1}$
	[8, 32, 77, 132, 204, 292, 396, 516, 652, 804]					
		1910	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$it_x, r_x^2 t_x^{-1}, m_x r_x t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
	[8, 32, 77, 133, 203, 291, 395, 515, 651, 803]					
		1911	H_{560}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
	[8, 32, 77, 134, 204, 292, 396, 516, 652, 804]					
		1912	H_{422}	1	$r_z^2 r_x$	$r_x^{-1} t_x, r_x t_x^{-1}, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}$
		1913	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, r_z^2 r_x t_y, r_x^2 t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z, r_x^2 t_z^{-1}$
		1914	H_{574}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}$
		1915	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z^{-1}$
	[8, 32, 78, 135, 204, 292, 396, 516, 652, 804]					
		1916	H_{580}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}$
	[8, 32, 78, 135, 206, 292, 396, 516, 652, 804]					
		1917	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[8, 33, 77, 135, 206, 292, 396, 516, 652, 804]					
		1918	H_{560}	1	$m_z r_x$	$it_x, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}$
		1919	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}$
		1920	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$
	[8, 33, 78, 135, 205, 292, 396, 516, 652, 804]					
		1921	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
		1922	H_{580}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
		1923	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[8, 33, 79, 134, 205, 292, 396, 516, 652, 804]					
		1924	H_{422}	1	$r_z^2 r_x$	$r_x^{-1} t_x, r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[8, 34, 78, 134, 205, 292, 396, 516, 652, 804]					
		1925	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, r_x t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z, r_y^2 t_z^{-1}$
	[8, 34, 79, 134, 204, 292, 396, 516, 652, 804]					
		1926	H_{409}	1	$r_z^2 r_x$	$r_x^{-1} t_x, r_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
		1927	H_{560}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}$
		1928	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}$
		1929	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$
	[8, 35, 76, 131, 203, 291, 395, 515, 651, 803]					
		1930	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_z^2 r_x t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}$
	[8, 35, 77, 134, 205, 292, 396, 516, 652, 804]					
		1931	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$it_x, r_x^2 t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
		1932	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
		1933	H_{574}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
		1934	H_{576}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
	[8, 35, 78, 132, 204, 292, 396, 516, 652, 804]					
		1935	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, r_x t_y, m_x r_x t_y^{-1}, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
	[8, 35, 78, 134, 204, 292, 396, 516, 652, 804]					
		1936	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, it_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, it_z^{-1}$
	[8, 36, 75, 131, 203, 291, 395, 515, 651, 803]					
		1937	H_{551}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		1938	H_{556}	1	$m_z r_x$	$m_x t_x , r_y^2 r_x t_x^{-1} , r_z^2 r_x t_y , i t_y^{-1} , r_z^2 r_x t_y^{-1} , r_z^2 r_x t_z , r_z^2 r_x t_z^{-1}$
	[8, 36, 77, 132, 204, 292, 396, 516, 652, 804]					
		1939	H_{572}	1	$m_z r_x$	$r_z^2 r_x t_x , i t_x^{-1} , m_x r_x t_y , r_z^2 t_y^{-1} , m_x r_x t_y^{-1} , m_x r_x^{-1} t_z , m_x r_x^{-1} t_z^{-1}$
		1940	H_{576}	1	$m_z r_x$	$m_x t_x , r_y^2 r_x t_x^{-1} , m_x r_x t_y , r_z^2 t_y^{-1} , m_x r_x t_y^{-1} , m_x r_x^{-1} t_z , m_x r_x^{-1} t_z^{-1}$
	[8, 36, 77, 134, 204, 292, 396, 516, 652, 804]					
		1941	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x , r_x^2 t_x^{-1} , r_x^2 t_y , r_x^2 t_y^{-1} , r_z^2 r_x t_y^{-1} , r_x^2 t_z , r_z^2 r_x t_z^{-1}$
		1942	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_z^2 r_x t_x , r_z^2 r_x t_x^{-1} , r_z^2 r_x t_y , r_x^2 t_y^{-1} , r_x^2 t_z , r_z^2 r_x t_z , r_x^2 t_z^{-1}$
		1943	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x , r_x^2 t_x^{-1} , r_z^2 r_x t_y , r_x^2 t_y^{-1} , r_x^2 t_z , r_z^2 r_x t_z , r_x^2 t_z^{-1}$
		1944	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x , i t_x^{-1} , m_z r_x^{-1} t_y , r_x^2 t_y^{-1} , r_x^2 t_z , m_z r_x^{-1} t_z , r_x^2 t_z^{-1}$
		1945	H_{555}	1	$m_z r_x$	$i t_x , r_z^2 r_x t_x^{-1} , r_x^2 t_y , r_x^2 t_y^{-1} , m_z r_x^{-1} t_y^{-1} , r_x^2 t_z , m_z r_x^{-1} t_z^{-1}$
		1946	H_{556}	1	$m_z r_x$	$m_x t_x , r_y^2 r_x t_x^{-1} , r_z^2 r_x t_y , i t_y^{-1} , i t_z , r_z^2 r_x t_z , i t_z^{-1}$
	[8, 36, 78, 132, 204, 292, 396, 516, 652, 804]					
		1947	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x , r_x^2 r_y t_x^{-1} , r_y^2 r_z t_y , r_y^{-1} r_z^{-1} t_y^{-1} , r_y^2 r_z t_z , r_y r_x t_z , r_x^2 r_y t_z^{-1}$

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[8, 29, 68, 124, 196, 284, 388, 508, 644, 796]
1948*, 1949*,
[8, 30, 70, 126, 198, 286, 390, 510, 646, 798]
1950*, 1951*, 1952*, 1953*,
[8, 30, 71, 128, 200, 288, 392, 512, 648, 800]
1954*, 1955*, 1956*, 1957*, 1958*,
[8, 30, 72, 131, 204, 292, 396, 516, 652, 804]
1959*, 1960*, 1961*, 1962*, 1963*, 1964*,
[8, 30, 73, 134, 206, 292, 396, 516, 652, 804]
1965*,
[8, 31, 72, 128, 200, 288, 392, 512, 648, 800]
1966*,
[8, 31, 73, 129, 200, 288, 392, 512, 648, 800]
1967*, 1968*, 1969*,
[8, 31, 73, 131, 204, 292, 396, 516, 652, 804]
1970*,
[8, 31, 74, 132, 204, 292, 396, 516, 652, 804]
1971*, 1972*, 1973*, 1974*, 1975*, 1976*, 1977*, 1978*, 1979*,
[8, 31, 75, 133, 204, 292, 396, 516, 652, 804]
1980*,
[8, 31, 75, 134, 205, 292, 396, 516, 652, 804]
1981*, 1982*, 1983*,
[8, 32, 73, 128, 200, 288, 392, 512, 648, 800]
1984*, 1985*, 1986*, 1987*, 1988*, 1989*, 1990*, 1991*, 1992*, 1993*, 1994*, 1995*,
[8, 32, 75, 132, 204, 292, 396, 516, 652, 804]
1996*, 1997*, 1998*, 1999*, 2000*, 2001*, 2002*, 2003*, 2004*, 2005*, 2006*, 2007*, 2008*,
2009*, 2010*, 2011*, 2012*, 2013*, 2014*, 2015*, 2016*, 2017*, 2018*, 2019*, 2020*, 2021*,
2022*, 2023*, 2024*, 2025*,
[8, 32, 76, 133, 204, 292, 396, 516, 652, 804]
2026*, 2027*, 2028*, 2029*, 2030*, 2031*, 2032*,
[8, 32, 76, 134, 205, 292, 396, 516, 652, 804]
2033*, 2034*, 2035*, 2036*,
[8, 32, 77, 134, 204, 292, 396, 516, 652, 804]
2037*, 2038*, 2039*, 2040*,
[8, 32, 77, 135, 205, 292, 396, 516, 652, 804]
2041*,
[8, 33, 76, 132, 204, 292, 396, 516, 652, 804]
2042*, 2043*, 2044*, 2045*, 2046*, 2047*, 2048*, 2049*, 2050*, 2051*, 2052*, 2053*, 2054*,
2055*, 2056*, 2057*, 2058*, 2059*, 2060*, 2061*, 2062*, 2063*,
[8, 33, 77, 133, 204, 292, 396, 516, 652, 804]
2064*, 2065*, 2066*,
[8, 33, 77, 134, 205, 292, 396, 516, 652, 804]
2067*,
[8, 33, 78, 135, 205, 292, 396, 516, 652, 804]
2068*, 2069*, 2070*,
[8, 34, 77, 132, 204, 292, 396, 516, 652, 804]
2071*, 2072*, 2073*, 2074*, 2075*, 2076*, 2077*, 2078*, 2079*, 2080*, 2081*, 2082*, 2083*,
2084*, 2085*, 2086*, 2087*, 2088*, 2089*, 2090*, 2091*, 2092*, 2093*, 2094*, 2095*, 2096*,
2097*, 2098*, 2099*, 2100*, 2101*, 2102*, 2103*, 2104*, 2105*, 2106*, 2107*, 2108*, 2109*,
2110*,
[8, 34, 78, 134, 205, 292, 396, 516, 652, 804]
2111*, 2112*, 2113*,
[9, 32, 72, 128, 200, 288, 392, 512, 648, 800]

		1948	H_{680}	$\langle m_x \rangle$	r_z^2	$m_x t_x , m_x t_x^{-1} , m_x t_y , m_y t_y^{-1} , m_x t_y^{-1} , r_y^2 t_z , r_x^2 t_z^{-1} , r_y^2 t_z^{-1}$
		1949	H_{690}	$\langle m_x \rangle$	r_z^2	$m_x t_x , m_x t_x^{-1} , m_x t_y , m_y t_y^{-1} , m_x t_y^{-1} , r_y^2 r_z t_z , m_z r_z^{-1} t_z , r_y^2 t_z^{-1}$

[9, 33, 73, 129, 201, 289, 393, 513, 649, 801]

Nbr.	gr	№	H_i	L	m	X
		1950	H_{452}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, t_y, t_y^{-1}, r_y^2 r_z t_z,$ $i t_z^{-1}, m_z t_z^{-1}$
		1951	H_{503}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, t_y, t_y^{-1}, r_y^2 r_z t_z,$ $r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		1952	H_{438}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, t_y, t_y^{-1}, r_y^2 r_z t_z,$ $r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		1953	H_{495}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, t_y, t_y^{-1}, m_z r_z^{-1} t_z,$ $m_z r_z t_z, r_y^2 r_z t_z^{-1}$
	[9, 33, 74, 130, 202, 290, 394, 514, 650, 802]					
		1954	H_{682}	$\langle m_y \rangle$	m_x	$m_z t_x, r_y^2 t_x^{-1}, m_z t_x^{-1}, m_y t_y, t_y^{-1}, r_y^2 t_z,$ $r_y^2 t_z^{-1}, m_z t_z^{-1}$
		1955	H_{682}	$\langle m_y \rangle$	m_x	$m_z t_x, r_y^2 t_x^{-1}, m_z t_x^{-1}, m_y t_y, t_y^{-1}, m_z t_z,$ $r_y^2 t_z^{-1}, m_z t_z^{-1}$
		1956	H_{680}	$\langle m_x \rangle$	r_z^2	$m_x t_x, m_x t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_x^2 t_z,$ $r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
		1957	H_{359}	1	m_z	$r_z^2 t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, t_z,$ $m_z t_z^{-1}, t_z^{-1}$
		1958	H_{690}	$\langle m_x \rangle$	r_z^2	$m_x t_x, m_x t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_y^2 r_z t_z,$ $m_z r_z^{-1} t_z, r_x^2 t_z^{-1}$
	[9, 33, 75, 132, 204, 292, 396, 516, 652, 804]					
		1959	H_{359}	1	m_z	$i t_x, r_z^2 t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, t_z,$ $m_z t_z^{-1}, t_z^{-1}$
		1960	H_{378}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, m_y t_y^{-1}, m_x r_z t_z,$ $r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		1961	H_{378}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_z t_z,$ $r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		1962	H_{353}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, t_z,$ $m_z t_z^{-1}, t_z^{-1}$
		1963	H_{353}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, m_y t_y^{-1}, t_z,$ $m_z t_z^{-1}, t_z^{-1}$
		1964	H_{377}	1	m_z	$r_y^2 t_x, m_x t_x, r_z^{-1} t_x^{-1}, r_z t_y, m_y t_y^{-1}, t_z,$ $m_z t_z^{-1}, t_z^{-1}$
	[9, 33, 76, 134, 204, 292, 396, 516, 652, 804]					
		1965	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_z t_z,$ $i t_z^{-1}, m_z t_z^{-1}$
	[9, 34, 74, 130, 202, 290, 394, 514, 650, 802]					
		1966	H_{682}	$\langle m_x \rangle$	r_z^2	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_y^2 t_z,$ $r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
	[9, 34, 75, 130, 202, 290, 394, 514, 650, 802]					
		1967	H_{370}	1	m_z	$r_z^2 t_x, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_y t_z,$ $r_x^2 t_z^{-1}, m_y t_z^{-1}$
		1968	H_{370}	1	m_z	$r_z^2 t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_y t_z,$ $r_x^2 t_z^{-1}, m_y t_z^{-1}$
		1969	H_{359}	1	m_z	$r_z^2 t_x, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, t_z,$ $m_z t_z^{-1}, t_z^{-1}$
	[9, 34, 75, 132, 204, 292, 396, 516, 652, 804]					
		1970	H_{343}	1	m_z	$r_z^2 t_x, m_x r_z t_x^{-1}, i t_y, r_z^2 t_y, m_x r_z t_y^{-1}, t_z,$ $m_z t_z^{-1}, t_z^{-1}$
	[9, 34, 76, 132, 204, 292, 396, 516, 652, 804]					
		1971	H_{680}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_y t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_y^2 t_z,$ $r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
		1972	H_{370}	1	m_z	$i t_x, r_z^2 t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_z,$ $r_x^2 t_z^{-1}, m_y t_z^{-1}$
		1973	H_{359}	1	m_z	$i t_x, r_z^2 t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, t_z,$ $m_z t_z^{-1}, t_z^{-1}$
		1974	H_{359}	1	m_z	$i t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, t_z,$ $m_z t_z^{-1}, t_z^{-1}$
		1975	H_{368}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_x t_z,$ $r_y^2 t_z^{-1}, m_x t_z^{-1}$
		1976	H_{368}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_x t_z,$ $r_y^2 t_z^{-1}, m_x t_z^{-1}$
		1977	H_{368}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_x t_z,$ $r_y^2 t_z^{-1}, m_x t_z^{-1}$
		1978	H_{353}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, t_z,$ $m_z t_z^{-1}, t_z^{-1}$
		1979	H_{690}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_y t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_y^2 r_z t_z,$ $m_z r_z^{-1} t_z, r_y^2 t_z^{-1}$
	[9, 34, 77, 132, 204, 292, 396, 516, 652, 804]					

Nbr.	gr	№	H_i	L	m	X
		1980	H_{359}	1	m_z	$r_z^2t_x, r_y^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_yt_y^{-1}, t_z, m_zt_z^{-1}, t_z^{-1}$
	[9, 34, 77, 133, 204, 292, 396, 516, 652, 804]					
		1981	H_{382}	1	m_z	$r_y^2t_x, m_xt_x, r_z^{-1}t_x^{-1}, r_zt_y, r_x^2t_y^{-1}, m_xr_zt_z, r_y^2r_zt_z^{-1}, m_xr_zt_z^{-1}$
		1982	H_{382}	1	m_z	$r_y^2t_x, m_xt_x, r_z^{-1}t_x^{-1}, r_zt_y, m_yt_y^{-1}, m_xr_zt_z, r_y^2r_zt_z^{-1}, m_xr_zt_z^{-1}$
		1983	H_{377}	1	m_z	$r_y^2t_x, m_xt_x, r_z^{-1}t_x^{-1}, r_zt_y, r_x^2t_y^{-1}, t_z, m_zt_z^{-1}, t_z^{-1}$
	[9, 35, 74, 130, 202, 290, 394, 514, 650, 802]					
		1984	H_{683}	$\langle m_x\rangle$	r_z^2	$r_y^2t_x, r_y^2t_x^{-1}, r_y^2t_y, r_x^2t_y^{-1}, r_y^2t_y^{-1}, r_x^2t_z, r_x^2t_z^{-1}, r_y^2t_z^{-1}$
		1985	H_{683}	$\langle m_x\rangle$	r_z^2	$r_y^2t_x, r_y^2t_x^{-1}, r_y^2t_y, r_x^2t_y^{-1}, r_y^2t_y^{-1}, r_y^2t_z, r_x^2t_z^{-1}, r_y^2t_z^{-1}$
		1986	H_{682}	$\langle m_x\rangle$	r_z^2	$r_y^2t_x, r_y^2t_x^{-1}, m_xt_y, m_yt_y^{-1}, m_xt_y^{-1}, r_x^2t_z, r_x^2t_z^{-1}, r_y^2t_z^{-1}$
		1987	H_{453}	1	r_z^2	$m_zt_x, it_x^{-1}, m_zt_x^{-1}, m_zt_y, m_zt_y^{-1}, r_y^2r_zt_z, r_y^2r_zt_z^{-1}, r_x^2r_zt_z^{-1}$
		1988	H_{539}	1	r_z^2	$m_zt_x, it_x^{-1}, m_zt_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, r_y^2r_zt_z^{-1}$
		1989	H_{539}	1	r_z^2	$m_zt_x, m_zt_x^{-1}, r_y^2t_y, r_y^2t_y^{-1}, r_x^2t_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, r_y^2r_zt_z^{-1}$
		1990	H_{505}	1	r_z^2	$r_y^2t_x, r_y^2t_x^{-1}, r_y^2t_y, r_y^2t_y^{-1}, r_x^2t_y^{-1}, r_y^2r_zt_z, r_y^2r_zt_z^{-1}, r_x^2r_zt_z^{-1}$
		1991	H_{505}	1	r_z^2	$r_y^2t_x, r_y^2t_x^{-1}, r_y^2t_y, r_y^2t_y^{-1}, r_x^2t_y^{-1}, r_y^2r_zt_z, r_x^2r_zt_z, r_y^2r_zt_z^{-1}$
		1992	H_{527}	1	r_z^2	$m_xt_x, m_xt_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, r_y^2r_zt_z, it_z^{-1}, m_zt_z^{-1}$
		1993	H_{529}	1	r_z^2	$m_xt_x, m_xt_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, r_y^2r_zt_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
		1994	H_{496}	1	r_z^2	$m_xt_x, m_xt_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, r_y^2r_zt_z, r_y^2r_zt_z^{-1}, r_x^2r_zt_z^{-1}$
		1995	H_{502}	1	r_z^2	$m_xt_x, m_xt_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, r_y^2r_zt_z^{-1}$
	[9, 35, 76, 132, 204, 292, 396, 516, 652, 804]					
		1996	H_{344}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, it_y, r_z^2t_y^{-1}, m_xr_zt_z, r_y^2r_zt_z^{-1}, m_xr_zt_z^{-1}$
		1997	H_{344}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, r_z^2t_y, r_z^2t_y^{-1}, m_xr_zt_z, r_y^2r_zt_z^{-1}, m_xr_zt_z^{-1}$
		1998	H_{330}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, r_z^2t_y, it_y^{-1}, t_z, m_zt_z^{-1}, t_z^{-1}$
		1999	H_{330}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, it_y, r_z^2t_y^{-1}, t_z, m_zt_z^{-1}, t_z^{-1}$
		2000	H_{682}	$\langle m_y\rangle$	m_x	$m_zt_x, r_y^2t_x^{-1}, m_zt_x^{-1}, r_z^2t_y, m_xt_y^{-1}, r_y^2t_z, r_y^2t_z^{-1}, m_zt_z^{-1}$
		2001	H_{682}	$\langle m_y\rangle$	m_x	$m_zt_x, r_y^2t_x^{-1}, m_zt_x^{-1}, r_z^2t_y, m_xt_y^{-1}, m_zt_z, r_y^2t_z^{-1}, m_zt_z^{-1}$
		2002	H_{680}	$\langle m_x\rangle$	r_z^2	$r_z^2t_x, m_yt_x^{-1}, m_xt_y, m_yt_y^{-1}, m_xt_y^{-1}, r_x^2t_z, r_x^2t_z^{-1}, r_y^2t_z^{-1}$
		2003	H_{350}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, t_z, m_zt_z^{-1}, t_z^{-1}$
		2004	H_{350}	1	m_z	$r_z^2t_x, it_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_yt_y^{-1}, t_z, m_zt_z^{-1}, t_z^{-1}$
		2005	H_{350}	1	m_z	$r_z^2t_x, it_x^{-1}, r_x^2t_y, m_yt_y, m_yt_y^{-1}, t_z, m_zt_z^{-1}, t_z^{-1}$
		2006	H_{680}	$\langle m_x\rangle$	r_z^2	$r_z^2t_x, m_yt_x^{-1}, m_xt_y, m_yt_y^{-1}, m_xt_y^{-1}, r_x^2t_z, r_y^2t_z, r_x^2t_z^{-1}$
		2007	H_{370}	1	m_z	$it_x, r_z^2t_x, r_y^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_yt_z, r_x^2t_z^{-1}, m_yt_z^{-1}$
		2008	H_{359}	1	m_z	$r_z^2t_x, r_y^2t_x^{-1}, m_xt_x^{-1}, m_yt_y, r_x^2t_y^{-1}, t_z, m_zt_z^{-1}, t_z^{-1}$
		2009	H_{373}	1	m_z	$r_y^2t_x, r_y^2t_x^{-1}, m_xt_x^{-1}, m_yt_y, r_x^2t_y^{-1}, r_z^2t_z, it_z^{-1}, r_z^2t_z^{-1}$
		2010	H_{373}	1	m_z	$m_xt_x, r_y^2t_x^{-1}, m_xt_x^{-1}, m_yt_y, r_x^2t_y^{-1}, r_z^2t_z, it_z^{-1}, r_z^2t_z^{-1}$
		2011	H_{368}	1	m_z	$m_xt_x, r_y^2t_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, m_xt_z, r_y^2t_z^{-1}, m_xt_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2012	H_{378}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2013	H_{378}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2014	H_{378}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, m_y t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2015	H_{378}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2016	H_{378}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2017	H_{378}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2018	H_{690}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_y t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_y^2 r_z t_z, m_z r_z^{-1} t_z, r_x^2 t_z^{-1}$
		2019	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_x t_y, m_x t_y^{-1}, i t_z, i t_z^{-1}, m_z t_z^{-1}$
		2020	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_y t_y, m_y t_y^{-1}, i t_z, i t_z^{-1}, m_z t_z^{-1}$
		2021	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		2022	H_{527}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, r_y^2 r_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		2023	H_{529}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2024	H_{496}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		2025	H_{502}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}$
	[9, 35, 77, 132, 204, 292, 396, 516, 652, 804]					
		2026	H_{370}	1	m_z	$i t_x, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2027	H_{370}	1	m_z	$i t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2028	H_{370}	1	m_z	$r_z^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2029	H_{370}	1	m_z	$r_z^2 t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2030	H_{359}	1	m_z	$i t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2031	H_{359}	1	m_z	$i t_x, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2032	H_{359}	1	m_z	$r_z^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
	[9, 35, 77, 133, 204, 292, 396, 516, 652, 804]					
		2033	H_{347}	1	m_z	$i t_x, m_x r_z t_x^{-1}, i t_y, r_z^2 t_y, m_x r_z t_y^{-1}, m_x r_z^{-1} t_z, r_x^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		2034	H_{347}	1	m_z	$r_z^2 t_x, m_x r_z t_x^{-1}, i t_y, r_z^2 t_y, m_x r_z t_y^{-1}, m_x r_z^{-1} t_z, r_x^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		2035	H_{343}	1	m_z	$i t_x, m_x r_z t_x^{-1}, i t_y, r_z^2 t_y, m_x r_z t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2036	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[9, 35, 78, 132, 204, 292, 396, 516, 652, 804]					
		2037	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2038	H_{511}	1	r_z^2	$r_x t_x, r_x^{-1} t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2039	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, i t_z, i t_z^{-1}, m_z t_z^{-1}$
		2040	H_{541}	1	r_z^2	$r_x t_x, r_x^{-1} t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, i t_z, i t_z^{-1}, m_z t_z^{-1}$
	[9, 35, 78, 133, 204, 292, 396, 516, 652, 804]					
		2041	H_{377}	1	m_z	$r_y^2 t_x, m_x t_x, m_z r_z^{-1} t_x^{-1}, m_z r_z t_y, m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
	[9, 36, 76, 132, 204, 292, 396, 516, 652, 804]					
		2042	H_{361}	1	m_z	$i t_x, i t_x^{-1}, r_z^2 t_x^{-1}, r_z^2 t_y, i t_y^{-1}, m_x t_z, r_y^2 t_z^{-1}, m_x t_z^{-1}$
		2043	H_{682}	$\langle m_x \rangle$	r_z^2	$i t_x, r_x^2 t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2044	H_{361}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, r_z^2t_y, it_y^{-1}, m_xt_z, r_y^2t_z^{-1}, m_xt_z^{-1}$
		2045	H_{361}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_y, it_y^{-1}, r_z^2t_y^{-1}, m_xt_z, r_y^2t_z^{-1}, m_xt_z^{-1}$
		2046	H_{330}	1	m_z	$r_z^2t_x, it_x^{-1}, it_y, it_y^{-1}, r_z^2t_y^{-1}, t_z, m_zt_z^{-1}, t_z^{-1}$
		2047	H_{682}	$\langle m_x\rangle$	r_z^2	$it_x, r_x^2t_x^{-1}, m_xt_y, m_yt_y^{-1}, m_xt_y^{-1}, r_x^2t_z, r_y^2t_z, r_y^2t_z^{-1}$
		2048	H_{372}	1	m_z	$it_x, it_x^{-1}, r_z^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_xt_z, r_y^2t_z^{-1}, m_xt_z^{-1}$
		2049	H_{372}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_xt_z, r_y^2t_z^{-1}, m_xt_z^{-1}$
		2050	H_{372}	1	m_z	$r_z^2t_x, it_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_yt_y^{-1}, m_xt_z, r_y^2t_z^{-1}, m_xt_z^{-1}$
		2051	H_{372}	1	m_z	$r_z^2t_x, it_x^{-1}, r_x^2t_y, m_yt_y, m_yt_y^{-1}, m_xt_z, r_y^2t_z^{-1}, m_xt_z^{-1}$
		2052	H_{365}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_yt_z, r_x^2t_z^{-1}, m_yt_z^{-1}$
		2053	H_{365}	1	m_z	$r_z^2t_x, it_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, m_yt_z, r_x^2t_z^{-1}, m_yt_z^{-1}$
		2054	H_{365}	1	m_z	$r_z^2t_x, it_x^{-1}, r_x^2t_y, m_yt_y, r_x^2t_y^{-1}, m_yt_z, r_x^2t_z^{-1}, m_yt_z^{-1}$
		2055	H_{365}	1	m_z	$r_z^2t_x, it_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_yt_y^{-1}, m_yt_z, r_x^2t_z^{-1}, m_yt_z^{-1}$
		2056	H_{365}	1	m_z	$r_z^2t_x, it_x^{-1}, r_x^2t_y, m_yt_y, m_yt_y^{-1}, m_yt_z, r_x^2t_z^{-1}, m_yt_z^{-1}$
		2057	H_{350}	1	m_z	$it_x, it_x^{-1}, r_z^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, t_z, m_zt_z^{-1}, t_z^{-1}$
		2058	H_{350}	1	m_z	$r_z^2t_x, it_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, t_z, m_zt_z^{-1}, t_z^{-1}$
		2059	H_{350}	1	m_z	$r_z^2t_x, it_x^{-1}, r_x^2t_y, m_yt_y, r_x^2t_y^{-1}, t_z, m_zt_z^{-1}, t_z^{-1}$
		2060	H_{370}	1	m_z	$r_z^2t_x, r_y^2t_x^{-1}, m_xt_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_yt_z, r_x^2t_z^{-1}, m_yt_z^{-1}$
		2061	H_{359}	1	m_z	$it_x, r_y^2t_x^{-1}, m_xt_x^{-1}, m_yt_y, r_x^2t_y^{-1}, t_z, m_zt_z^{-1}, t_z^{-1}$
		2062	H_{541}	1	r_z^2	$r_z^2r_xt_x, r_y^2r_xt_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, m_zt_z, it_z^{-1}, m_zt_z^{-1}$
		2063	H_{541}	1	r_z^2	$r_xt_x, r_x^{-1}t_x^{-1}, m_xt_y, m_xt_y^{-1}, m_yt_y^{-1}, m_zt_z, it_z^{-1}, m_zt_z^{-1}$
	[9, 36, 77, 132, 204, 292, 396, 516, 652, 804]					
		2064	H_{370}	1	m_z	$it_x, r_y^2t_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, m_yt_z, r_x^2t_z^{-1}, m_yt_z^{-1}$
		2065	H_{370}	1	m_z	$it_x, r_y^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_yt_y^{-1}, m_yt_z, r_x^2t_z^{-1}, m_yt_z^{-1}$
		2066	H_{359}	1	m_z	$it_x, r_y^2t_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, t_z, m_zt_z^{-1}, t_z^{-1}$
	[9, 36, 77, 133, 204, 292, 396, 516, 652, 804]					
		2067	H_{343}	1	m_z	$r_z^2t_x, r_y^2r_zt_x^{-1}, it_y, r_z^2t_y, r_y^2r_zt_y^{-1}, t_z, m_zt_z^{-1}, t_z^{-1}$
	[9, 36, 78, 133, 204, 292, 396, 516, 652, 804]					
		2068	H_{382}	1	m_z	$r_y^2t_x, m_xt_x, m_zr_z^{-1}t_x^{-1}, m_zr_zt_y, r_x^2t_y^{-1}, m_xr_zt_z, r_y^2r_zt_z^{-1}, m_xr_zt_z^{-1}$
		2069	H_{382}	1	m_z	$r_y^2t_x, m_xt_x, m_zr_z^{-1}t_x^{-1}, m_zr_zt_y, m_yt_y^{-1}, m_xr_zt_z, r_y^2r_zt_z^{-1}, m_xr_zt_z^{-1}$
		2070	H_{377}	1	m_z	$r_y^2t_x, m_xt_x, m_zr_z^{-1}t_x^{-1}, m_zr_zt_y, r_x^2t_y^{-1}, t_z, m_zt_z^{-1}, t_z^{-1}$
	[9, 37, 76, 132, 204, 292, 396, 516, 652, 804]					
		2071	H_{683}	$\langle m_x\rangle$	r_z^2	$it_x, r_x^2t_x^{-1}, r_y^2t_y, r_x^2t_y^{-1}, r_y^2t_y^{-1}, r_x^2t_z, r_x^2t_z^{-1}, r_y^2t_z^{-1}$
		2072	H_{683}	$\langle m_x\rangle$	r_z^2	$it_x, r_x^2t_x^{-1}, r_y^2t_y, r_x^2t_y^{-1}, r_y^2t_y^{-1}, r_y^2t_z, r_x^2t_z^{-1}, r_y^2t_z^{-1}$
		2073	H_{332}	1	m_z	$r_z^2t_x, it_x^{-1}, it_y, it_y^{-1}, r_z^2t_y^{-1}, r_z^2t_z, it_z^{-1}, r_z^2t_z^{-1}$
		2074	H_{332}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, r_z^2t_y, it_y^{-1}, r_z^2t_z, it_z^{-1}, r_z^2t_z^{-1}$
		2075	H_{682}	$\langle m_x\rangle$	r_z^2	$it_x, r_x^2t_x^{-1}, m_xt_y, m_yt_y^{-1}, m_xt_y^{-1}, r_x^2t_z, r_y^2t_z, r_x^2t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2076	H_{361}	1	m_z	$r_z^2t_x, it_x^{-1}, it_y, it_y^{-1}, r_z^2t_y^{-1}, m_xt_z, r_y^2t_z^{-1}, m_xt_z^{-1}$
		2077	H_{344}	1	m_z	$it_x, it_x^{-1}, r_z^2t_x^{-1}, it_y, it_y^{-1}, m_xr_zt_z, r_y^2r_zt_z^{-1}, m_xr_zt_z^{-1}$
		2078	H_{344}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, it_y, it_y^{-1}, m_xr_zt_z, r_y^2r_zt_z^{-1}, m_xr_zt_z^{-1}$
		2079	H_{344}	1	m_z	$r_z^2t_x, it_x^{-1}, it_y, it_y^{-1}, r_z^2t_y^{-1}, m_xr_zt_z, r_y^2r_zt_z^{-1}, m_xr_zt_z^{-1}$
		2080	H_{344}	1	m_z	$r_z^2t_x, it_x^{-1}, it_y, r_z^2t_y, it_y^{-1}, m_xr_zt_z, r_y^2r_zt_z^{-1}, m_xr_zt_z^{-1}$
		2081	H_{344}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, r_z^2t_y, it_y^{-1}, m_xr_zt_z, r_y^2r_zt_z^{-1}, m_xr_zt_z^{-1}$
		2082	H_{344}	1	m_z	$it_x, it_x^{-1}, r_z^2t_x^{-1}, it_y, r_z^2t_y^{-1}, m_xr_zt_z, r_y^2r_zt_z^{-1}, m_xr_zt_z^{-1}$
		2083	H_{344}	1	m_z	$it_x, it_x^{-1}, r_z^2t_x^{-1}, r_z^2t_y, r_z^2t_y^{-1}, m_xr_zt_z, r_y^2r_zt_z^{-1}, m_xr_zt_z^{-1}$
		2084	H_{682}	$\langle m_x\rangle$	r_z^2	$it_x, r_x^2t_x^{-1}, m_xt_y, m_yt_y^{-1}, m_xt_y^{-1}, r_x^2t_z, r_x^2t_z^{-1}, r_y^2t_z^{-1}$
		2085	H_{683}	$\langle m_x\rangle$	r_z^2	$it_x, r_x^2t_x^{-1}, r_y^2t_y, r_x^2t_y^{-1}, r_y^2t_y^{-1}, r_x^2t_z, r_y^2t_z, r_x^2t_z^{-1}$
		2086	H_{683}	$\langle m_x\rangle$	r_z^2	$it_x, r_x^2t_x^{-1}, r_y^2t_y, r_x^2t_y^{-1}, r_y^2t_y^{-1}, r_x^2t_z, r_y^2t_z, r_y^2t_z^{-1}$
		2087	H_{364}	1	m_z	$it_x, it_x^{-1}, r_z^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, r_z^2t_z, it_z^{-1}, r_z^2t_z^{-1}$
		2088	H_{364}	1	m_z	$r_z^2t_x, it_x^{-1}, r_z^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, r_z^2t_z, it_z^{-1}, r_z^2t_z^{-1}$
		2089	H_{364}	1	m_z	$r_z^2t_x, it_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, r_z^2t_z, it_z^{-1}, r_z^2t_z^{-1}$
		2090	H_{364}	1	m_z	$r_z^2t_x, it_x^{-1}, r_x^2t_y, m_yt_y, r_x^2t_y^{-1}, r_z^2t_z, it_z^{-1}, r_z^2t_z^{-1}$
		2091	H_{364}	1	m_z	$r_z^2t_x, it_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_yt_y^{-1}, r_z^2t_z, it_z^{-1}, r_z^2t_z^{-1}$
		2092	H_{364}	1	m_z	$r_z^2t_x, it_x^{-1}, r_x^2t_y, m_yt_y, m_yt_y^{-1}, r_z^2t_z, it_z^{-1}, r_z^2t_z^{-1}$
		2093	H_{372}	1	m_z	$r_z^2t_x, it_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, m_yt_y^{-1}, m_xt_z, r_y^2t_z^{-1}, m_xt_z^{-1}$
		2094	H_{372}	1	m_z	$r_z^2t_x, it_x^{-1}, r_x^2t_y, m_yt_y, r_x^2t_y^{-1}, m_xt_z, r_y^2t_z^{-1}, m_xt_z^{-1}$
		2095	H_{365}	1	m_z	$it_x, it_x^{-1}, r_z^2t_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_yt_z, r_x^2t_z^{-1}, m_yt_z^{-1}$
		2096	H_{370}	1	m_z	$it_x, r_y^2t_x^{-1}, m_xt_x^{-1}, m_yt_y, r_x^2t_y^{-1}, m_yt_z, r_x^2t_z^{-1}, m_yt_z^{-1}$
		2097	H_{453}	1	r_z^2	$m_zt_x, it_x^{-1}, m_zt_x^{-1}, it_y, it_y^{-1}, r_y^2r_zt_z, r_y^2r_zt_z^{-1}, r_x^2r_zt_z^{-1}$
		2098	H_{539}	1	r_z^2	$it_x, it_x^{-1}, r_y^2t_y, r_y^2t_y^{-1}, r_x^2t_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, r_y^2r_zt_z^{-1}$
		2099	H_{539}	1	r_z^2	$m_zt_x, it_x^{-1}, m_zt_x^{-1}, r_y^2t_y, r_y^2t_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, r_y^2r_zt_z^{-1}$
		2100	H_{452}	1	r_z^2	$t_x, r_z^2t_x^{-1}, t_x^{-1}, r_z^2t_y, r_z^2t_y^{-1}, r_y^2r_zt_z, it_z^{-1}, m_zt_z^{-1}$
		2101	H_{503}	1	r_z^2	$t_x, r_z^2t_x^{-1}, t_x^{-1}, r_z^2t_y, r_z^2t_y^{-1}, r_y^2r_zt_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
		2102	H_{438}	1	r_z^2	$t_x, r_z^2t_x^{-1}, t_x^{-1}, r_z^2t_y, r_z^2t_y^{-1}, r_y^2r_zt_z, r_y^2r_zt_z^{-1}, r_x^2r_zt_z^{-1}$
		2103	H_{495}	1	r_z^2	$t_x, r_z^2t_x^{-1}, t_x^{-1}, r_z^2t_y, r_z^2t_y^{-1}, m_zr_z^{-1}t_z, m_zr_zt_z, r_y^2r_zt_z^{-1}$
		2104	H_{511}	1	r_z^2	$r_z^2r_xt_x, r_y^2r_xt_x^{-1}, r_y^2t_y, r_y^2t_y^{-1}, r_x^2t_y^{-1}, r_x^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
		2105	H_{511}	1	r_z^2	$r_z^2r_xt_x, r_xt_x, r_x^{-1}t_x^{-1}, r_y^2t_y, r_y^2t_y^{-1}, r_y^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
		2106	H_{511}	1	r_z^2	$r_z^2r_xt_x, r_xt_x, r_x^{-1}t_x^{-1}, r_y^2t_y, r_y^2t_y^{-1}, r_x^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
		2107	H_{511}	1	r_z^2	$r_z^2r_xt_x, r_xt_x, r_x^{-1}t_x^{-1}, r_x^2t_y, r_x^2t_y^{-1}, r_y^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$
		2108	H_{511}	1	r_z^2	$r_xt_x, r_x^{-1}t_x^{-1}, r_y^2t_y, r_y^2t_y^{-1}, r_x^2t_y^{-1}, r_x^2t_z, r_y^2t_z^{-1}, r_x^2t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2109	H_{505}	1	r_z^2	$r_x^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		2110	H_{505}	1	r_z^2	$r_x^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_y^2 r_z t_z, r_x^2 r_z t_z, r_y^2 r_z t_z^{-1}$
	[9, 37, 77, 133, 204, 292, 396, 516, 652, 804]					
		2111	H_{347}	1	m_z	$it_x, r_y^2 r_z t_x^{-1}, it_y, r_z^2 t_y, r_y^2 r_z t_y^{-1}, m_x r_z^{-1} t_z, r_x^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		2112	H_{347}	1	m_z	$r_z^2 t_x, r_y^2 r_z t_x^{-1}, it_y, r_z^2 t_y, r_y^2 r_z t_y^{-1}, m_x r_z^{-1} t_z, r_x^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		2113	H_{343}	1	m_z	$it_x, r_y^2 r_z t_x^{-1}, it_y, r_z^2 t_y, r_y^2 r_z t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$

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[6, 18, 38, 66, 102, 146, 198, 258, 326, 402]
2114*,
[6, 20, 46, 82, 128, 186, 254, 332, 422, 522]
2115*,
[6, 20, 46, 84, 134, 194, 263, 343, 434, 535]
2116*,
[6, 20, 47, 85, 132, 191, 261, 340, 431, 533]
2117*,
[6, 20, 47, 87, 137, 195, 263, 343, 434, 535]
2118*,
[6, 22, 50, 90, 142, 206, 282, 370, 470, 582]
2119*,
[6, 22, 52, 94, 148, 214, 292, 382, 484, 598]
2120*,
[6, 22, 54, 98, 152, 218, 296, 386, 488, 602]
2123*,
[6, 22, 54, 99, 156, 227, 311, 408, 519, 643]
2121*, 2122*,
[6, 22, 56, 100, 152, 218, 296, 386, 488, 602]
2124*,
[6, 24, 58, 105, 166, 240, 328, 430, 545, 675]
2125*, 2126*,
[6, 24, 59, 106, 166, 240, 328, 430, 545, 675]
2127*, 2128*,
[6, 26, 62, 109, 172, 249, 338, 444, 564, 695]
2129*,

	[7, 23, 50, 87, 135, 194, 263, 343, 434, 535]					
		2114	H_{751}	$\langle m_y, r_z^2 \rangle$	i	$r_z^2 t_x, r_z^2 t_x^{-1}, r_y^2 r_x t_y, m_x r_x t_y^{-1}, m_x r_x t_z^{-1}, r_y^2 r_x t_z^{-1}$
	[7, 25, 56, 98, 154, 222, 301, 395, 500, 616]					
		2115	H_{459}	1	r_z^2	$m_x r_z t_x^{-1}, m_x r_z^{-1} t_x^{-1}, m_x r_z^{-1} t_y, m_x r_z t_y^{-1}, r_y^2 r_z t_z, m_z t_z^{-1}$
	[7, 25, 56, 100, 158, 226, 306, 401, 506, 623]					
		2116	H_{533}	1	r_z^2	$m_x r_z^{-1} t_x, m_x r_z t_x^{-1}, m_x r_z t_y^{-1}, m_x r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[7, 25, 57, 100, 156, 225, 305, 399, 505, 622]					
		2117	H_{536}	1	r_z^2	$r_z^{-1} t_x^{-1}, r_z t_x^{-1}, r_z t_y, r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, m_z t_z^{-1}$
	[7, 25, 57, 102, 159, 226, 306, 401, 506, 623]					
		2118	H_{512}	1	r_z^2	$r_z t_x, r_z^{-1} t_x^{-1}, r_z^{-1} t_y, r_z t_y, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[7, 27, 58, 105, 163, 236, 321, 421, 532, 659]					
		2119	H_{613}	$\langle m_z \rangle$	r_z^2	$m_x r_z t_x^{-1}, m_x r_z^{-1} t_x^{-1}, m_x r_z^{-1} t_y, m_x r_z t_y^{-1}, r_y^2 r_z t_z, m_x r_z t_z^{-1}$
	[7, 27, 60, 107, 167, 240, 327, 427, 540, 667]					
		2120	H_{627}	$\langle m_z \rangle$	r_z^2	$r_z^{-1} t_x^{-1}, r_z t_x^{-1}, r_z t_y, r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, m_x r_z t_z^{-1}$
	[7, 27, 62, 108, 168, 242, 328, 428, 542, 668]					
		2121	H_{693}	$\langle m_x \rangle$	r_z^2	$r_x^2 r_z t_x, m_z r_z t_x^{-1}, m_z r_z t_y^{-1}, r_x^2 r_z t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}$
		2122	H_{695}	$\langle m_x \rangle$	r_z^2	$m_x r_z^{-1} t_x, r_z t_x^{-1}, r_z t_y^{-1}, m_x r_z^{-1} t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}$
	[7, 27, 62, 109, 169, 242, 329, 429, 542, 669]					
		2123	H_{608}	$\langle r_y^2 \rangle$	r_z^2	$r_y^2 r_x t_x, r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, m_x r_x^{-1} t_z^{-1}$
	[7, 27, 64, 109, 169, 242, 329, 429, 542, 669]					
		2124	H_{600}	$\langle r_y^2 \rangle$	r_z^2	$r_y^2 r_x t_x, r_z^2 r_x t_x^{-1}, r_x^{-1} t_y^{-1}, r_y^2 r_x t_y^{-1}, r_x t_z, r_z^2 r_x t_z^{-1}$
	[7, 29, 64, 113, 176, 251, 342, 446, 563, 696]					
		2125	H_{459}	1	r_z^2	$m_x r_z t_x^{-1}, m_x r_z^{-1} t_x^{-1}, m_x r_z^{-1} t_y, m_x r_z t_y^{-1}, r_y^2 r_z t_z, it_z^{-1}$
		2126	H_{533}	1	r_z^2	$m_x r_z t_x^{-1}, m_x r_z^{-1} t_x^{-1}, m_x r_z^{-1} t_y, m_x r_z t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[7, 29, 65, 113, 176, 251, 342, 446, 563, 696]					
		2127	H_{536}	1	r_z^2	$r_z^{-1} t_x^{-1}, r_z t_x^{-1}, r_z t_y, r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, it_z^{-1}$
		2128	H_{512}	1	r_z^2	$r_z^{-1} t_x^{-1}, r_z t_x^{-1}, r_z t_y, r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[7, 31, 66, 115, 181, 258, 349, 459, 578, 711]					
		2129	H_{751}	$\langle m_y, r_z^2 \rangle$	i	$r_y^2 t_x, m_z t_x^{-1}, r_y^2 r_x t_y, m_x r_x t_y^{-1}, m_x r_x t_z^{-1}, r_y^2 r_x t_z^{-1}$

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[6, 19, 46, 92, 156, 236, 332, 444, 572, 716]
2130*,
[6, 20, 48, 92, 152, 228, 320, 428, 552, 692]
2131*,
[6, 21, 56, 114, 188, 276, 380, 500, 636, 788]
2132*,
[6, 21, 57, 117, 193, 283, 388, 508, 644, 796]
2133*,
[6, 21, 57, 119, 197, 287, 392, 512, 648, 800]
2134*,
[6, 22, 56, 108, 176, 260, 360, 476, 608, 756]
2135*,
[6, 22, 57, 111, 182, 271, 376, 496, 632, 784]

Nbr.	gr	№	H_i	L	m	X
		2136*,				
	[6, 22, 61, 121, 195, 285, 390, 510, 646, 798]	2137*,				
	[6, 23, 62, 120, 192, 280, 384, 504, 640, 792]	2138*,				
	[6, 23, 62, 122, 196, 284, 388, 508, 644, 796]	2139*,				
	[6, 23, 62, 124, 196, 284, 388, 508, 644, 796]	2140*,				
	[6, 23, 64, 126, 200, 288, 392, 512, 648, 800]	2141*,				
	[6, 23, 66, 128, 201, 290, 393, 512, 648, 800]	2142*,				
	[6, 23, 67, 129, 200, 288, 392, 512, 648, 800]	2143*,				
	[6, 24, 60, 112, 180, 264, 364, 480, 612, 760]	2144*,				
	[6, 24, 62, 120, 194, 282, 386, 506, 642, 794]	2145*,				
	[6, 24, 63, 120, 192, 280, 384, 504, 640, 792]	2146*,				
	[6, 24, 65, 123, 194, 282, 386, 506, 642, 794]	2147*,				
	[6, 24, 65, 124, 195, 282, 386, 506, 642, 794]	2148*,				
	[6, 24, 65, 124, 196, 284, 388, 508, 644, 796]	2149*,				
	[6, 25, 68, 128, 200, 288, 392, 512, 648, 800]	2150*, 2151*,				
	[6, 25, 69, 129, 200, 288, 392, 512, 648, 800]	2152*,				
	[6, 26, 67, 124, 196, 284, 388, 508, 644, 796]	2153*,				
	[6, 26, 68, 125, 196, 284, 388, 508, 644, 796]	2154*,				
	[6, 26, 68, 126, 198, 286, 390, 510, 646, 798]	2155*,				
	[6, 27, 70, 128, 200, 288, 392, 512, 648, 800]	2156*,				
	[6, 28, 70, 126, 198, 286, 390, 510, 646, 798]	2157*,				
	[7, 24, 58, 110, 178, 262, 362, 478, 610, 758]	2130	H_{651}	$\langle m_x \rangle$	$r_y^2 r_x$	$m_x t_x, m_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_z, m_x r_x t_z, m_y t_z^{-1}$
	[7, 25, 59, 109, 175, 257, 355, 469, 599, 745]	2131	H_{646}	$\langle m_x \rangle$	$r_y^2 r_x$	$m_x t_x, m_x t_x^{-1}, m_x t_y, m_z r_x t_y^{-1}, m_x t_y^{-1}, m_z r_x t_z$
	[7, 26, 66, 124, 196, 284, 388, 508, 644, 796]	2132	H_{581}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_y t_z, r_x t_z, m_y t_z^{-1}$
	[7, 26, 67, 126, 199, 288, 392, 512, 648, 800]	2133	H_{581}	1	$m_z r_x$	$it_x, m_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_y t_z, r_x t_z, m_y t_z^{-1}$
	[7, 26, 67, 128, 201, 290, 394, 514, 650, 802]	2134	H_{423}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 t_x^{-1}, m_x r_x t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, m_y t_z^{-1}$
	[7, 27, 65, 119, 189, 275, 377, 495, 629, 779]	2135	H_{552}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1}, m_z r_x t_z$
	[7, 27, 66, 121, 193, 282, 386, 506, 642, 794]	2136	H_{552}	1	$m_z r_x$	$it_x, m_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1}, m_z r_x t_z$
	[7, 27, 70, 127, 200, 289, 393, 513, 649, 801]	2137	H_{406}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 t_x^{-1}, t_y, r_z^2 r_x t_y^{-1}, t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[7, 28, 70, 126, 198, 286, 390, 510, 646, 798]	2138	H_{653}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_z, m_x r_x t_z, m_y t_z^{-1}$
	[7, 28, 70, 128, 200, 288, 392, 512, 648, 800]	2139	H_{579}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_y t_z, r_x t_z, m_y t_z^{-1}$
	[7, 28, 70, 130, 198, 290, 390, 514, 646, 802]	2140	H_{577}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_z^2 t_z, m_x r_x t_z, r_z^2 t_z^{-1}$
	[7, 28, 72, 130, 202, 290, 394, 514, 650, 802]	2141	H_{653}	$\langle m_x \rangle$	$r_y^2 r_x$	$it_x, r_x^2 t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_z, m_x r_x t_z, m_y t_z^{-1}$
	[7, 28, 74, 130, 203, 291, 394, 514, 650, 802]	2142	H_{573}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_z^2 t_z, m_x r_x t_z, r_z^2 t_z^{-1}$
	[7, 28, 75, 130, 202, 290, 394, 514, 650, 802]	2143	H_{575}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_x^{-1} t_y^{-1}, m_y t_z, r_x t_z, m_y t_z^{-1}$
	[7, 29, 67, 121, 191, 277, 379, 497, 631, 781]	2144	H_{647}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, m_x t_y, m_z r_x t_y^{-1}, m_x t_y^{-1}, m_z r_x t_z$
	[7, 29, 69, 127, 199, 287, 391, 511, 647, 799]	2145	H_{647}	$\langle m_x \rangle$	$r_y^2 r_x$	$it_x, r_x^2 t_x^{-1}, m_x t_y, m_z r_x t_y^{-1}, m_x t_y^{-1}, m_z r_x t_z$
	[7, 29, 70, 126, 198, 286, 390, 510, 646, 798]	2146	H_{546}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1}, m_z r_x t_z$
	[7, 29, 72, 127, 199, 287, 391, 511, 647, 799]	2147	H_{549}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1}, m_z r_x t_z$
	[7, 29, 72, 128, 199, 287, 391, 511, 647, 799]	2148	H_{554}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, m_x t_y, r_y^2 r_x t_y^{-1}, m_x t_y^{-1}, r_y^2 r_x t_z$
	[7, 29, 72, 128, 200, 288, 392, 512, 648, 800]	2149	H_{548}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_y, r_y^2 r_x t_y^{-1}, m_x t_y^{-1}, r_y^2 r_x t_z$
	[7, 30, 74, 130, 202, 290, 394, 514, 650, 802]	2150	H_{423}	1	$r_z^2 r_x$	$r_x^{-1} t_x, r_x t_x^{-1}, m_x r_x t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, m_y t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2151	H_{581}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_y t_z, r_x t_z, m_y t_z^{-1}$
	[7, 30, 75, 130, 202, 290, 394, 514, 650, 802]					
		2152	H_{581}	1	$m_z r_x$	$i t_x, r_y^2 r_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_y t_z, r_x t_z, m_y t_z^{-1}$
	[7, 31, 72, 128, 200, 288, 392, 512, 648, 800]					
		2153	H_{552}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1}, m_z r_x t_z$
	[7, 31, 73, 128, 200, 288, 392, 512, 648, 800]					
		2154	H_{552}	1	$m_z r_x$	$i t_x, r_y^2 r_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1}, m_z r_x t_z$
	[7, 31, 73, 129, 201, 289, 393, 513, 649, 801]					
		2155	H_{406}	1	$r_z^2 r_x$	$r_x^{-1} t_x, r_x t_x^{-1}, t_y, r_z^2 r_x t_y^{-1}, t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[7, 32, 74, 130, 202, 290, 394, 514, 650, 802]					
		2156	H_{651}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_z, m_x r_x t_z, m_y t_z^{-1}$
	[7, 33, 73, 129, 201, 289, 393, 513, 649, 801]					
		2157	H_{646}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, m_x t_y, m_z r_x t_y^{-1}, m_x t_y^{-1}, m_z r_x t_z$
39A						
	[8, 28, 64, 116, 184, 268, 368, 484, 616, 764]					
		2158*,				
	[8, 29, 67, 121, 191, 277, 379, 497, 631, 781]					
		2159*,				
	[8, 29, 68, 124, 196, 284, 388, 508, 644, 796]					
		2160*, 2161*, 2162*,				
	[8, 29, 68, 125, 198, 286, 390, 510, 646, 798]					
		2163*,				
	[8, 29, 68, 125, 199, 288, 392, 512, 648, 800]					
		2164*,				
	[8, 30, 70, 126, 198, 286, 390, 510, 646, 798]					
		2165*,				
	[8, 30, 71, 128, 200, 288, 392, 512, 648, 800]					
		2166*, 2167*, 2168*, 2169*, 2170*, 2171*,				
	[8, 30, 71, 129, 203, 292, 396, 516, 652, 804]					
		2172*,				
	[8, 30, 72, 130, 202, 290, 394, 514, 650, 802]					
		2173*,				
	[8, 31, 72, 128, 200, 288, 392, 512, 648, 800]					
		2174*, 2175*, 2176*, 2177*, 2178*, 2179*, 2180*, 2181*, 2182*, 2183*,				
	[8, 31, 73, 130, 202, 290, 394, 514, 650, 802]					
		2184*, 2185*, 2186*, 2187*,				
	[8, 31, 73, 131, 204, 292, 396, 516, 652, 804]					
		2188*,				
	[8, 31, 74, 131, 202, 290, 394, 514, 650, 802]					
		2189*,				
	[8, 31, 74, 132, 204, 292, 396, 516, 652, 804]					
		2190*, 2191*, 2192*, 2193*, 2194*, 2195*,				
	[8, 32, 74, 130, 202, 290, 394, 514, 650, 802]					
		2196*, 2197*, 2198*, 2199*, 2200*, 2201*,				
	[8, 32, 75, 132, 204, 292, 396, 516, 652, 804]					
		2202*, 2203*, 2204*, 2205*, 2206*, 2207*, 2208*, 2209*, 2210*, 2211*, 2212*, 2213*,				
	[8, 32, 76, 133, 204, 292, 396, 516, 652, 804]					
		2214*,				
	[8, 33, 76, 132, 204, 292, 396, 516, 652, 804]					
		2215*, 2216*, 2217*, 2218*, 2219*, 2220*, 2221*, 2222*, 2223*, 2224*, 2225*, 2226*, 2227*, 2228*, 2229*, 2230*, 2231*,				
	[9, 31, 69, 123, 193, 279, 381, 499, 633, 783]					
		2158	H_{745}	$\langle m_z r_x^{-1}, r_z^2 r_x \rangle$	i	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, m_x t_y, m_z r_x t_y^{-1}, m_x t_y^{-1}, r_x^2 t_z,$ $r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
	[9, 32, 71, 126, 197, 284, 387, 506, 641, 792]					
		2159	H_{305}	1	i	$t_x, i t_x^{-1}, t_x^{-1}, t_y, t_y^{-1}, m_x r_z^{-1} t_z,$ $r_y^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
	[9, 32, 72, 128, 200, 288, 392, 512, 648, 800]					
		2160	H_{615}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $m_z t_z, t_z^{-1}$
		2161	H_{747}	$\langle m_z r_x^{-1}, r_z^2 r_x \rangle$	i	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, r_y^2 t_y, m_x r_x^{-1} t_y^{-1}, r_y^2 t_y^{-1}, m_x r_x^{-1} t_z,$ $r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
		2162	H_{460}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1},$ $r_y^2 t_z, m_z t_z^{-1}$
	[9, 32, 72, 129, 201, 289, 393, 513, 649, 801]					
		2163	H_{504}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_y t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} t_y^{-1},$ t_z, t_z^{-1}
	[9, 32, 72, 129, 202, 290, 394, 514, 650, 802]					
		2164	H_{503}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1},$ $r_x^2 r_z t_z, r_y^2 t_z^{-1}$
	[9, 33, 73, 129, 201, 289, 393, 513, 649, 801]					
		2165	H_{614}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1},$ $r_y^2 t_z, m_x t_z^{-1}$
	[9, 33, 74, 130, 202, 290, 394, 514, 650, 802]					
		2166	H_{629}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1}, r_x^2 t_z,$ $m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
		2167	H_{461}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $r_y^2 t_z, m_z t_z^{-1}$
		2168	H_{461}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $r_x^2 t_z, m_z t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2169	H_{483}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, m_z t_z^{-1}$
		2170	H_{531}	1	r_z^2	$m_x r_z t_x, m_x r_z t_x^{-1}, m_x r_z^{-1} t_x^{-1}, m_x r_z t_y, m_x r_z^{-1} t_y, m_x r_z t_y^{-1}, r_y^2 t_z, m_z t_z^{-1}$
		2171	H_{533}	1	r_z^2	$m_x r_z t_x, m_x r_z t_x^{-1}, m_x r_z^{-1} t_x^{-1}, m_x r_z t_y, m_x r_z^{-1} t_y, m_x r_z t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[9, 33, 74, 131, 204, 292, 396, 516, 652, 804]					
		2172	H_{529}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[9, 33, 75, 131, 203, 291, 395, 515, 651, 803]					
		2173	H_{669}	$\langle r_y^2 r_x \rangle$	$r_z^2 r_x$	$r_y^2 t_x, r_z^2 t_x^{-1}, t_y, r_x^2 t_y^{-1}, t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}, r_y^2 r_x t_z^{-1}$
	[9, 34, 74, 130, 202, 290, 394, 514, 650, 802]					
		2174	H_{616}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, m_x t_z^{-1}$
		2175	H_{616}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z, m_y t_z^{-1}$
		2176	H_{618}	$\langle m_z \rangle$	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, m_x t_z^{-1}$
		2177	H_{308}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, m_z t_y, m_z t_y^{-1}, m_x r_z^{-1} t_z, r_y^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		2178	H_{323}	1	i	$r_z^2 t_x, r_z^2 t_x^{-1}, m_x r_y t_y, r_x^2 r_y t_y^{-1}, m_x r_y t_y^{-1}, m_x t_z, m_x t_z^{-1}, r_x^2 t_z^{-1}$
		2179	H_{323}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, m_x r_y t_y, r_x^2 r_y t_y^{-1}, m_x r_y t_y^{-1}, m_x t_z, m_x t_z^{-1}$
		2180	H_{326}	1	i	$m_z r_x t_x, r_z^2 r_x t_x^{-1}, m_z r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
		2181	H_{540}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_y t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} t_y^{-1}, m_y t_z, m_y t_z^{-1}$
		2182	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}$
		2183	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, m_z t_z^{-1}$
	[9, 34, 75, 131, 203, 291, 395, 515, 651, 803]					
		2184	H_{433}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1}, m_z t_z, i t_z^{-1}$
		2185	H_{462}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
		2186	H_{460}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 t_z, i t_z^{-1}$
		2187	H_{503}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[9, 34, 75, 132, 204, 292, 396, 516, 652, 804]					
		2188	H_{540}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_y t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} t_y^{-1}, m_x t_z, m_x t_z^{-1}$
	[9, 34, 76, 131, 203, 291, 395, 515, 651, 803]					
		2189	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, i t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}$
	[9, 34, 76, 132, 204, 292, 396, 516, 652, 804]					
		2190	H_{675}	$\langle r_y^2 r_x \rangle$	$r_z^2 r_x$	$r_y^2 t_x, r_z^2 t_x^{-1}, m_x r_x^{-1} t_y, m_z t_y^{-1}, m_y t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, m_x r_x t_z^{-1}$
		2191	H_{468}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}$
		2192	H_{469}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
		2193	H_{640}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_z t_y, r_x^{-1} t_y^{-1}, m_z t_y^{-1}, r_x^{-1} t_z, m_z t_z, r_x^{-1} t_z^{-1}$
		2194	H_{535}	1	r_z^2	$r_z t_x, r_z^{-1} t_x^{-1}, r_z t_x^{-1}, r_z^{-1} t_y, r_z t_y, r_z^{-1} t_y^{-1}, r_y^2 t_z, m_z t_z^{-1}$
		2195	H_{512}	1	r_z^2	$r_z t_x, r_z^{-1} t_x^{-1}, r_z t_x^{-1}, r_z^{-1} t_y, r_z t_y, r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[9, 35, 75, 131, 203, 291, 395, 515, 651, 803]					
		2196	H_{745}	$\langle m_z r_x^{-1}, r_z^2 r_x \rangle$	i	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, m_x t_y, m_z r_x t_y^{-1}, m_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
		2197	H_{631}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_y, r_y^2 r_x t_y^{-1}, m_x t_y^{-1}, i t_z, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
		2198	H_{674}	$\langle r_y^2 r_x \rangle$	$r_z^2 r_x$	$r_y^2 t_x, r_z^2 t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_x t_y^{-1}, m_x t_z, m_z r_x^{-1} t_z^{-1}, m_z r_x t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2199	H_{624}	$\langle m_z \rangle$	r_z^2	$m_x r_z t_x, m_x r_z t_x^{-1}, m_x r_z^{-1} t_x^{-1}, m_x r_z t_y, m_x r_z^{-1} t_y, m_x r_z t_y^{-1}$, $r_y^2 t_z, m_x t_z^{-1}$
		2200	H_{531}	1	r_z^2	$m_x r_z t_x, m_x r_z t_x^{-1}, m_x r_z^{-1} t_x^{-1}, m_x r_z t_y, m_x r_z^{-1} t_y, m_x r_z t_y^{-1}$, $r_y^2 t_z, i t_z^{-1}$
		2201	H_{533}	1	r_z^2	$m_x r_z^{-1} t_x, m_x r_z t_x^{-1}, m_x r_z^{-1} t_x^{-1}, m_x r_z^{-1} t_y, m_x r_z t_y^{-1}, m_x r_z^{-1} t_y^{-1}$, $r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[9, 35, 76, 132, 204, 292, 396, 516, 652, 804]					
		2202	H_{475}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}$, $m_z t_z, i t_z^{-1}$
		2203	H_{485}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}$, $r_x^2 t_z, r_y^2 t_z^{-1}$
		2204	H_{466}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}$, $m_z t_z, i t_z^{-1}$
		2205	H_{427}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}$, $r_x^2 t_z, r_y^2 t_z^{-1}$
		2206	H_{461}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}$, $r_y^2 t_z, i t_z^{-1}$
		2207	H_{461}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}$, $r_x^2 t_z, i t_z^{-1}$
		2208	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}$, $m_z t_z, i t_z^{-1}$
		2209	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1}$, $m_z t_z, i t_z^{-1}$
		2210	H_{486}	1	r_z^2	$r_x^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}$, $m_z t_z, i t_z^{-1}$
		2211	H_{479}	1	r_z^2	$r_x^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}$, $r_x^2 t_z, r_y^2 t_z^{-1}$
		2212	H_{483}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}$, $r_y^2 t_z, i t_z^{-1}$
		2213	H_{529}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}$, $r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[9, 35, 77, 132, 204, 292, 396, 516, 652, 804]					
		2214	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_x^{-1} t_z$, $m_z t_z, m_x r_x^{-1} t_z^{-1}$
	[9, 36, 76, 132, 204, 292, 396, 516, 652, 804]					
		2215	H_{615}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}$, $i t_z, r_z^2 t_z^{-1}$
		2216	H_{305}	1	i	$t_x, i t_x^{-1}, t_x^{-1}, i t_y, i t_y^{-1}, m_x r_z^{-1} t_z$, $r_y^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		2217	H_{747}	$\langle m_z r_x^{-1}, r_z^2 r_x \rangle$	i	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, r_y^2 t_y, m_x r_x^{-1} t_y^{-1}, r_y^2 t_y^{-1}, m_x r_x^{-1} t_z$, $r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
		2218	H_{308}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_z^{-1} t_z$, $r_y^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		2219	H_{326}	1	i	$m_z r_x t_x, r_z^2 r_x t_x^{-1}, m_z r_x t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}$, $r_z^2 t_z, r_z^2 t_z^{-1}$
		2220	H_{473}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}$, $m_z t_z, i t_z^{-1}$
		2221	H_{474}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}$, $r_x^2 t_z, r_y^2 t_z^{-1}$
		2222	H_{504}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_y t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} t_y^{-1}$, $r_z^2 t_z, r_z^2 t_z^{-1}$
		2223	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}$, $r_x^2 t_z, r_y^2 t_z^{-1}$
		2224	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_y^2 t_y, r_x^2 t_y, r_y^2 t_y^{-1}$, $r_x^2 t_z, r_y^2 t_z^{-1}$
		2225	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}$, $r_x^2 t_z, r_x^2 t_z^{-1}$
		2226	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}$, $i t_z, i t_z^{-1}$
		2227	H_{639}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_y^2 t_y, m_x r_x^{-1} t_y^{-1}, r_y^2 t_y^{-1}, m_x r_x^{-1} t_z$, $r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
		2228	H_{671}	$\langle r_y^2 r_x \rangle$	$r_z^2 r_x$	$r_y^2 t_x, r_z^2 t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_y^2 t_y^{-1}, r_z^2 t_z$, $r_x t_z^{-1}, r_x^{-1} t_z^{-1}$
		2229	H_{626}	$\langle m_z \rangle$	r_z^2	$r_z t_x, r_z^{-1} t_x^{-1}, r_z t_x^{-1}, r_z^{-1} t_y, r_z t_y, r_z^{-1} t_y^{-1}$, $r_y^2 t_z, m_x t_z^{-1}$
		2230	H_{535}	1	r_z^2	$r_z t_x, r_z^{-1} t_x^{-1}, r_z t_x^{-1}, r_z^{-1} t_y, r_z t_y, r_z^{-1} t_y^{-1}$, $r_y^2 t_z, i t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2231	H_{512}	1	r_z^2	$r_z^{-1} t_x, r_z^{-1} t_x^{-1}, r_z t_x^{-1}, r_z t_y, r_z^{-1} t_y^{-1}, r_z t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
39B						
	[8, 31, 74, 132, 204, 292, 396, 516, 652, 804]					
		2232*,				
	[8, 33, 78, 134, 204, 292, 396, 516, 652, 804]					
		2233*,				
	[8, 34, 78, 133, 204, 292, 396, 516, 652, 804]					
		2234*, 2235*,				
	[8, 35, 78, 132, 204, 292, 396, 516, 652, 804]					
		2236*, 2237*,				
	[9, 34, 76, 132, 204, 292, 396, 516, 652, 804]					
		2232	H_{779}	$\langle i, r_x^2, r_z^2 \rangle$	$r_z^2 r_x$	$m_x t_x, t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y, t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z, m_x r_x t_z^{-1}$
	[9, 36, 78, 132, 204, 292, 396, 516, 652, 804]					
		2233	H_{766}	$\langle m_y, r_x^2 \rangle$	$m_z r_x^{-1}$	$r_z^2 r_x t_x, m_x t_x^{-1}, m_y t_y, r_x^{-1} t_y, t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, r_x t_z^{-1}$
	[9, 37, 77, 132, 204, 292, 396, 516, 652, 804]					
		2234	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, i t_y^{-1}, r_z^2 r_x t_y^{-1}, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}$
		2235	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
	[9, 38, 76, 132, 204, 292, 396, 516, 652, 804]					
		2236	H_{779}	$\langle i, r_x^2, r_z^2 \rangle$	$r_z^2 r_x$	$m_z r_x^{-1} t_x, r_z^2 r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y, t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z, m_x r_x t_z^{-1}$
		2237	H_{768}	$\langle m_y, r_x^2 \rangle$	$m_z r_x^{-1}$	$r_z^2 r_x t_x, m_x t_x^{-1}, r_z^2 t_y, m_x r_x^{-1} t_y, m_x t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z, m_x r_x t_z^{-1}$
40						
	[9, 32, 72, 128, 200, 288, 392, 512, 648, 800]					
		2238*, 2239*, 2240*,				
	[9, 33, 75, 132, 204, 292, 396, 516, 652, 804]					
		2241*, 2242*, 2243*, 2244*, 2245*, 2246*, 2247*, 2248*,				
	[9, 34, 76, 132, 204, 292, 396, 516, 652, 804]					
		2249*, 2250*, 2251*, 2252*, 2253*, 2254*, 2255*, 2256*, 2257*, 2258*, 2259*, 2260*, 2261*, 2262*, 2263*, 2264*, 2265*, 2266*, 2267*, 2268*, 2269*,				
	[10, 34, 74, 130, 202, 290, 394, 514, 650, 802]					
		2238	H_{749}	$\langle m_y, r_z^2 \rangle$	i	$r_y^2 t_x, r_z^2 t_x, m_z t_x^{-1}, r_z^2 t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_z^2 t_z, m_z t_z^{-1}, r_z^2 t_z^{-1}$
		2239	H_{750}	$\langle m_y, m_z \rangle$	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_y^2 r_z t_z, m_z r_z t_z, m_x r_z t_z^{-1}, r_z t_z^{-1}$
		2240	H_{690}	$\langle m_x \rangle$	r_z^2	$m_x t_x, m_x t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_y^2 r_z t_z, m_z r_z^{-1} t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
	[10, 35, 76, 132, 204, 292, 396, 516, 652, 804]					
		2241	H_{682}	$\langle m_x \rangle$	r_z^2	$i t_x, r_y^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}$
		2242	H_{680}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_x t_x, m_y t_x^{-1}, m_x t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}$
		2243	H_{359}	1	m_z	$i t_x, r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2244	H_{452}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 r_z t_z, m_z t_z^{-1}$
		2245	H_{503}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 r_z t_z, r_x^2 t_z^{-1}$
		2246	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_y^2 r_x t_x^{-1}, r_x^{-1} t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, i t_z^{-1}$
		2247	H_{527}	1	r_z^2	$m_x t_x, m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, m_z t_z^{-1}$
		2248	H_{529}	1	r_z^2	$m_x t_x, m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
	[10, 36, 76, 132, 204, 292, 396, 516, 652, 804]					
		2249	H_{749}	$\langle m_y, r_z^2 \rangle$	i	$r_y^2 t_x, r_z^2 t_x, m_z t_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, m_z t_y^{-1}, r_z^2 t_z, m_z t_z^{-1}, r_z^2 t_z^{-1}$
		2250	H_{604}	$\langle r_y^2 \rangle$	r_z^2	$i t_x, m_x t_x, m_y t_x^{-1}, m_x t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_x^2 r_z t_z, r_z t_z^{-1}$
		2251	H_{750}	$\langle m_y, m_z \rangle$	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, r_z^2 t_y, m_x t_y^{-1}, r_y^2 r_z t_z, m_z r_z t_z, m_x r_z t_z^{-1}, r_z t_z^{-1}$
		2252	H_{750}	$\langle m_y, r_z^2 \rangle$	i	$r_y^2 t_x, r_z^2 t_x, m_z t_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, m_z t_y^{-1}, m_x r_z t_z, r_x^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2253	H_{750}	$\langle m_y, r_z^2 \rangle$	i	$r_y^2 t_x, r_z^2 t_x, m_z t_x^{-1}, r_z^2 t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_z t_z, r_x^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2254	H_{598}	$\langle r_y^2 \rangle$	r_z^2	$r_z^2 t_x, r_y^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_x^{-1}, r_y^2 t_y, r_x^2 t_y^{-1}, r_y^2 t_y^{-1}, r_x^2 r_z t_z, r_z t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2255	H_{611}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 r_z t_z, m_x r_z t_z^{-1}$
		2256	H_{622}	$\langle m_z \rangle$	r_z^2	$m_x t_x, m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, m_x r_z t_z^{-1}$
		2257	H_{683}	$\langle m_x \rangle$	r_z^2	$it_x, r_y^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_x^{-1}, r_y^2 t_y, r_x^2 t_y^{-1}, r_y^2 t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}$
		2258	H_{344}	1	m_z	$r_z^2 t_x, it_x^{-1}, it_y, r_z^2 t_y, it_y^{-1}, r_z^2 t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2259	H_{682}	$\langle m_y \rangle$	m_x	$m_z t_x, r_y^2 t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y, m_y t_y, m_x t_y^{-1}, t_y^{-1}, m_z t_z, r_y^2 t_z^{-1}$
		2260	H_{370}	1	m_z	$it_x, r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2261	H_{378}	1	m_z	$r_y^2 t_x, m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2262	H_{690}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_y t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_y^2 r_z t_z, m_z r_z^{-1} t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
		2263	H_{452}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 r_z t_z, it_z^{-1}$
		2264	H_{503}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y, t_y, r_z^2 t_y^{-1}, t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$
		2265	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_y^2 r_x t_x^{-1}, r_x^{-1} t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
		2266	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_y^2 t_y, r_x^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}$
		2267	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1}, m_y t_y^{-1}, m_z t_z, it_z^{-1}$
		2268	H_{527}	1	r_z^2	$m_x t_x, m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, it_z^{-1}$
		2269	H_{529}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}$

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[9, 33, 75, 132, 204, 292, 396, 516, 652, 804]
2270*, 2271*,
[9, 34, 77, 133, 204, 292, 396, 516, 652, 804]
2272*, 2273*, 2274*, 2275*, 2276*, 2277*, 2278*, 2279*, 2280*, 2281*,
[9, 35, 77, 132, 204, 292, 396, 516, 652, 804]
2282*, 2283*, 2284*, 2285*, 2286*, 2287*, 2288*, 2289*, 2290*, 2291*, 2292*, 2293*, 2294*,
2295*, 2296*, 2297*, 2298*, 2299*, 2300*, 2301*,
[10, 35, 76, 132, 204, 292, 396, 516, 652, 804]

Nbr.	gr	№	H_i	L	m	X
		2270	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$m_x t_x, m_x t_x^{-1}, r_z^2 r_x t_y, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z, r_x^2 t_z^{-1}, r_z^2 r_x t_z^{-1}$
		2271	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$m_x t_x, m_x t_x^{-1}, m_y t_y, m_x r_x t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$

[10, 36, 77, 132, 204, 292, 396, 516, 652, 804]

Nbr.	gr	№	H_i	L	m	X
		2272	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		2273	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_y^2 t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		2274	H_{560}	1	$m_z r_x$	$it_x, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2275	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2276	H_{580}	1	$m_z r_x$	$it_x, m_x t_x^{-1}, m_y t_y, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
		2277	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, m_x t_x^{-1}, m_y t_y, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
		2278	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, it_z^{-1}, r_z^2 r_x t_z^{-1}$
		2279	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		2280	H_{557}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2281	H_{578}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$

[10, 37, 76, 132, 204, 292, 396, 516, 652, 804]

Nbr.	gr	№	H_i	L	m	X
		2282	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$it_x, r_x^2 t_x^{-1}, r_z^2 r_x t_y, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z, r_x^2 t_z^{-1}, r_z^2 r_x t_z^{-1}$
		2283	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, r_z^2 r_x t_y, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z, r_x^2 t_z^{-1}, r_z^2 r_x t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2284	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$it_x, r_x^2 t_x^{-1}, m_y t_y, m_x r_x t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		2285	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, m_y t_y, m_x r_x t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		2286	H_{422}	1	$r_z^2 r_x$	$r_x^{-1} t_x, r_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		2287	H_{409}	1	$r_z^2 r_x$	$r_x^{-1} t_x, r_x t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		2288	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, r_z^2 r_x t_y, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z, r_x^2 t_z^{-1}, r_z^2 r_x t_z^{-1}$
		2289	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_z r_x t_x^{-1}, m_y t_y, m_x r_x t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		2290	H_{551}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, it_z, r_z^2 r_x t_z, it_z^{-1}, r_z^2 r_x t_z^{-1}$
		2291	H_{572}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 t_y, m_x r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		2292	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2293	H_{574}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, m_y t_y, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
		2294	H_{560}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2295	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2296	H_{580}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_y t_y, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
		2297	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
		2298	H_{556}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 r_x t_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, it_z, r_z^2 r_x t_z, it_z^{-1}, r_z^2 r_x t_z^{-1}$
		2299	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}$
		2300	H_{576}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 t_y, m_x r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		2301	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_x^{-1} t_z, m_z t_z, m_x r_x^{-1} t_z^{-1}$

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[6, 24, 64, 130, 207, 289, 396, 519, 649, 804]
2302*,
[6, 24, 65, 116, 179, 260, 354, 467, 593, 734]
2303*,
[7, 29, 70, 134, 205, 289, 398, 517, 649, 806]

№	H_i	L	m	X
2302	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y^{-1} r_z^{-1} t_x^{-1}, r_y^2 r_z t_y, r_y r_x t_y, r_x^2 r_y t_y^{-1}, r_y^2 r_z t_z$

[7, 29, 71, 119, 188, 269, 368, 481, 609, 752]

№	H_i	L	m	X
2303	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y^{-1} r_z^{-1} t_x^{-1}, r_y^2 r_z t_y, r_y r_x t_y, r_y^{-1} r_z^{-1} t_y^{-1}, r_y r_x t_z$

42B

[6, 24, 56, 98, 153, 222, 303, 396, 503, 622]
2304*,
[6, 24, 57, 101, 158, 228, 310, 405, 513, 633]
2305*,
[7, 29, 63, 110, 172, 249, 338, 441, 560, 691]

№	H_i	L	m	X
2304	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y r_x t_x, r_y^2 r_z t_y, r_y^{-1} r_z^{-1} t_y^{-1}, r_y r_x t_z, r_y^{-1} r_z^{-1} t_z^{-1}$

[7, 29, 64, 112, 175, 252, 342, 446, 565, 697]

№	H_i	L	m	X
2305	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y r_x t_x, r_y^2 r_z t_y, r_x^2 r_y t_y^{-1}, r_y^2 r_z t_z, r_y^{-1} r_z^{-1} t_z^{-1}$

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[8, 30, 73, 135, 210, 296, 397, 516, 652, 804]
2306*, 2307*,
[8, 31, 73, 129, 200, 288, 392, 512, 648, 800]
2308*, 2309*,
[8, 31, 75, 134, 205, 292, 396, 516, 652, 804]
2310*, 2311*,
[8, 31, 75, 136, 209, 294, 396, 516, 652, 804]
2312*, 2313*,
[8, 31, 76, 137, 208, 293, 396, 516, 652, 804]
2314*, 2315*, 2316*, 2317*,
[8, 32, 73, 128, 200, 288, 392, 512, 648, 800]
2318*, 2319*,
[8, 32, 76, 132, 202, 290, 394, 514, 650, 802]
2320*, 2321*, 2322*, 2323*, 2324*, 2325*,
[8, 32, 76, 133, 204, 292, 396, 516, 652, 804]
2326*, 2327*,
[8, 32, 77, 135, 205, 292, 396, 516, 652, 804]
2328*, 2329*, 2330*, 2331*,
[8, 32, 77, 136, 207, 293, 396, 516, 652, 804]
2332*,
[8, 32, 78, 135, 204, 292, 396, 516, 652, 804]
2333*, 2334*,

Nbr.	gr	№	H_i	L	m	X
	[8, 32, 78, 137, 206, 292, 396, 516, 652, 804]					
		2335*, 2336*, 2337*, 2338*,				
	[8, 33, 76, 131, 202, 290, 394, 514, 650, 802]					
		2339*,				
	[8, 33, 77, 135, 207, 293, 396, 516, 652, 804]					
		2340*, 2341*, 2342*, 2343*, 2344*, 2345*, 2346*, 2347*, 2348*, 2349*, 2350*,				
	[8, 33, 78, 134, 204, 292, 396, 516, 652, 804]					
		2351*,				
	[8, 33, 78, 136, 206, 292, 396, 516, 652, 804]					
		2352*,				
	[8, 34, 76, 130, 202, 290, 394, 514, 650, 802]					
		2353*, 2354*, 2355*, 2356*, 2357*, 2358*, 2359*,				
	[8, 34, 78, 133, 204, 292, 396, 516, 652, 804]					
		2360*, 2361*, 2362*, 2363*, 2364*, 2365*, 2366*,				
	[8, 34, 78, 135, 206, 292, 396, 516, 652, 804]					
		2367*, 2368*, 2369*, 2370*, 2371*, 2372*, 2373*, 2374*, 2375*, 2376*, 2377*, 2378*, 2379*,				
	[9, 33, 76, 135, 207, 293, 396, 516, 652, 804]					
		2306	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
		2307	H_{578}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[9, 34, 75, 130, 202, 290, 394, 514, 650, 802]					
		2308	H_{560}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
		2309	H_{557}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
	[9, 34, 77, 133, 204, 292, 396, 516, 652, 804]					
		2310	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, m_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}$
		2311	H_{578}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}$
	[9, 34, 77, 135, 206, 292, 396, 516, 652, 804]					
		2312	H_{560}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}$
		2313	H_{557}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}$
	[9, 34, 78, 135, 205, 292, 396, 516, 652, 804]					
		2314	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
		2315	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_z t_z, m_x r_x^{-1} t_z^{-1}$
		2316	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_z t_z, m_x r_x^{-1} t_z^{-1}$
		2317	H_{578}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[9, 35, 74, 130, 202, 290, 394, 514, 650, 802]					
		2318	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
		2319	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
	[9, 35, 77, 131, 203, 291, 395, 515, 651, 803]					
		2320	H_{555}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
		2321	H_{560}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
		2322	H_{560}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
		2323	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}$
		2324	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}$
		2325	H_{557}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
	[9, 35, 77, 132, 204, 292, 396, 516, 652, 804]					
		2326	H_{574}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}$
		2327	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}$
	[9, 35, 78, 133, 204, 292, 396, 516, 652, 804]					
		2328	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}$
		2329	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
		2330	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2331	H_{578}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}$
	[9, 35, 78, 134, 205, 292, 396, 516, 652, 804]					
		2332	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z, r_y^2 t_z^{-1}$
	[9, 35, 79, 132, 204, 292, 396, 516, 652, 804]					
		2333	H_{574}	1	$m_z r_x$	$i t_x, i t_x^{-1}, r_z^2 r_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}$
		2334	H_{580}	1	$m_z r_x$	$i t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}$
	[9, 35, 79, 134, 204, 292, 396, 516, 652, 804]					
		2335	H_{560}	1	$m_z r_x$	$i t_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}$
		2336	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, i t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z^{-1}$
		2337	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, i t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z^{-1}$
		2338	H_{557}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}$
	[9, 36, 76, 131, 203, 291, 395, 515, 651, 803]					
		2339	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_z^2 r_x t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}$
	[9, 36, 77, 134, 205, 292, 396, 516, 652, 804]					
		2340	H_{572}	1	$m_z r_x$	$i t_x, i t_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
		2341	H_{572}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
		2342	H_{574}	1	$m_z r_x$	$i t_x, i t_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
		2343	H_{574}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
		2344	H_{580}	1	$m_z r_x$	$i t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
		2345	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1}, r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
		2346	H_{576}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
		2347	H_{576}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
		2348	H_{576}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y, m_x r_x t_y, r_z^2 t_y^{-1}, m_x r_x^{-1} t_z, r_y^2 t_z^{-1}$
		2349	H_{576}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y, m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		2350	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y, r_z^2 t_y^{-1}, r_x^{-1} t_z, r_y^2 t_z^{-1}$
	[9, 36, 78, 132, 204, 292, 396, 516, 652, 804]					
		2351	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y, m_x r_x t_y^{-1}, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
	[9, 36, 78, 134, 204, 292, 396, 516, 652, 804]					
		2352	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, i t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, i t_z^{-1}$
	[9, 37, 75, 131, 203, 291, 395, 515, 651, 803]					
		2353	H_{551}	1	$m_z r_x$	$i t_x, i t_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 r_x t_y, i t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
		2354	H_{551}	1	$m_z r_x$	$r_z^2 r_x t_x, i t_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 r_x t_y, i t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
		2355	H_{551}	1	$m_z r_x$	$i t_x, i t_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 r_x t_y, r_z^2 r_x t_y^{-1}, i t_z, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
		2356	H_{556}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 r_x t_y, i t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
		2357	H_{556}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 r_x t_y, i t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
		2358	H_{556}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 r_x t_y, r_z^2 r_x t_y^{-1}, i t_z, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
		2359	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_z^2 r_x t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}$
	[9, 37, 77, 132, 204, 292, 396, 516, 652, 804]					
		2360	H_{572}	1	$m_z r_x$	$i t_x, i t_x^{-1}, r_z^2 r_x t_x^{-1}, m_x r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2361	H_{572}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_x r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
		2362	H_{576}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_x r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
		2363	H_{576}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_x r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
		2364	H_{576}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y, m_x r_x t_y, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
		2365	H_{576}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_x r_x t_y, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		2366	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y, m_x r_x t_y^{-1}, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
	[9, 37, 77, 134, 204, 292, 396, 516, 652, 804]					
		2367	H_{551}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 r_x t_y, it_y^{-1}, it_z, r_z^2 r_x t_z, it_z^{-1}$
		2368	H_{551}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 r_x t_y, it_y^{-1}, it_z, r_z^2 r_x t_z, it_z^{-1}$
		2369	H_{551}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, it_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, it_z, r_z^2 r_x t_z^{-1}$
		2370	H_{555}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}$
		2371	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}$
		2372	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$
		2373	H_{560}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}$
		2374	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}$
		2375	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z^{-1}$
		2376	H_{556}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 r_x t_y, it_y^{-1}, it_z, r_z^2 r_x t_z, it_z^{-1}$
		2377	H_{556}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 r_x t_y, it_y^{-1}, it_z, r_z^2 r_x t_z, it_z^{-1}$
		2378	H_{556}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, it_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, it_z, r_z^2 r_x t_z^{-1}$
		2379	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, it_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, it_z^{-1}$

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[8, 29, 69, 128, 203, 292, 396, 516, 652, 804]
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[8, 30, 69, 123, 193, 279, 381, 499, 633, 783]
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2406*,
[8, 32, 76, 135, 206, 292, 396, 516, 652, 804]
2407*,
[8, 32, 76, 135, 207, 293, 396, 516, 652, 804]
2408*, 2409*, 2410*, 2411*, 2412*, 2413*, 2414*,
[8, 32, 77, 136, 206, 292, 396, 516, 652, 804]
2415*, 2416*,
[8, 33, 75, 130, 202, 290, 394, 514, 650, 802]

Nbr.	gr	№	H_i	L	m	X
		2417*, 2418*, 2419*, 2420*, 2421*, 2422*, 2423*,				
	[8, 33, 77, 133, 204, 292, 396, 516, 652, 804]					
		2424*, 2425*, 2426*, 2427*, 2428*, 2429*, 2430*, 2431*,				
	[8, 33, 77, 135, 206, 292, 396, 516, 652, 804]					
		2432*, 2433*, 2434*, 2435*, 2436*, 2437*, 2438*,				
	[8, 33, 78, 135, 206, 293, 396, 516, 652, 804]					
		2439*,				
	[9, 32, 73, 131, 204, 292, 396, 516, 652, 804]					
		2380	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_z t_z^{-1}$
	[9, 33, 72, 127, 198, 285, 388, 507, 642, 793]					
		2381	H_{388}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, m_z r_x t_z^{-1}$
	[9, 33, 74, 130, 202, 290, 394, 514, 650, 802]					
		2382	H_{407}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_x t_z^{-1}$
	[9, 33, 74, 132, 204, 292, 396, 516, 652, 804]					
		2383	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_x^2 t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_x^2 t_z^{-1}$
	[9, 33, 76, 134, 205, 292, 396, 516, 652, 804]					
		2384	H_{402}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
		2385	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_z t_z^{-1}$
		2386	H_{419}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
	[9, 34, 72, 127, 198, 285, 388, 507, 642, 793]					
		2387	H_{389}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, m_z r_x t_z^{-1}$
		2388	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y r_x t_x, r_y^{-1} r_z^{-1} t_x^{-1}, r_y^2 r_z t_y, r_y r_x t_y, r_y^{-1} r_z^{-1} t_y^{-1}, r_y r_x t_z, r_y^{-1} r_z^{-1} t_z^{-1}$
	[9, 34, 75, 130, 202, 290, 394, 514, 650, 802]					
		2389	H_{414}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_x t_z^{-1}$
	[9, 34, 75, 131, 203, 291, 395, 515, 651, 803]					
		2390	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_y^2 r_x t_y, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		2391	H_{398}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, m_z r_x t_z^{-1}$
		2392	H_{400}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, m_z r_x t_z^{-1}$
		2393	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_y^2 r_x t_y, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[9, 34, 76, 132, 204, 292, 396, 516, 652, 804]					
		2394	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}$
		2395	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}$
		2396	H_{418}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_x t_z^{-1}$
	[9, 34, 77, 132, 204, 292, 396, 516, 652, 804]					
		2397	H_{410}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_x t_z^{-1}$
	[9, 34, 77, 134, 204, 292, 396, 516, 652, 804]					
		2398	H_{391}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
		2399	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_x^2 t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_x^2 t_z^{-1}$
		2400	H_{401}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
	[9, 34, 77, 134, 205, 292, 396, 516, 652, 804]					
		2401	H_{407}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}$
	[9, 34, 78, 134, 205, 292, 396, 516, 652, 804]					
		2402	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
		2403	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z, m_z t_z, m_z t_z^{-1}$
	[9, 34, 78, 135, 205, 292, 396, 516, 652, 804]					
		2404	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_x^2 r_y t_x^{-1}, r_y^{-1} r_z^{-1} t_x^{-1}, r_y^2 r_z t_y, r_y r_x t_y, r_x^2 r_y t_y^{-1}, r_y^2 r_z t_z, r_x^2 r_y t_z^{-1}$
	[9, 35, 75, 131, 203, 291, 395, 515, 651, 803]					
		2405	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_y^2 r_x t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
	[9, 35, 77, 132, 204, 292, 396, 516, 652, 804]					
		2406	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_x r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}$
	[9, 35, 77, 134, 204, 292, 396, 516, 652, 804]					
		2407	H_{388}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_z r_x t_y, it_y^{-1}, it_z, it_z^{-1}, m_z r_x t_z^{-1}$
	[9, 35, 77, 134, 205, 292, 396, 516, 652, 804]					
		2408	H_{414}	1	$r_z^2 r_x$	$m_z r_x t_x, it_x^{-1}, m_z r_x t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}$
		2409	H_{415}	1	$r_z^2 r_x$	$m_z r_x t_x, it_x^{-1}, m_z r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
		2410	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, r_y^2 t_z, m_x r_x t_z^{-1}$
		2411	H_{410}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}$
		2412	H_{404}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
		2413	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, r_y^2 t_z, m_x r_x t_z^{-1}$
		2414	H_{418}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}$
	[9, 35, 78, 134, 204, 292, 396, 516, 652, 804]					
		2415	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
		2416	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$
	[9, 36, 75, 131, 203, 291, 395, 515, 651, 803]					
		2417	H_{396}	1	$r_z^2 r_x$	$m_z r_x t_x, it_x^{-1}, m_z r_x t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}$
		2418	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}$
		2419	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		2420	H_{391}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}$
		2421	H_{392}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}$
		2422	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_y^2 r_x t_y, it_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}$
		2423	H_{401}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}$
	[9, 36, 77, 132, 204, 292, 396, 516, 652, 804]					
		2424	H_{415}	1	$r_z^2 r_x$	$m_z r_x t_x, it_x^{-1}, m_z r_x t_x^{-1}, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}$
		2425	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}$
		2426	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		2427	H_{402}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}$
		2428	H_{404}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}$
		2429	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_x r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}$
		2430	H_{419}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}$
		2431	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_x^2 r_y t_x^{-1}, r_y^{-1} r_z^{-1} t_x^{-1}, r_y^2 r_z t_y, r_y r_x t_y, r_y^{-1} r_z^{-1} t_y^{-1}, r_y r_x t_z, r_x^2 r_y t_z^{-1}$
	[9, 36, 77, 134, 204, 292, 396, 516, 652, 804]					
		2432	H_{389}	1	$r_z^2 r_x$	$m_z r_x t_x, it_x^{-1}, m_z r_x t_x^{-1}, m_z r_x t_y, it_y^{-1}, it_z, it_z^{-1}, m_z r_x t_z^{-1}$
		2433	H_{396}	1	$r_z^2 r_x$	$m_z r_x t_x, it_x^{-1}, m_z r_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
		2434	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_y^2 r_x t_y, it_y^{-1}, it_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		2435	H_{398}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, m_z r_x t_y, it_y^{-1}, it_z, it_z^{-1}, m_z r_x t_z^{-1}$
		2436	H_{392}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2437	H_{400}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_z r_x t_y, it_y^{-1}, it_z,$ $it_z^{-1}, m_z r_x t_z^{-1}$
		2438	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_y^2 r_x t_y, it_y^{-1}, it_z,$ $r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[9, 36, 78, 133, 205, 292, 396, 516, 652, 804]					
		2439	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y r_x t_x, r_y^{-1} r_z^{-1} t_x^{-1}, r_y^2 r_z t_y, r_y r_x t_y, r_x^2 r_y t_y^{-1},$ $r_y^2 r_z t_z, r_y^{-1} r_z^{-1} t_z^{-1}$
45						
	[9, 33, 76, 135, 207, 293, 396, 516, 652, 804]					
		2440*, 2441*, 2442*, 2443*,				
	[9, 34, 75, 130, 202, 290, 394, 514, 650, 802]					
		2444*, 2445*, 2446*, 2447*,				
	[9, 34, 77, 133, 204, 292, 396, 516, 652, 804]					
		2448*, 2449*, 2450*, 2451*,				
	[9, 34, 77, 135, 206, 292, 396, 516, 652, 804]					
		2452*, 2453*, 2454*, 2455*,				
	[10, 35, 77, 134, 205, 292, 396, 516, 652, 804]					
		2440	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$it_x, r_z^2 r_x t_x, r_x^2 t_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, m_y t_y^{-1},$ $m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
		2441	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_y^2 t_x^{-1}, r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1},$ $m_y t_y^{-1}, m_x r_x t_z, m_z t_z^{-1}$
		2442	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_x t_x, m_z r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1},$ $m_x r_x t_y^{-1}, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
		2443	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_y t_y^{-1},$ $r_x t_y^{-1}, m_z t_z, r_x^{-1} t_z^{-1}$
	[10, 36, 75, 131, 203, 291, 395, 515, 651, 803]					
		2444	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$it_x, r_z^2 r_x t_x, r_x^2 t_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 r_x t_y, r_x^2 t_y^{-1},$ $r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
		2445	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_y^2 t_x^{-1}, r_x t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1},$ $r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}$
		2446	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_x t_x, m_z r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 r_x t_y, r_x^2 t_y^{-1},$ $r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
		2447	H_{560}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1},$ $m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
	[10, 36, 77, 132, 204, 292, 396, 516, 652, 804]					
		2448	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$it_x, r_z^2 r_x t_x, r_x^2 t_x^{-1}, r_z^2 r_x t_x^{-1}, m_x r_x t_y, m_y t_y^{-1},$ $m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
		2449	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_y^2 t_x^{-1}, r_x t_x^{-1}, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1},$ $m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}$
		2450	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_x t_x, m_z r_x t_x^{-1}, m_x t_x^{-1}, m_x r_x t_y, m_y t_y^{-1},$ $m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
		2451	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x t_y, m_y t_y^{-1},$ $r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}$
	[10, 36, 77, 134, 204, 292, 396, 516, 652, 804]					
		2452	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$it_x, r_z^2 r_x t_x, r_x^2 t_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 r_x t_y, r_x^2 t_y^{-1},$ $r_x^2 t_z, r_z^2 r_x t_z, r_x^2 t_z^{-1}$
		2453	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_y^2 t_x^{-1}, r_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1},$ $r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z^{-1}$
		2454	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_x t_x, m_z r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 r_x t_y, r_x^2 t_y^{-1},$ $r_x^2 t_z, r_z^2 r_x t_z, r_x^2 t_z^{-1}$
		2455	H_{560}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1},$ $r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}$
46						
	[9, 33, 75, 132, 204, 292, 396, 516, 652, 804]					
		2456*, 2457*,				
	[9, 34, 76, 132, 204, 292, 396, 516, 652, 804]					
		2458*, 2459*, 2460*,				
	[9, 34, 77, 133, 204, 292, 396, 516, 652, 804]					
		2461*, 2462*, 2463*, 2464*, 2465*, 2466*, 2467*, 2468*,				
	[9, 34, 78, 134, 204, 292, 396, 516, 652, 804]					
		2469*,				
	[9, 35, 77, 132, 204, 292, 396, 516, 652, 804]					
		2470*, 2471*, 2472*, 2473*, 2474*, 2475*, 2476*, 2477*, 2478*, 2479*, 2480*, 2481*, 2482*, 2483*,				
	[9, 35, 78, 133, 204, 292, 396, 516, 652, 804]					
		2484*, 2485*, 2486*, 2487*, 2488*, 2489*, 2490*, 2491*, 2492*, 2493*, 2494*, 2495*, 2496*, 2497*, 2498*,				
	[9, 36, 78, 132, 204, 292, 396, 516, 652, 804]					
		2499*, 2500*, 2501*, 2502*, 2503*, 2504*, 2505*, 2506*, 2507*, 2508*, 2509*, 2510*, 2511*, 2512*, 2513*, 2514*, 2515*, 2516*, 2517*, 2518*, 2519*, 2520*,				
	[10, 35, 76, 132, 204, 292, 396, 516, 652, 804]					
		2456	H_{359}	1	m_z	$it_x, r_z^2 t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1},$ $t_z, m_z t_z^{-1}, t_z^{-1}$
		2457	H_{650}	$\langle m_z r_x \rangle$	m_x	$t_x, m_x t_x^{-1}, t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_y t_y^{-1},$ $r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_x^{-1} t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
	[10, 36, 76, 132, 204, 292, 396, 516, 652, 804]					
		2458	H_{648}	$\langle m_z r_x \rangle$	m_x	$t_x, m_x t_x^{-1}, t_x^{-1}, r_x^2 t_y, i t_y^{-1}, r_x^2 t_y^{-1}, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2459	H_{350}	1	m_z	$r_z^2 t_x, i t_x^{-1}, r_z^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2460	H_{359}	1	m_z	$r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
	[10, 36, 77, 132, 204, 292, 396, 516, 652, 804]					
		2461	H_{370}	1	m_z	$i t_x, r_z^2 t_x, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2462	H_{370}	1	m_z	$i t_x, r_z^2 t_x, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2463	H_{359}	1	m_z	$i t_x, r_z^2 t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2464	H_{359}	1	m_z	$i t_x, r_z^2 t_x, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2465	H_{368}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_x t_z, r_y^2 t_z^{-1}, m_x t_z^{-1}$
		2466	H_{368}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_x t_z, r_y^2 t_z^{-1}, m_x t_z^{-1}$
		2467	H_{353}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2468	H_{377}	1	m_z	$r_y^2 t_x, m_z r_z^{-1} t_x^{-1}, r_z^{-1} t_x^{-1}, m_z r_z t_y, r_z t_y, m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
	[10, 36, 78, 132, 204, 292, 396, 516, 652, 804]					
		2469	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z, m_z t_z^{-1}$
	[10, 37, 76, 132, 204, 292, 396, 516, 652, 804]					
		2470	H_{361}	1	m_z	$i t_x, i t_x^{-1}, r_z^2 t_x^{-1}, r_z^2 t_y, i t_y^{-1}, r_z^2 t_y^{-1}, m_x t_z, r_y^2 t_z^{-1}, m_x t_z^{-1}$
		2471	H_{361}	1	m_z	$r_z^2 t_x, i t_x^{-1}, r_z^2 t_x^{-1}, r_z^2 t_y, i t_y^{-1}, r_z^2 t_y^{-1}, m_x t_z, r_y^2 t_z^{-1}, m_x t_z^{-1}$
		2472	H_{330}	1	m_z	$r_z^2 t_x, i t_x^{-1}, r_z^2 t_x^{-1}, i t_y, i t_y^{-1}, r_z^2 t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2473	H_{372}	1	m_z	$i t_x, i t_x^{-1}, r_z^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_x t_z, r_y^2 t_z^{-1}, m_x t_z^{-1}$
		2474	H_{372}	1	m_z	$r_z^2 t_x, i t_x^{-1}, r_z^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_x t_z, r_y^2 t_z^{-1}, m_x t_z^{-1}$
		2475	H_{365}	1	m_z	$r_z^2 t_x, i t_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2476	H_{365}	1	m_z	$r_z^2 t_x, i t_x^{-1}, r_z^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2477	H_{350}	1	m_z	$i t_x, i t_x^{-1}, r_z^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2478	H_{350}	1	m_z	$r_z^2 t_x, i t_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2479	H_{370}	1	m_z	$r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2480	H_{370}	1	m_z	$r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2481	H_{359}	1	m_z	$i t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2482	H_{359}	1	m_z	$r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2483	H_{343}	1	m_z	$r_z^2 t_x, r_y^2 r_z t_x^{-1}, m_x r_z t_x^{-1}, i t_y, r_y^2 r_z t_y^{-1}, m_x r_z t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
	[10, 37, 77, 132, 204, 292, 396, 516, 652, 804]					
		2484	H_{370}	1	m_z	$i t_x, r_z^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2485	H_{370}	1	m_z	$i t_x, r_z^2 t_x, r_y^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2486	H_{359}	1	m_z	$i t_x, r_z^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2487	H_{652}	$\langle m_z r_x \rangle$	m_x	$m_z r_x^{-1} t_x, r_z^2 r_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_y t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_x^{-1} t_z^{-1}$
		2488	H_{373}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1}, r_z^2 t_z, i t_z^{-1}, r_z^2 t_z^{-1}$
		2489	H_{652}	$\langle m_z r_x \rangle$	m_x	$m_z r_x^{-1} t_x, r_z^2 r_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_y t_y, r_z^2 t_y^{-1}, m_y t_y^{-1}, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_x^{-1} t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2490	H_{368}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1},$ $m_x t_z, r_y^2 t_z^{-1}, m_x t_z^{-1}$
		2491	H_{368}	1	m_z	$m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1},$ $m_x t_z, r_y^2 t_z^{-1}, m_x t_z^{-1}$
		2492	H_{650}	$\langle m_z r_x \rangle$	m_x	$t_x, m_x t_x^{-1}, t_x^{-1}, r_z^2 t_y, r_z^2 t_y^{-1}, m_y t_y^{-1},$ $m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_x^{-1} t_z^{-1}$
		2493	H_{378}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1},$ $m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2494	H_{378}	1	m_z	$r_y^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, m_y t_y, m_y t_y^{-1},$ $m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2495	H_{650}	$\langle m_z r_x \rangle$	m_x	$t_x, m_x t_x^{-1}, t_x^{-1}, r_z^2 t_y, m_y t_y, r_z^2 t_y^{-1},$ $m_x r_x^{-1} t_z, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$
		2496	H_{382}	1	m_z	$r_y^2 t_x, m_z r_z^{-1} t_x^{-1}, r_z^{-1} t_x^{-1}, m_z r_z t_y, r_z t_y, m_y t_y^{-1},$ $m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2497	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1},$ $m_x r_x t_z, m_z t_z, m_x r_x t_z^{-1}$
		2498	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1},$ $r_y^2 r_x t_z, r_x^2 t_z, r_x^2 t_z^{-1}$
	[10, 38, 76, 132, 204, 292, 396, 516, 652, 804]					
		2499	H_{649}	$\langle m_z r_x \rangle$	m_x	$m_z r_x^{-1} t_x, r_z^2 r_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, it_y, it_y^{-1}, r_x^2 t_y^{-1},$ $r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2500	H_{332}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, it_y, it_y^{-1}, r_z^2 t_y^{-1},$ $r_z^2 t_z, it_z^{-1}, r_z^2 t_z^{-1}$
		2501	H_{649}	$\langle m_z r_x \rangle$	m_x	$m_z r_x^{-1} t_x, r_z^2 r_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_x^2 t_y, it_y^{-1}, r_x^2 t_y^{-1},$ $m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2502	H_{361}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, it_y, it_y^{-1}, r_z^2 t_y^{-1},$ $m_x t_z, r_y^2 t_z^{-1}, m_x t_z^{-1}$
		2503	H_{361}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, it_y, it_y^{-1}, r_z^2 t_y^{-1},$ $m_x t_z, r_y^2 t_z^{-1}, m_x t_z^{-1}$
		2504	H_{648}	$\langle m_z r_x \rangle$	m_x	$t_x, m_x t_x^{-1}, t_x^{-1}, it_y, it_y^{-1}, r_x^2 t_y^{-1},$ $r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2505	H_{344}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, it_y, it_y^{-1}, r_z^2 t_y^{-1},$ $m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2506	H_{344}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, it_y, r_z^2 t_y, it_y^{-1},$ $m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2507	H_{364}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1},$ $r_z^2 t_z, it_z^{-1}, r_z^2 t_z^{-1}$
		2508	H_{364}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1},$ $r_z^2 t_z, it_z^{-1}, r_z^2 t_z^{-1}$
		2509	H_{364}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1},$ $r_z^2 t_z, it_z^{-1}, r_z^2 t_z^{-1}$
		2510	H_{364}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1},$ $r_z^2 t_z, it_z^{-1}, r_z^2 t_z^{-1}$
		2511	H_{372}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1},$ $m_x t_z, r_y^2 t_z^{-1}, m_x t_z^{-1}$
		2512	H_{372}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1},$ $m_x t_z, r_y^2 t_z^{-1}, m_x t_z^{-1}$
		2513	H_{365}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1},$ $m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2514	H_{365}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1},$ $m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2515	H_{350}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1},$ $t_z, m_z t_z^{-1}, t_z^{-1}$
		2516	H_{370}	1	m_z	$it_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1},$ $m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2517	H_{370}	1	m_z	$it_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1}, m_y t_y^{-1},$ $m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2518	H_{359}	1	m_z	$it_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1}, m_y t_y^{-1},$ $t_z, m_z t_z^{-1}, t_z^{-1}$
		2519	H_{347}	1	m_z	$r_z^2 t_x, r_y^2 r_z t_x^{-1}, m_x r_z t_x^{-1}, it_y, r_y^2 r_z t_y^{-1}, m_x r_z t_y^{-1},$ $m_x r_z^{-1} t_z, r_x^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		2520	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1},$ $r_y^2 r_x t_z, r_x^2 t_z, r_y^2 r_x t_z^{-1}$

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[7, 23, 50, 87, 135, 194, 263, 343, 434, 535]

2521*,

[7, 24, 55, 99, 156, 227, 311, 408, 519, 643]

2522*, 2523*,

[7, 25, 56, 98, 152, 218, 296, 386, 488, 602]

Nbr.	gr	№	H_i	L	m	X
		2524*, 2525*,				
	[7, 25, 57, 99, 152, 218, 296, 386, 488, 602]					
		2526*, 2527*,				
	[7, 26, 57, 98, 152, 218, 296, 386, 488, 602]					
		2528*, 2529*,				
	[7, 26, 59, 105, 166, 240, 328, 430, 545, 675]					
		2530*, 2531*,				
	[7, 26, 60, 106, 166, 240, 328, 430, 545, 675]					
		2532*, 2533*,				
	[7, 27, 60, 105, 166, 240, 328, 430, 545, 675]					
		2534*,				
	[7, 28, 63, 109, 172, 249, 338, 444, 564, 695]					
		2535*, 2536*,				
	[8, 27, 58, 101, 158, 226, 306, 401, 506, 623]					
		2521	H_{697}	$\langle m_x \rangle$	r_z^2	$m_x r_z^{-1} t_x, r_z t_x^{-1}, r_z t_y^{-1}, m_x r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, m_z r_z^{-1} t_z, r_y^2 t_z^{-1}$
	[8, 28, 62, 108, 168, 242, 328, 428, 542, 668]					
		2522	H_{693}	$\langle m_x \rangle$	r_z^2	$r_x^2 r_z t_x, m_z r_z t_x^{-1}, m_z r_z t_y^{-1}, r_x^2 r_z t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
		2523	H_{695}	$\langle m_x \rangle$	r_z^2	$m_x r_z^{-1} t_x, r_z t_x^{-1}, r_z t_y^{-1}, m_x r_z^{-1} t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
	[8, 29, 62, 109, 169, 242, 329, 429, 542, 669]					
		2524	H_{458}	1	r_z^2	$m_x r_z t_x^{-1}, m_x r_z^{-1} t_x^{-1}, m_x r_z^{-1} t_y, m_x r_z t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		2525	H_{534}	1	r_z^2	$m_x r_z t_x^{-1}, m_x r_z^{-1} t_x^{-1}, m_x r_z^{-1} t_y, m_x r_z t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}$
	[8, 29, 63, 109, 169, 242, 329, 429, 542, 669]					
		2526	H_{510}	1	r_z^2	$r_z^{-1} t_x^{-1}, r_z t_x^{-1}, r_z t_y, r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		2527	H_{538}	1	r_z^2	$r_z^{-1} t_x^{-1}, r_z t_x^{-1}, r_z t_y, r_z^{-1} t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}$
	[8, 30, 62, 109, 169, 242, 329, 429, 542, 669]					
		2528	H_{440}	1	r_z^2	$r_y^2 r_z t_x^{-1}, r_x^2 r_z t_x^{-1}, r_x^2 r_z t_y, r_y^2 r_z t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		2529	H_{501}	1	r_z^2	$m_z r_z^{-1} t_x^{-1}, m_z r_z t_x^{-1}, m_z r_z t_y, m_z r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
	[8, 30, 64, 113, 176, 251, 342, 446, 563, 696]					
		2530	H_{459}	1	r_z^2	$m_x r_z t_x^{-1}, m_x r_z^{-1} t_x^{-1}, m_x r_z^{-1} t_y, m_x r_z t_y^{-1}, r_y^2 r_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		2531	H_{533}	1	r_z^2	$m_x r_z t_x^{-1}, m_x r_z^{-1} t_x^{-1}, m_x r_z^{-1} t_y, m_x r_z t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 30, 65, 113, 176, 251, 342, 446, 563, 696]					
		2532	H_{536}	1	r_z^2	$r_z^{-1} t_x^{-1}, r_z t_x^{-1}, r_z t_y, r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		2533	H_{512}	1	r_z^2	$r_z^{-1} t_x^{-1}, r_z t_x^{-1}, r_z t_y, r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
	[8, 31, 64, 113, 176, 251, 342, 446, 563, 696]					
		2534	H_{697}	$\langle m_x \rangle$	r_z^2	$m_x r_z^{-1} t_x, r_z t_x^{-1}, r_z t_y^{-1}, m_x r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, m_z r_z^{-1} t_z, r_x^2 t_z^{-1}$
	[8, 32, 66, 115, 181, 258, 349, 459, 578, 711]					
		2535	H_{693}	$\langle m_x \rangle$	r_z^2	$r_x^2 r_z t_x, m_z r_z t_x^{-1}, m_z r_z t_y^{-1}, r_x^2 r_z t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
		2536	H_{695}	$\langle m_x \rangle$	r_z^2	$m_x r_z^{-1} t_x, r_z t_x^{-1}, r_z t_y^{-1}, m_x r_z^{-1} t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
47B						
	[7, 24, 60, 119, 195, 284, 388, 508, 644, 796]					
		2537*,				
	[7, 25, 60, 113, 184, 272, 376, 496, 632, 784]					
		2538*,				
	[7, 25, 63, 122, 196, 284, 388, 508, 644, 796]					
		2539*,				
	[7, 25, 63, 124, 196, 284, 388, 508, 644, 796]					
		2540*,				
	[7, 26, 64, 120, 192, 280, 384, 504, 640, 792]					
		2541*,				
	[7, 26, 66, 124, 196, 284, 388, 508, 644, 796]					
		2542*,				
	[7, 26, 68, 128, 200, 288, 392, 512, 648, 800]					
		2543*,				
	[7, 26, 69, 129, 200, 288, 392, 512, 648, 800]					
		2544*,				
	[7, 27, 66, 122, 194, 282, 386, 506, 642, 794]					
		2545*,				
	[7, 27, 67, 123, 194, 282, 386, 506, 642, 794]					
		2546*,				
	[7, 27, 69, 128, 200, 288, 392, 512, 648, 800]					
		2547*, 2548*, 2549*,				
	[7, 27, 70, 129, 200, 288, 392, 512, 648, 800]					
		2550*,				
	[7, 28, 67, 122, 194, 282, 386, 506, 642, 794]					
		2551*, 2552*, 2553*,				

Nbr.	gr	№	H_i	L	m	X
	[7, 28, 68, 124, 196, 284, 388, 508, 644, 796]					
		2554*,				
	[7, 28, 69, 125, 196, 284, 388, 508, 644, 796]					
		2555*,				
	[7, 28, 70, 128, 200, 288, 392, 512, 648, 800]					
		2556*,				
	[7, 29, 69, 124, 196, 284, 388, 508, 644, 796]					
		2557*,				
	[7, 29, 71, 128, 200, 288, 392, 512, 648, 800]					
		2558*, 2559*,				
	[7, 30, 71, 126, 198, 286, 390, 510, 646, 798]					
		2560*, 2561*,				
	[8, 28, 68, 127, 200, 288, 392, 512, 648, 800]					
		2537	H_{581}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, m_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_y t_z, r_x t_z, m_y t_z^{-1}$
	[8, 29, 67, 122, 194, 282, 386, 506, 642, 794]					
		2538	H_{552}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, m_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1}, m_z r_x t_z$
	[8, 29, 70, 128, 200, 288, 392, 512, 648, 800]					
		2539	H_{579}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_y t_z, r_x t_z, m_y t_z^{-1}$
	[8, 29, 70, 130, 198, 290, 390, 514, 646, 802]					
		2540	H_{577}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_z^2 t_z, m_x r_x t_z, r_z^2 t_z^{-1}$
	[8, 30, 70, 126, 198, 286, 390, 510, 646, 798]					
		2541	H_{546}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1}, m_z r_x t_z$
	[8, 30, 72, 128, 200, 288, 392, 512, 648, 800]					
		2542	H_{548}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_x t_y, r_y^2 r_x t_y^{-1}, m_x t_y^{-1}, r_y^2 r_x t_z$
	[8, 30, 74, 130, 202, 290, 394, 514, 650, 802]					
		2543	H_{575}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_y t_z, r_x t_z, m_y t_z^{-1}$
	[8, 30, 75, 130, 202, 290, 394, 514, 650, 802]					
		2544	H_{575}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_y t_z, r_x t_z, m_y t_z^{-1}$
	[8, 31, 71, 127, 199, 287, 391, 511, 647, 799]					
		2545	H_{549}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1}, m_z r_x t_z$
	[8, 31, 72, 127, 199, 287, 391, 511, 647, 799]					
		2546	H_{549}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1}, m_z r_x t_z$
	[8, 31, 74, 130, 202, 290, 394, 514, 650, 802]					
		2547	H_{573}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_z^2 t_z, m_x r_x t_z, r_z^2 t_z^{-1}$
		2548	H_{573}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_z^2 t_z, m_x r_x t_z, r_z^2 t_z^{-1}$
		2549	H_{581}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_y t_z, r_x t_z, m_y t_z^{-1}$
	[8, 31, 75, 130, 202, 290, 394, 514, 650, 802]					
		2550	H_{581}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_y t_z, r_x t_z, m_y t_z^{-1}$
	[8, 32, 71, 127, 199, 287, 391, 511, 647, 799]					
		2551	H_{554}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_x t_y, r_y^2 r_x t_y^{-1}, m_x t_y^{-1}, r_y^2 r_x t_z$
		2552	H_{554}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_x t_y, r_y^2 r_x t_y^{-1}, m_x t_y^{-1}, r_y^2 r_x t_z$
		2553	H_{554}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, r_y^2 r_x t_z, m_x t_z, m_x t_z^{-1}$
	[8, 32, 72, 128, 200, 288, 392, 512, 648, 800]					
		2554	H_{552}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1}, m_z r_x t_z$
	[8, 32, 73, 128, 200, 288, 392, 512, 648, 800]					
		2555	H_{552}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1}, m_z r_x t_z$
	[8, 32, 74, 130, 202, 290, 394, 514, 650, 802]					
		2556	H_{581}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_y t_z, r_x t_z, m_y t_z^{-1}$
	[8, 33, 72, 128, 200, 288, 392, 512, 648, 800]					
		2557	H_{552}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1}, m_z r_x t_z$
	[8, 33, 74, 130, 202, 290, 394, 514, 650, 802]					
		2558	H_{577}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_z^2 t_z, m_x r_x t_z, r_z^2 t_z^{-1}$
		2559	H_{579}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_y t_z, r_x t_z, m_y t_z^{-1}$
	[8, 34, 73, 129, 201, 289, 393, 513, 649, 801]					

Nbr.	gr	№	H_i	L	m	X
		2560	H_{548}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_x t_y, r_y^2 r_x t_y^{-1}, m_x t_y^{-1},$ $r_y^2 r_x t_z$
		2561	H_{546}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1},$ $m_z r_x t_z$

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[9, 32, 72, 128, 200, 288, 392, 512, 648, 800]
2562*, 2563*,
[9, 33, 74, 130, 202, 290, 394, 514, 650, 802]
2564*, 2565*, 2566*, 2567*, 2568*, 2569*,
[9, 33, 75, 131, 202, 290, 394, 514, 650, 802]
2570*,
[9, 33, 75, 132, 204, 292, 396, 516, 652, 804]
2571*, 2572*, 2573*, 2574*,
[9, 34, 75, 130, 202, 290, 394, 514, 650, 802]
2575*, 2576*, 2577*, 2578*, 2579*, 2580*, 2581*, 2582*, 2583*, 2584*, 2585*, 2586*, 2587*,
[9, 34, 76, 132, 204, 292, 396, 516, 652, 804]
2588*, 2589*, 2590*, 2591*, 2592*, 2593*, 2594*, 2595*, 2596*, 2597*, 2598*, 2599*, 2600*,
2601*, 2602*, 2603*,
[9, 34, 77, 133, 204, 292, 396, 516, 652, 804]
2604*,
[9, 35, 77, 132, 204, 292, 396, 516, 652, 804]
2605*, 2606*, 2607*, 2608*, 2609*, 2610*, 2611*, 2612*, 2613*, 2614*, 2615*, 2616*, 2617*,
2618*, 2619*, 2620*, 2621*, 2622*, 2623*, 2624*, 2625*, 2626*, 2627*, 2628*, 2629*, 2630*,
2631*, 2632*, 2633*, 2634*, 2635*,

Nbr.	gr	№	H_i	L	m	X
	[10, 34, 74, 130, 202, 290, 394, 514, 650, 802]					
		2562	H_{629}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1},$ $r_x^2 t_z, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
		2563	H_{638}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_z^2 t_x^{-1}, m_x r_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1},$ $r_x^2 t_z, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
	[10, 35, 75, 131, 203, 291, 395, 515, 651, 803]					
		2564	H_{433}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1},$ $m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		2565	H_{462}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1},$ $r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2566	H_{460}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1},$ $r_y^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
		2567	H_{425}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1},$ $r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2568	H_{503}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1},$ $r_y^2 r_z t_z, r_x^2 r_z t_z, r_y^2 t_z^{-1}$
		2569	H_{519}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1},$ $m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 t_z^{-1}$
	[10, 35, 76, 131, 203, 291, 395, 515, 651, 803]					
		2570	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, i t_y^{-1}, r_z^2 r_x t_y^{-1},$ $r_x^2 t_z, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}$
	[10, 35, 76, 132, 204, 292, 396, 516, 652, 804]					
		2571	H_{468}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		2572	H_{461}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $r_y^2 t_z, r_x^2 t_z, m_z t_z^{-1}$
		2573	H_{640}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, m_z t_y, r_x^{-1} t_y^{-1}, m_z t_y^{-1},$ $r_x^{-1} t_z, m_z t_z, r_x^{-1} t_z^{-1}$
		2574	H_{645}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_z^2 t_x^{-1}, m_x r_x t_x^{-1}, m_z t_y, r_x^{-1} t_y^{-1}, m_z t_y^{-1},$ $r_x^{-1} t_z, m_z t_z, r_x^{-1} t_z^{-1}$
	[10, 36, 75, 131, 203, 291, 395, 515, 651, 803]					
		2575	H_{631}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, m_x t_y, r_y^2 r_x t_y^{-1}, m_x t_y^{-1},$ $i t_z, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
		2576	H_{631}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, m_x t_y, r_y^2 r_x t_y^{-1}, m_x t_y^{-1},$ $i t_z, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
		2577	H_{471}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, m_z t_y, i t_y^{-1}, m_z t_y^{-1},$ $r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2578	H_{433}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1},$ $i t_z, i t_z^{-1}, m_z t_z^{-1}$
		2579	H_{462}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, t_y, r_z^2 t_y^{-1}, t_y^{-1},$ $r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2580	H_{629}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1},$ $r_x^2 t_z, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
		2581	H_{638}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_y^2 r_x t_x, r_z^2 t_x^{-1}, m_x r_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1},$ $r_x^2 t_z, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
		2582	H_{507}	1	r_z^2	$r_y^2 r_z t_x, r_y^2 r_z t_x^{-1}, r_x^2 r_z t_x^{-1}, r_y^2 r_z t_y, r_x^2 r_z t_y, r_y^2 r_z t_y^{-1},$ $r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2583	H_{531}	1	r_z^2	$m_x r_z t_x, m_x r_z t_x^{-1}, m_x r_z^{-1} t_x^{-1}, m_x r_z t_y, m_x r_z^{-1} t_y, m_x r_z t_y^{-1},$ $r_y^2 t_z, i t_z^{-1}, m_z t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2584	H_{522}	1	r_z^2	$m_x r_z t_x, m_x r_z t_x^{-1}, m_x r_z^{-1} t_x^{-1}, m_x r_z t_y, m_x r_z^{-1} t_y, m_x r_z t_y^{-1},$ $r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2585	H_{533}	1	r_z^2	$m_x r_z t_x, m_x r_z t_x^{-1}, m_x r_z^{-1} t_x^{-1}, m_x r_z t_y, m_x r_z^{-1} t_y, m_x r_z t_y^{-1},$ $r_y^2 r_z t_z, r_x^2 r_z t_z, r_y^2 t_z^{-1}$
		2586	H_{526}	1	r_z^2	$m_x r_z t_x, m_x r_z t_x^{-1}, m_x r_z^{-1} t_x^{-1}, m_x r_z t_y, m_x r_z^{-1} t_y, m_x r_z t_y^{-1},$ $m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 t_z^{-1}$
		2587	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, i t_y^{-1}, r_z^2 r_x t_y^{-1},$ $r_x^2 t_z, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}$
	[10, 36, 76, 132, 204, 292, 396, 516, 652, 804]					
		2588	H_{475}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		2589	H_{485}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2590	H_{466}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1},$ $m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		2591	H_{427}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1},$ $r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2592	H_{461}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $r_y^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
		2593	H_{461}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $r_x^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
		2594	H_{469}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2595	H_{469}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2596	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		2597	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1},$ $m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		2598	H_{486}	1	r_z^2	$r_x^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		2599	H_{479}	1	r_z^2	$r_x^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2600	H_{483}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $r_y^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
		2601	H_{482}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2602	H_{529}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $r_y^2 r_z t_z, r_x^2 r_z t_z, r_y^2 t_z^{-1}$
		2603	H_{530}	1	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 t_z^{-1}$
	[10, 36, 77, 132, 204, 292, 396, 516, 652, 804]					
		2604	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1},$ $r_x^{-1} t_z, m_z t_z, m_x r_x^{-1} t_z^{-1}$
	[10, 37, 76, 132, 204, 292, 396, 516, 652, 804]					
		2605	H_{473}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1},$ $i t_z, i t_z^{-1}, m_z t_z^{-1}$
		2606	H_{473}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1},$ $m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		2607	H_{474}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1},$ $r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2608	H_{474}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1},$ $r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2609	H_{539}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1},$ $m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}$
		2610	H_{539}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_y^2 t_y, r_x^2 t_y, r_y^2 t_y^{-1},$ $m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}$
		2611	H_{475}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $i t_z, i t_z^{-1}, m_z t_z^{-1}$
		2612	H_{485}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2613	H_{466}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1},$ $i t_z, i t_z^{-1}, m_z t_z^{-1}$
		2614	H_{427}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1},$ $r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2615	H_{468}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $i t_z, i t_z^{-1}, m_z t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2616	H_{461}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $r_y^2 t_z, r_x^2 t_z, i t_z^{-1}$
		2617	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1},$ $r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2618	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1},$ $r_y^2 t_z, r_x^2 t_z, r_y^2 t_z^{-1}$
		2619	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1},$ $r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2620	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_y^2 t_y, r_x^2 t_y, r_y^2 t_y^{-1},$ $r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2621	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $i t_z, i t_z^{-1}, m_z t_z^{-1}$
		2622	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $i t_z, m_z t_z, i t_z^{-1}$
		2623	H_{639}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, r_y^2 t_y, m_x r_x^{-1} t_y^{-1}, r_y^2 t_y^{-1},$ $m_x r_x^{-1} t_z, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
		2624	H_{639}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, r_y^2 t_y, m_x r_x^{-1} t_y^{-1}, r_y^2 t_y^{-1},$ $m_x r_x^{-1} t_z, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
		2625	H_{429}	1	r_z^2	$r_x^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1},$ $r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2626	H_{486}	1	r_z^2	$r_x^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $i t_z, i t_z^{-1}, m_z t_z^{-1}$
		2627	H_{479}	1	r_z^2	$r_x^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1},$ $r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2628	H_{640}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, m_z t_y, r_x^{-1} t_y^{-1}, m_z t_y^{-1},$ $r_x^{-1} t_z, m_z t_z, r_x^{-1} t_z^{-1}$
		2629	H_{645}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_y^2 r_x t_x, r_z^2 t_x^{-1}, m_x r_x t_x^{-1}, m_z t_y, r_x^{-1} t_y^{-1}, m_z t_y^{-1},$ $r_x^{-1} t_z, m_z t_z, r_x^{-1} t_z^{-1}$
		2630	H_{524}	1	r_z^2	$m_z r_z t_x, m_z r_z^{-1} t_x^{-1}, m_z r_z t_x^{-1}, m_z r_z^{-1} t_y, m_z r_z t_y, m_z r_z^{-1} t_y^{-1},$ $r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2631	H_{535}	1	r_z^2	$r_z t_x, r_z^{-1} t_x^{-1}, r_z t_x^{-1}, r_z^{-1} t_y, r_z t_y, r_z^{-1} t_y^{-1},$ $r_y^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
		2632	H_{509}	1	r_z^2	$r_z t_x, r_z^{-1} t_x^{-1}, r_z t_x^{-1}, r_z^{-1} t_y, r_z t_y, r_z^{-1} t_y^{-1},$ $r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2633	H_{512}	1	r_z^2	$r_z t_x, r_z^{-1} t_x^{-1}, r_z t_x^{-1}, r_z^{-1} t_y, r_z t_y, r_z^{-1} t_y^{-1},$ $r_y^2 r_z t_z, r_x^2 r_z t_z, r_y^2 t_z^{-1}$
		2634	H_{537}	1	r_z^2	$r_z t_x, r_z^{-1} t_x^{-1}, r_z t_x^{-1}, r_z^{-1} t_y, r_z t_y, r_z^{-1} t_y^{-1},$ $m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 t_z^{-1}$
		2635	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1},$ $r_x^{-1} t_z, m_z t_z, m_x r_x^{-1} t_z^{-1}$

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[9, 35, 79, 134, 204, 292, 396, 516, 652, 804]
2636*,
[9, 36, 79, 133, 204, 292, 396, 516, 652, 804]
2637*, 2638*,
[9, 37, 79, 132, 204, 292, 396, 516, 652, 804]
2639*, 2640*, 2641*, 2642*, 2643*,
[10, 37, 78, 132, 204, 292, 396, 516, 652, 804]

		2636	H_{766}	$\langle m_y, r_x^2 \rangle$	$m_z r_x^{-1}$	$m_x t_x, m_x t_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, r_x^{-1} t_y, t_y^{-1},$ $m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, r_x t_z^{-1}$

[10, 38, 77, 132, 204, 292, 396, 516, 652, 804]

		2637	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, i t_y^{-1},$ $r_z^2 r_x t_y^{-1}, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}$
		2638	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y, r_z^2 t_y^{-1},$ $m_x r_x t_y^{-1}, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$

[10, 39, 76, 132, 204, 292, 396, 516, 652, 804]

		2639	H_{768}	$\langle m_y, r_x^2 \rangle$	$m_z r_x^{-1}$	$m_x t_x, m_x t_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 t_y, m_x r_x^{-1} t_y, m_x t_y^{-1},$ $r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z, m_x r_x t_z^{-1}$
		2640	H_{768}	$\langle m_y, r_x^2 \rangle$	$m_z r_x^{-1}$	$r_z^2 r_x t_x, m_x t_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 t_y, m_x r_x^{-1} t_y, m_x t_y^{-1},$ $r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z, m_x r_x t_z^{-1}$
		2641	H_{766}	$\langle m_y, r_x^2 \rangle$	$m_z r_x^{-1}$	$r_z^2 r_x t_x, m_x t_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, r_x^{-1} t_y, t_y^{-1},$ $m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, r_x t_z^{-1}$
		2642	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, i t_y^{-1},$ $r_z^2 r_x t_y^{-1}, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}$
		2643	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y, r_z^2 t_y^{-1},$ $m_x r_x t_y^{-1}, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}$

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[10, 35, 76, 132, 204, 292, 396, 516, 652, 804]
2644*, 2645*, 2646*, 2647*, 2648*, 2649*, 2650*,
[10, 36, 77, 132, 204, 292, 396, 516, 652, 804]

Nbr.	gr	№	H_i	L	m	X
		2651*, 2652*, 2653*, 2654*, 2655*, 2656*, 2657*, 2658*, 2659*, 2660*, 2661*, 2662*, 2663*, 2664*, 2665*, 2666*, 2667*, 2668*, 2669*, 2670*, 2671*, 2672*, 2673*, 2674*, 2675*, 2676*, 2677*, 2678*, 2679*, 2680*, 2681*, 2682*, 2683*, 2684*, 2685*, 2686*, 2687*, 2688*, 2689*, 2690*, 2691*, 2692*, 2693*, 2694*,				
	[11, 36, 76, 132, 204, 292, 396, 516, 652, 804]					
		2644	H_{682}	$\langle m_x \rangle$	r_z^2	$it_x, r_y^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_x^{-1}, m_x t_y, m_y t_y^{-1},$ $m_x t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
		2645	H_{680}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_x t_x, m_y t_x^{-1}, m_x t_x^{-1}, m_x t_y, m_y t_y^{-1},$ $m_x t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
		2646	H_{359}	1	m_z	$it_x, r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1},$ $m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2647	H_{343}	1	m_z	$r_z^2 t_x, r_y^2 r_z t_x^{-1}, m_x r_z t_x^{-1}, it_y, r_z^2 t_y, r_y^2 r_z t_y^{-1},$ $m_x r_z t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2648	H_{377}	1	m_z	$r_y^2 t_x, m_x t_x, m_z r_z^{-1} t_x^{-1}, r_z^{-1} t_x^{-1}, m_z r_z t_y, r_z t_y,$ $m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2649	H_{690}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_x t_x, m_y t_x^{-1}, m_x t_x^{-1}, m_x t_y, m_y t_y^{-1},$ $m_x t_y^{-1}, r_y^2 r_z t_z, m_z r_z^{-1} t_z, r_y^2 t_z^{-1}$
		2650	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_y^2 r_x t_x^{-1}, r_x^{-1} t_x^{-1}, m_x t_y, m_x t_y^{-1},$ $m_y t_y^{-1}, m_z t_z, it_z^{-1}, m_z t_z^{-1}$
	[11, 37, 76, 132, 204, 292, 396, 516, 652, 804]					
		2651	H_{683}	$\langle m_x \rangle$	r_z^2	$it_x, r_y^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_x^{-1}, r_y^2 t_y, r_x^2 t_y^{-1},$ $r_y^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z, r_x^2 t_z^{-1}$
		2652	H_{683}	$\langle m_x \rangle$	r_z^2	$it_x, r_y^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_x^{-1}, r_y^2 t_y, r_x^2 t_y^{-1},$ $r_y^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z, r_y^2 t_z^{-1}$
		2653	H_{682}	$\langle m_x \rangle$	r_z^2	$it_x, r_y^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_x^{-1}, m_x t_y, m_y t_y^{-1},$ $m_x t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
		2654	H_{344}	1	m_z	$it_x, it_x^{-1}, r_z^2 t_x^{-1}, it_y, r_z^2 t_y, it_y^{-1},$ $r_z^2 t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2655	H_{344}	1	m_z	$it_x, r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, it_y, r_z^2 t_y,$ $it_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2656	H_{344}	1	m_z	$r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, it_y, r_z^2 t_y, it_y^{-1},$ $r_z^2 t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2657	H_{344}	1	m_z	$it_x, r_z^2 t_x, it_x^{-1}, r_z^2 t_x^{-1}, it_y, r_z^2 t_y,$ $r_z^2 t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2658	H_{682}	$\langle m_x \rangle$	r_z^2	$it_x, r_y^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_x^{-1}, m_x t_y, m_y t_y^{-1},$ $m_x t_y^{-1}, r_x^2 t_z, r_y^2 t_z, r_x^2 t_z^{-1}$
		2659	H_{683}	$\langle m_x \rangle$	r_z^2	$it_x, r_y^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_x^{-1}, r_y^2 t_y, r_x^2 t_y^{-1},$ $r_y^2 t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
		2660	H_{683}	$\langle m_x \rangle$	r_z^2	$it_x, r_y^2 t_x, r_x^2 t_x^{-1}, r_y^2 t_x^{-1}, r_y^2 t_y, r_x^2 t_y^{-1},$ $r_y^2 t_y^{-1}, r_y^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
		2661	H_{682}	$\langle m_y \rangle$	m_x	$m_z t_x, r_y^2 t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y, m_y t_y, m_x t_y^{-1},$ $t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, m_z t_z^{-1}$
		2662	H_{682}	$\langle m_y \rangle$	m_x	$m_z t_x, r_y^2 t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y, m_y t_y, m_x t_y^{-1},$ $t_y^{-1}, m_z t_z, r_y^2 t_z^{-1}, m_z t_z^{-1}$
		2663	H_{680}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_x t_x, m_y t_x^{-1}, m_x t_x^{-1}, m_x t_y, m_y t_y^{-1},$ $m_x t_y^{-1}, r_x^2 t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
		2664	H_{370}	1	m_z	$it_x, r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1},$ $m_y t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2665	H_{370}	1	m_z	$it_x, r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1},$ $m_y t_y^{-1}, m_y t_z, r_x^2 t_z^{-1}, m_y t_z^{-1}$
		2666	H_{359}	1	m_z	$it_x, r_z^2 t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1},$ $m_y t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2667	H_{347}	1	m_z	$it_x, r_y^2 r_z t_x^{-1}, m_x r_z t_x^{-1}, it_y, r_z^2 t_y, r_y^2 r_z t_y^{-1},$ $m_x r_z t_y^{-1}, m_x r_z^{-1} t_z, r_x^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		2668	H_{347}	1	m_z	$r_z^2 t_x, r_y^2 r_z t_x^{-1}, m_x r_z t_x^{-1}, it_y, r_z^2 t_y, r_y^2 r_z t_y^{-1},$ $m_x r_z t_y^{-1}, m_x r_z^{-1} t_z, r_x^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		2669	H_{343}	1	m_z	$it_x, r_y^2 r_z t_x^{-1}, m_x r_z t_x^{-1}, it_y, r_z^2 t_y, r_y^2 r_z t_y^{-1},$ $m_x r_z t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2670	H_{378}	1	m_z	$r_y^2 t_x, m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, r_x^2 t_y^{-1},$ $m_y t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2671	H_{378}	1	m_z	$r_y^2 t_x, m_x t_x, r_y^2 t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x^2 t_y^{-1},$ $m_y t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2672	H_{382}	1	m_z	$r_y^2 t_x, m_x t_x, m_z r_z^{-1} t_x^{-1}, r_z^{-1} t_x^{-1}, m_z r_z t_y, r_z t_y,$ $r_x^2 t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$
		2673	H_{382}	1	m_z	$r_y^2 t_x, m_x t_x, m_z r_z^{-1} t_x^{-1}, r_z^{-1} t_x^{-1}, m_z r_z t_y, r_z t_y,$ $m_y t_y^{-1}, m_x r_z t_z, r_y^2 r_z t_z^{-1}, m_x r_z t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2674	H_{377}	1	m_z	$r_y^2 t_x, m_x t_x, m_z r_z^{-1} t_x^{-1}, r_z^{-1} t_x^{-1}, m_z r_z t_y, r_z t_y,$ $r_x^2 t_y^{-1}, t_z, m_z t_z^{-1}, t_z^{-1}$
		2675	H_{453}	1	r_z^2	$m_z t_x, it_x^{-1}, m_z t_x^{-1}, it_y, m_z t_y, it_y^{-1},$ $m_z t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		2676	H_{539}	1	r_z^2	$it_x, m_z t_x, it_x^{-1}, m_z t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1},$ $r_x^2 t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}$
		2677	H_{539}	1	r_z^2	$m_z t_x, it_x^{-1}, m_z t_x^{-1}, r_y^2 t_y, r_x^2 t_y, r_y^2 t_y^{-1},$ $r_x^2 t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}$
		2678	H_{690}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_x t_x, m_y t_x^{-1}, m_x t_x^{-1}, m_x t_y, m_y t_y^{-1},$ $m_x t_y^{-1}, r_y^2 r_z t_z, m_z r_z^{-1} t_z, r_x^2 t_z^{-1}$
		2679	H_{452}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y, t_y, r_z^2 t_y^{-1},$ $t_y^{-1}, r_y^2 r_z t_z, it_z^{-1}, m_z t_z^{-1}$
		2680	H_{503}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y, t_y, r_z^2 t_y^{-1},$ $t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2681	H_{438}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y, t_y, r_z^2 t_y^{-1},$ $t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		2682	H_{495}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_z^2 t_y, t_y, r_z^2 t_y^{-1},$ $t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}$
		2683	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_y^2 r_x t_x^{-1}, r_x^{-1} t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1},$ $r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2684	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_y^2 r_x t_x^{-1}, r_x^{-1} t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1},$ $r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2685	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_y^2 t_y, r_x^2 t_y, r_y^2 t_y^{-1},$ $r_x^2 t_y^{-1}, r_y^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2686	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_y^2 t_y, r_x^2 t_y, r_y^2 t_y^{-1},$ $r_x^2 t_y^{-1}, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2687	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_y^2 r_x t_x^{-1}, r_x^{-1} t_x^{-1}, m_x t_y, m_x t_y^{-1},$ $m_y t_y^{-1}, it_z, it_z^{-1}, m_z t_z^{-1}$
		2688	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1},$ $m_y t_y^{-1}, it_z, it_z^{-1}, m_z t_z^{-1}$
		2689	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_x t_y, m_y t_y, m_x t_y^{-1},$ $m_y t_y^{-1}, m_z t_z, it_z^{-1}, m_z t_z^{-1}$
		2690	H_{505}	1	r_z^2	$r_y^2 t_x, r_x^2 t_x, r_y^2 t_x^{-1}, r_x^2 t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1},$ $r_x^2 t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		2691	H_{527}	1	r_z^2	$m_x t_x, m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1},$ $m_y t_y^{-1}, r_y^2 r_z t_z, it_z^{-1}, m_z t_z^{-1}$
		2692	H_{529}	1	r_z^2	$m_x t_x, m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1},$ $m_y t_y^{-1}, r_y^2 r_z t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2693	H_{496}	1	r_z^2	$m_x t_x, m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1},$ $m_y t_y^{-1}, r_y^2 r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		2694	H_{502}	1	r_z^2	$m_x t_x, m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, m_x t_y, m_x t_y^{-1},$ $m_y t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}$

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[10, 36, 78, 133, 204, 292, 396, 516, 652, 804]
2695*, 2696*, 2697*, 2698*, 2699*, 2700*,
[10, 37, 78, 132, 204, 292, 396, 516, 652, 804]
2701*, 2702*, 2703*, 2704*, 2705*, 2706*, 2707*, 2708*, 2709*, 2710*, 2711*, 2712*, 2713*,
2714*, 2715*, 2716*, 2717*, 2718*, 2719*, 2720*, 2721*, 2722*, 2723*, 2724*, 2725*, 2726*,
2727*, 2728*, 2729*, 2730*, 2731*,
[11, 37, 77, 132, 204, 292, 396, 516, 652, 804]

Nbr.	gr	№	H_i	L	m	X
		2695	H_{560}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1},$ $r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2696	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, m_x t_x^{-1}, m_y t_y, r_x t_y, m_y t_y^{-1},$ $r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
		2697	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, it_y^{-1}, r_z^2 r_x t_y^{-1},$ $r_x^2 t_z, m_z r_x^{-1} t_z, it_z^{-1}, r_z^2 r_x t_z^{-1}$
		2698	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y, r_z^2 t_y^{-1},$ $m_x r_x t_y^{-1}, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		2699	H_{557}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1},$ $r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2700	H_{578}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y, m_y t_y^{-1},$ $r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$

[11, 38, 76, 132, 204, 292, 396, 516, 652, 804]

Nbr.	gr	№	H_i	L	m	X
		2701	H_{551}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 r_x t_y, it_y^{-1}, r_z^2 r_x t_y^{-1},$ $it_z, r_z^2 r_x t_z, it_z^{-1}, r_z^2 r_x t_z^{-1}$
		2702	H_{551}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 r_x t_y, it_y^{-1}, r_z^2 r_x t_y^{-1},$ $it_z, r_z^2 r_x t_z, it_z^{-1}, r_z^2 r_x t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2703	H_{551}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_z^2 r_x t_x^{-1}, it_y, r_z^2 r_x t_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, it_z, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
		2704	H_{572}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 t_y, m_x r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		2705	H_{572}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 t_y, m_x r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		2706	H_{555}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2707	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2708	H_{555}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
		2709	H_{574}	1	$m_z r_x$	$it_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
		2710	H_{574}	1	$m_z r_x$	$r_z^2 r_x t_x, it_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
		2711	H_{560}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2712	H_{560}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2713	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2714	H_{560}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
		2715	H_{580}	1	$m_z r_x$	$it_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_y t_y, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
		2716	H_{580}	1	$m_z r_x$	$it_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
		2717	H_{580}	1	$m_z r_x$	$r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$
		2718	H_{556}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 r_x t_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, it_z, r_z^2 r_x t_z, it_z^{-1}, r_z^2 r_x t_z^{-1}$
		2719	H_{556}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 r_x t_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, it_z, r_z^2 r_x t_z, it_z^{-1}, r_z^2 r_x t_z^{-1}$
		2720	H_{556}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, it_y, r_z^2 r_x t_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, it_z, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
		2721	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, it_z^{-1}, r_z^2 r_x t_z^{-1}$
		2722	H_{561}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}$
		2723	H_{561}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^2 t_y, m_z r_x^{-1} t_y, it_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_z^2 r_x t_z^{-1}$
		2724	H_{576}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y, m_x r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		2725	H_{576}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y, m_x r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		2726	H_{576}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 t_y, m_x r_x t_y, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		2727	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		2728	H_{571}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_x^{-1} t_z, m_z t_z, m_x r_x^{-1} t_z^{-1}$
		2729	H_{571}	1	$m_z r_x$	$m_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y, r_z^2 t_y^{-1}, m_x r_x t_y^{-1}, r_x^{-1} t_z, m_z t_z, m_x r_x^{-1} t_z^{-1}$
		2730	H_{557}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2731	H_{578}	1	$m_z r_x$	$r_y^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y, m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$

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[7, 23, 50, 87, 135, 194, 263, 343, 434, 535]
2732*,
[7, 23, 52, 97, 158, 233, 325, 431, 547, 682]
2733*,
[7, 24, 53, 94, 147, 212, 289, 378, 479, 592]
2734*,
[7, 24, 54, 96, 150, 216, 294, 384, 486, 600]
2735*,
[7, 25, 56, 98, 152, 218, 296, 386, 488, 602]
2736*, 2737*,
[7, 27, 62, 109, 172, 249, 338, 444, 564, 695]

Nbr.	gr	№	H_i	L	m	X
		2738*, 2739*,				
	[8, 27, 58, 101, 158, 226, 306, 401, 506, 623]					
		2732	H_{306}	1	i	$t_x, it_x^{-1}, t_x^{-1}, r_z^2 r_x t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_z^2 r_x t_z^{-1}$
	[8, 27, 60, 109, 172, 246, 338, 446, 564, 701]					
		2733	H_{321}	1	i	$t_x, it_x^{-1}, t_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_x t_y^{-1}, m_x r_x t_z, r_x^{-1} t_z^{-1}$
	[8, 28, 60, 107, 166, 239, 325, 425, 537, 664]					
		2734	H_{307}	1	i	$m_z r_x t_x, r_z^2 r_x t_x^{-1}, m_z r_x t_x^{-1}, r_z^2 r_x t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_z^2 r_x t_z^{-1}$
	[8, 28, 61, 108, 168, 241, 328, 428, 541, 668]					
		2735	H_{325}	1	i	$m_z r_x t_x, r_z^2 r_x t_x^{-1}, m_z r_x t_x^{-1}, m_x r_x t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x^{-1} t_z^{-1}$
	[8, 29, 62, 109, 169, 242, 329, 429, 542, 669]					
		2736	H_{324}	1	i	$m_z r_x t_x, r_z^2 r_x t_x^{-1}, m_z r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_x t_y^{-1}, m_x r_x t_z, r_x^{-1} t_z^{-1}$
		2737	H_{309}	1	i	$m_z r_x t_x, r_z^2 r_x t_x^{-1}, m_z r_x t_x^{-1}, r_y^2 r_x t_y^{-1}, m_z r_x^{-1} t_y^{-1}, r_y^2 r_x t_z, m_z r_x^{-1} t_z^{-1}$
	[8, 31, 66, 115, 181, 258, 349, 459, 578, 711]					
		2738	H_{310}	1	i	$r_x^2 t_x, m_x t_x^{-1}, r_x^2 t_x^{-1}, r_z^2 r_x t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_z^2 r_x t_z^{-1}$
		2739	H_{322}	1	i	$r_x^2 t_x, m_x t_x^{-1}, r_x^2 t_x^{-1}, m_x r_x^{-1} t_y^{-1}, r_x t_y^{-1}, m_x r_x t_z, r_x^{-1} t_z^{-1}$
51B						
	[7, 24, 62, 118, 190, 278, 382, 502, 638, 790]					
		2740*,				
	[7, 24, 62, 120, 192, 280, 384, 504, 640, 792]					
		2741*,				
	[7, 25, 59, 109, 175, 257, 355, 469, 599, 745]					
		2742*,				
	[7, 25, 61, 116, 188, 276, 380, 500, 636, 788]					
		2743*,				
	[7, 25, 65, 124, 196, 284, 388, 508, 644, 796]					
		2744*,				
	[7, 25, 66, 127, 200, 288, 392, 512, 648, 800]					
		2745*,				
	[7, 26, 63, 117, 187, 273, 375, 493, 627, 777]					
		2746*,				
	[7, 26, 64, 121, 194, 282, 386, 506, 642, 794]					
		2747*,				
	[7, 26, 68, 128, 200, 288, 392, 512, 648, 800]					
		2748*, 2749*, 2750*,				
	[7, 27, 66, 122, 194, 282, 386, 506, 642, 794]					
		2751*, 2752*,				
	[7, 27, 68, 126, 198, 286, 390, 510, 646, 798]					
		2753*,				
	[7, 27, 69, 128, 200, 288, 392, 512, 648, 800]					
		2754*,				
	[7, 28, 69, 126, 198, 286, 390, 510, 646, 798]					
		2755*,				
	[7, 28, 70, 128, 200, 288, 392, 512, 648, 800]					
		2756*, 2757*,				
	[7, 29, 70, 126, 198, 286, 390, 510, 646, 798]					
		2758*, 2759*,				
	[8, 28, 70, 124, 198, 284, 390, 508, 646, 796]					
		2740	H_{408}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_x t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, r_x^{-1} t_z^{-1}$
	[8, 28, 70, 126, 198, 286, 390, 510, 646, 798]					
		2741	H_{403}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_x r_x t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, m_y t_z^{-1}$
	[8, 29, 66, 119, 188, 273, 374, 491, 624, 773]					
		2742	H_{383}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, t_y, r_z^2 r_x t_y^{-1}, t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[8, 29, 68, 124, 196, 284, 388, 508, 644, 796]					
		2743	H_{385}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[8, 29, 72, 128, 200, 288, 392, 512, 648, 800]					
		2744	H_{416}	1	$r_z^2 r_x$	$m_z r_x t_x, it_x^{-1}, m_z r_x t_x^{-1}, m_x r_x t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, m_y t_z^{-1}$
	[8, 29, 73, 130, 202, 290, 394, 514, 650, 802]					
		2745	H_{411}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_x t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, r_x^{-1} t_z^{-1}$
	[8, 30, 69, 124, 195, 282, 385, 504, 639, 790]					
		2746	H_{387}	1	$r_z^2 r_x$	$m_z r_x t_x, it_x^{-1}, m_z r_x t_x^{-1}, t_y, r_z^2 r_x t_y^{-1}, t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[8, 30, 70, 127, 199, 287, 391, 511, 647, 799]					
		2747	H_{399}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
	[8, 30, 74, 130, 202, 290, 394, 514, 650, 802]					
		2748	H_{417}	1	$r_z^2 r_x$	$m_z r_x t_x, it_x^{-1}, m_z r_x t_x^{-1}, r_x t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, r_x^{-1} t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2749	H_{423}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_x r_x t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, m_y t_z^{-1}$
		2750	H_{405}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, m_x r_x t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, m_y t_z^{-1}$
	[8, 31, 71, 127, 199, 287, 391, 511, 647, 799]					
		2751	H_{397}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
		2752	H_{390}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, t_y, r_z^2 r_x t_y^{-1}, t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[8, 31, 73, 129, 201, 289, 393, 513, 649, 801]					
		2753	H_{406}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_z^2 r_x t_y^{-1}, t_z, r_z^2 r_x t_z^{-1}, t_z^{-1}$
	[8, 31, 74, 130, 202, 290, 394, 514, 650, 802]					
		2754	H_{423}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_z t_y, m_x r_x t_y^{-1}, m_z t_y^{-1}, m_x r_x^{-1} t_z^{-1}$
	[8, 32, 73, 129, 201, 289, 393, 513, 649, 801]					
		2755	H_{406}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, t_y, r_z^2 r_x t_y^{-1}, t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[8, 32, 74, 130, 202, 290, 394, 514, 650, 802]					
		2756	H_{420}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_x r_x t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, m_y t_z^{-1}$
		2757	H_{421}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_x t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, r_x^{-1} t_z^{-1}$
	[8, 33, 73, 129, 201, 289, 393, 513, 649, 801]					
		2758	H_{384}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, t_y, r_z^2 r_x t_y^{-1}, t_y^{-1}, r_z^2 r_x t_z^{-1}$
		2759	H_{386}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z^{-1}$
52A						
	[8, 26, 56, 98, 152, 218, 296, 386, 488, 602]					
		2760*,				
	[8, 27, 59, 105, 166, 240, 328, 430, 545, 675]					
		2761*,				
	[8, 28, 62, 109, 172, 249, 338, 444, 564, 695]					
		2762*,				
	[9, 29, 62, 109, 169, 242, 329, 429, 542, 669]					
		2760	H_{752}	$\langle m_y, r_z^2 \rangle$	i	$r_z^2 r_x t_x, m_x r_x^{-1} t_x, m_z r_x^{-1} t_x^{-1}, r_x^{-1} t_x^{-1}, r_y^2 r_x t_y, m_x r_x t_y^{-1}, m_x r_x t_z^{-1}, r_y^2 r_x t_z^{-1}$
	[9, 30, 64, 113, 176, 251, 342, 446, 563, 696]					
		2761	H_{697}	$\langle m_x \rangle$	r_z^2	$m_x r_z^{-1} t_x, r_z t_x^{-1}, r_z t_y^{-1}, m_x r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, m_z r_z^{-1} t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
	[9, 31, 66, 115, 181, 258, 349, 459, 578, 711]					
		2762	H_{751}	$\langle m_y, r_z^2 \rangle$	i	$r_y^2 t_x, r_z^2 t_x, m_z t_x^{-1}, r_z^2 t_x^{-1}, r_y^2 r_x t_y, m_x r_x t_y^{-1}, m_x r_x t_z^{-1}, r_y^2 r_x t_z^{-1}$
52B						
	[8, 27, 68, 128, 200, 288, 392, 512, 648, 800]					
		2763*,				
	[8, 28, 66, 122, 194, 282, 386, 506, 642, 794]					
		2764*,				
	[8, 28, 69, 128, 200, 288, 392, 512, 648, 800]					
		2765*, 2766*,				
	[8, 29, 68, 124, 196, 284, 388, 508, 644, 796]					
		2767*,				
	[8, 29, 69, 126, 198, 286, 390, 510, 646, 798]					
		2768*,				
	[8, 29, 70, 128, 200, 288, 392, 512, 648, 800]					
		2769*,				
	[8, 30, 70, 126, 198, 286, 390, 510, 646, 798]					
		2770*,				
	[9, 30, 74, 130, 202, 290, 394, 514, 650, 802]					
		2763	H_{653}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x, r_z^2 r_x t_x, r_x^2 t_x^{-1}, r_z^2 r_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_z, m_x r_x t_z, m_y t_z^{-1}$
	[9, 31, 71, 127, 199, 287, 391, 511, 647, 799]					
		2764	H_{647}	$\langle m_x \rangle$	$r_y^2 r_x$	$i t_x, r_z^2 r_x t_x, r_x^2 t_x^{-1}, r_z^2 r_x t_x^{-1}, m_x t_y, m_z r_x t_y^{-1}, m_x t_y^{-1}, m_z r_x t_z$
	[9, 31, 74, 130, 202, 290, 394, 514, 650, 802]					
		2765	H_{423}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_y^2 t_x^{-1}, r_x t_x^{-1}, m_x r_x t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, m_y t_z^{-1}$
		2766	H_{581}	1	$m_z r_x$	$i t_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, r_x^{-1} t_y^{-1}, m_y t_z, r_x t_z, m_y t_z^{-1}$
	[9, 32, 72, 128, 200, 288, 392, 512, 648, 800]					
		2767	H_{552}	1	$m_z r_x$	$i t_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1}, m_z r_x t_z$
	[9, 32, 73, 129, 201, 289, 393, 513, 649, 801]					
		2768	H_{406}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_y^2 t_x^{-1}, r_x t_x^{-1}, t_y, r_z^2 r_x t_y^{-1}, t_y^{-1}, r_z^2 r_x t_z^{-1}$
	[9, 32, 74, 130, 202, 290, 394, 514, 650, 802]					

Nbr.	gr	№	H_i	L	m	X
		2769	H_{651}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_x t_x, m_z r_x t_x^{-1}, m_x t_x^{-1}, m_x r_x^{-1} t_y^{-1}, m_y t_z,$ $m_x r_x t_z, m_y t_z^{-1}$
	[9, 33, 73, 129, 201, 289, 393, 513, 649, 801]					
		2770	H_{646}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_x t_x, m_z r_x t_x^{-1}, m_x t_x^{-1}, m_x t_y, m_z r_x t_y^{-1},$ $m_x t_y^{-1}, m_z r_x t_z$
53A						
	[7, 27, 64, 113, 179, 260, 354, 467, 593, 734]					
		2771*,				
	[8, 31, 68, 119, 188, 269, 368, 481, 609, 752]					
		2771	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y^{-1} r_z^{-1} t_x^{-1}, r_y^2 r_z t_y, r_y r_x t_y, r_y^{-1} r_z^{-1} t_y^{-1}, r_y^2 r_z t_z,$ $r_y r_x t_z$
53B						
	[7, 24, 55, 98, 153, 222, 303, 396, 503, 622]					
		2772*,				
	[7, 27, 60, 103, 160, 230, 312, 407, 515, 635]					
		2773*,				
	[8, 28, 63, 110, 172, 249, 338, 441, 560, 691]					
		2772	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y r_x t_x, r_y^2 r_z t_y, r_y^{-1} r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y r_x t_z,$ $r_y^{-1} r_z^{-1} t_z^{-1}$
	[8, 31, 65, 113, 176, 253, 343, 447, 566, 698]					
		2773	H_{393}	1	$r_z^2 r_x$	$r_x^2 r_y t_x^{-1}, r_y^{-1} r_z^{-1} t_x^{-1}, r_y r_x t_y, r_y^{-1} r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y r_x t_z,$ $r_x^2 r_y t_z^{-1}$
53C						
	[7, 29, 77, 134, 203, 294, 395, 515, 654, 803]					
		2774*,				
	[8, 33, 79, 131, 205, 292, 395, 517, 652, 803]					
		2774	H_{393}	1	$r_z^2 r_x$	$r_y r_x t_x, r_x^2 r_y t_x^{-1}, r_y^{-1} r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y r_x t_z, r_x^2 r_y t_z^{-1},$ $r_y^{-1} r_z^{-1} t_z^{-1}$
54A						
	[8, 32, 76, 131, 203, 294, 395, 515, 654, 803]					
		2775*,				
	[9, 35, 76, 131, 205, 292, 395, 517, 652, 803]					
		2775	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y^{-1} r_z^{-1} t_x^{-1}, r_y^2 r_z t_y, r_y r_x t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} r_z^{-1} t_y^{-1},$ $r_y^2 r_z t_z, r_y r_x t_z$
54B						
	[8, 27, 59, 103, 160, 230, 312, 407, 515, 635]					
		2776*,				
	[9, 30, 65, 113, 176, 253, 343, 447, 566, 698]					
		2776	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y r_x t_x, r_y^2 r_z t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} r_z^{-1} t_y^{-1}, r_y^2 r_z t_z,$ $r_y r_x t_z, r_y^{-1} r_z^{-1} t_z^{-1}$
55A						
	[9, 31, 69, 123, 193, 279, 381, 499, 633, 783]					
		2777*,				
	[9, 32, 72, 128, 200, 288, 392, 512, 648, 800]					
		2778*, 2779*,				
	[9, 32, 73, 130, 202, 290, 394, 514, 650, 802]					
		2780*, 2781*,				
	[9, 33, 74, 130, 202, 290, 394, 514, 650, 802]					
		2782*, 2783*, 2784*, 2785*, 2786*, 2787*, 2788*, 2789*,				
	[9, 33, 75, 132, 204, 292, 396, 516, 652, 804]					
		2790*, 2791*,				
	[9, 34, 76, 132, 204, 292, 396, 516, 652, 804]					
		2792*, 2793*, 2794*, 2795*, 2796*, 2797*, 2798*, 2799*, 2800*, 2801*,				
	[10, 33, 72, 127, 198, 285, 388, 507, 642, 793]					
		2777	H_{777}	$\langle m_z r_x, r_y r_x \rangle$	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_x r_z^{-1} t_y, m_x r_y^{-1} r_x^{-1} t_y^{-1}, m_x r_z^{-1} t_y^{-1},$ $r_y^{-1} r_z^{-1} t_z, r_x^2 r_y t_z^{-1}, r_y^{-1} r_z^{-1} t_z^{-1}$
	[10, 34, 74, 130, 202, 290, 394, 514, 650, 802]					
		2778	H_{301}	1	i	$t_x, it_x^{-1}, t_x^{-1}, t_y, it_y^{-1}, t_y^{-1},$ $m_y t_z, r_y^2 t_z^{-1}, m_y t_z^{-1}$
		2779	H_{658}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, m_z t_y^{-1},$ $m_y t_z, m_x r_x^{-1} t_z^{-1}, r_x t_z^{-1}$
	[10, 34, 75, 131, 203, 291, 395, 515, 651, 803]					
		2780	H_{406}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, t_y, r_z^2 r_x t_y^{-1}, t_y^{-1},$ $t_z, r_z^2 r_x t_z^{-1}, t_z^{-1}$
		2781	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_y^2 r_x t_y, it_y^{-1}, m_z r_x t_y^{-1},$ $m_z r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[10, 35, 75, 131, 203, 291, 395, 515, 651, 803]					
		2782	H_{655}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_z r_x t_y, it_y^{-1}, t_y^{-1},$ $t_z, r_z^2 r_x t_z^{-1}, m_z r_x t_z^{-1}$
		2783	H_{302}	1	i	$t_x, it_x^{-1}, t_x^{-1}, m_z t_y, r_z^2 t_y^{-1}, m_z t_y^{-1},$ $r_z^2 t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
		2784	H_{312}	1	i	$t_x, it_x^{-1}, t_x^{-1}, m_z t_y, r_z^2 t_y^{-1}, m_z t_y^{-1},$ $m_x t_z, m_x t_z^{-1}, r_x^2 t_z^{-1}$
		2785	H_{656}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_y^2 r_x t_y, m_x t_y^{-1}, r_x^2 t_y^{-1},$ $m_x t_z, r_y^2 r_x t_z^{-1}, m_z r_x^{-1} t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2786	H_{657}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_y^2 r_x t_y, m_x t_y^{-1}, r_x^2 t_y^{-1}, m_x t_z, r_y^2 r_x t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2787	H_{315}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, m_z t_y, r_z^2 t_y^{-1}, m_z t_y^{-1}, m_y t_z, r_y^2 t_z^{-1}, m_y t_z^{-1}$
		2788	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		2789	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_y^2 r_x t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[10, 35, 76, 132, 204, 292, 396, 516, 652, 804]					
		2790	H_{423}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_z t_y, m_x r_x t_y^{-1}, m_z t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, m_y t_z^{-1}$
		2791	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_x r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
	[10, 36, 76, 132, 204, 292, 396, 516, 652, 804]					
		2792	H_{659}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_x r_x^{-1} t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, r_z^2 t_z, m_x r_x t_z^{-1}, r_x^{-1} t_z^{-1}$
		2793	H_{314}	1	i	$t_x, i t_x^{-1}, t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, m_x t_z, m_x t_z^{-1}, r_x^2 t_z^{-1}$
		2794	H_{316}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
		2795	H_{317}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, m_y t_z, r_y^2 t_z^{-1}, m_y t_z^{-1}$
		2796	H_{660}	$\langle m_z r_x \rangle$	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_x^{-1} t_y, r_z^2 t_y^{-1}, m_z t_y^{-1}, m_y t_z, m_x r_x^{-1} t_z^{-1}, r_x t_z^{-1}$
		2797	H_{734}	$\langle r_y^{-1} r_z^{-1} \rangle$	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, m_x r_y^{-1} r_x t_y, m_x r_y^{-1} r_x t_y^{-1}, r_y r_x^{-1} t_y^{-1}, m_x r_y r_z^{-1} t_z, r_y r_z t_z^{-1}, m_x r_y r_z^{-1} t_z^{-1}$
		2798	H_{778}	$\langle m_z r_x, r_y r_x \rangle$	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_y^{-1} r_x^{-1} t_y, r_y^{-1} r_x^{-1} t_y^{-1}, r_z^{-1} t_y^{-1}, r_y^{-1} m_y t_z, r_y^{-1} m_y t_z^{-1}, m_x r_y^{-1} r_z^{-1} t_z^{-1}$
		2799	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		2800	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_x r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		2801	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_x^2 r_y t_x^{-1}, r_y^{-1} r_z^{-1} t_x^{-1}, r_y^2 r_z t_y, r_y r_x t_y, r_y^{-1} r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y r_x t_z, r_x^2 r_y t_z^{-1}$
55B						
	[9, 34, 76, 132, 204, 292, 396, 516, 652, 804]					
		2802*,				
	[9, 35, 77, 132, 204, 292, 396, 516, 652, 804]					
		2803*, 2804*,				
	[9, 35, 79, 134, 204, 292, 396, 516, 652, 804]					
		2805*,				
	[9, 36, 78, 132, 204, 292, 396, 516, 652, 804]					
		2806*, 2807*, 2808*, 2809*, 2810*,				
	[9, 36, 79, 133, 204, 292, 396, 516, 652, 804]					
		2811*,				
	[10, 36, 76, 132, 204, 292, 396, 516, 652, 804]					
		2802	H_{759}	$\langle m_z, r_x^2 \rangle$	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, m_x t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, r_x t_z^{-1}$
	[10, 37, 76, 132, 204, 292, 396, 516, 652, 804]					
		2803	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_y^2 r_x t_y, r_x^2 t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}$
		2804	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}$
	[10, 37, 78, 132, 204, 292, 396, 516, 652, 804]					
		2805	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y r_x t_x, r_x^2 r_y t_x^{-1}, r_y^2 r_z t_y, r_y^{-1} r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y r_x t_z, r_x^2 r_y t_z^{-1}, r_y^{-1} r_z^{-1} t_z^{-1}$
	[10, 38, 76, 132, 204, 292, 396, 516, 652, 804]					
		2806	H_{760}	$\langle m_z, r_x^2 \rangle$	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, m_x t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_z r_x^{-1} t_z, r_x t_z^{-1}$
		2807	H_{758}	$\langle m_z, r_x^2 \rangle$	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_x r_x t_y, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, m_x r_x^{-1} t_z, r_y^2 r_x t_z^{-1}$
		2808	H_{757}	$\langle m_z, r_x^2 \rangle$	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, m_x r_x t_y, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, m_x r_x^{-1} t_z, r_y^2 r_x t_z^{-1}$
		2809	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_y^2 r_x t_y, r_x^2 t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}$
		2810	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}$
	[10, 38, 77, 132, 204, 292, 396, 516, 652, 804]					
		2811	H_{393}	1	$r_z^2 r_x$	$r_y r_x t_x, r_x^2 r_y t_x^{-1}, r_y^{-1} r_z^{-1} t_x^{-1}, r_y r_x t_y, r_y^{-1} r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y r_x t_z, r_x^2 r_y t_z^{-1}, r_y^{-1} r_z^{-1} t_z^{-1}$
56A						
	[10, 34, 74, 130, 202, 290, 394, 514, 650, 802]					

Nbr.	gr	№	H_i	L	m	X
		2812*, 2813*, 2814*,				
	[10, 35, 76, 132, 204, 292, 396, 516, 652, 804]					
		2815*, 2816*, 2817*, 2818*, 2819*, 2820*, 2821*, 2822*, 2823*, 2824*, 2825*, 2826*, 2827*, 2828*, 2829*,				
	[11, 35, 75, 131, 203, 291, 395, 515, 651, 803]					
		2812	H_{745}	$\langle m_z r_x^{-1}, r_z^2 r_x \rangle$	i	$r_y^2 r_x t_x, r_z^2 r_x t_x, m_z r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, m_x t_y, m_z r_x t_y^{-1}, m_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
		2813	H_{746}	$\langle m_z r_x^{-1}, r_z^2 r_x \rangle$	i	$r_z^2 t_x, m_x r_x t_x, m_y t_x^{-1}, r_x t_x^{-1}, m_x t_y, m_z r_x t_y^{-1}, m_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z, r_z^2 r_x t_z^{-1}$
		2814	H_{638}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_y^2 r_x t_x, r_z^2 r_x t_x, r_z^2 t_x^{-1}, m_x r_x t_x^{-1}, t_y, m_z r_x t_y^{-1}, t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, m_z r_x^{-1} t_z^{-1}$
	[11, 36, 76, 132, 204, 292, 396, 516, 652, 804]					
		2815	H_{615}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, i t_z, m_z t_z, r_z^2 t_z^{-1}, t_z^{-1}$
		2816	H_{305}	1	i	$t_x, i t_x^{-1}, t_x^{-1}, i t_y, t_y, i t_y^{-1}, t_y^{-1}, m_x r_z^{-1} t_z, r_y^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		2817	H_{747}	$\langle m_z r_x^{-1}, r_z^2 r_x \rangle$	i	$r_y^2 r_x t_x, r_z^2 r_x t_x, m_z r_x t_x^{-1}, r_z^2 r_x t_x^{-1}, r_y^2 t_y, m_x r_x^{-1} t_y^{-1}, r_y^2 t_y^{-1}, m_x r_x^{-1} t_z, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
		2818	H_{616}	$\langle m_z \rangle$	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z, m_x t_z^{-1}, m_y t_z^{-1}$
		2819	H_{748}	$\langle m_z r_x^{-1}, r_z^2 r_x \rangle$	i	$r_z^2 t_x, m_x r_x t_x, m_y t_x^{-1}, r_x t_x^{-1}, r_y^2 t_y, m_x r_x^{-1} t_y^{-1}, r_y^2 t_y^{-1}, m_x r_x^{-1} t_z, r_y^2 t_z, m_x r_x^{-1} t_z^{-1}$
		2820	H_{308}	1	i	$m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, r_z^2 t_y, m_z t_y, r_z^2 t_y^{-1}, m_z t_y^{-1}, m_x r_z^{-1} t_z, r_y^2 r_z t_z^{-1}, m_x r_z^{-1} t_z^{-1}$
		2821	H_{323}	1	i	$r_z^2 t_x, m_z t_x, r_z^2 t_x^{-1}, m_z t_x^{-1}, m_x r_y t_y, r_x^2 r_y t_y^{-1}, m_x r_y t_y^{-1}, m_x t_z, m_x t_z^{-1}, r_x^2 t_z^{-1}$
		2822	H_{326}	1	i	$m_z r_x t_x, r_z^2 r_x t_x^{-1}, m_z r_x t_x^{-1}, r_y^2 t_y, m_y t_y, r_y^2 t_y^{-1}, m_y t_y^{-1}, r_z^2 t_z, r_z^2 t_z^{-1}, m_z t_z^{-1}$
		2823	H_{539}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, m_z r_z^{-1} t_z, m_z r_z t_z, r_y^2 r_z t_z^{-1}, r_x^2 r_z t_z^{-1}$
		2824	H_{540}	1	r_z^2	$m_z t_x, i t_x^{-1}, m_z t_x^{-1}, r_y t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} t_y^{-1}, m_x t_z, m_y t_z, m_x t_z^{-1}, m_y t_z^{-1}$
		2825	H_{461}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 t_z, r_x^2 t_z, i t_z^{-1}, m_z t_z^{-1}$
		2826	H_{504}	1	r_z^2	$t_x, r_z^2 t_x^{-1}, t_x^{-1}, r_y t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} t_y^{-1}, r_z^2 t_z, t_z, r_z^2 t_z^{-1}, t_z^{-1}$
		2827	H_{511}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, r_y^2 t_y, r_y^2 t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 t_z, r_x^2 t_z, r_y^2 t_z^{-1}, r_x^2 t_z^{-1}$
		2828	H_{541}	1	r_z^2	$r_z^2 r_x t_x, r_x t_x, r_x^{-1} t_x^{-1}, m_x t_y, m_x t_y^{-1}, m_y t_y^{-1}, i t_z, m_z t_z, i t_z^{-1}, m_z t_z^{-1}$
		2829	H_{645}	$\langle m_z r_x^{-1} \rangle$	r_x^2	$r_y^2 r_x t_x, r_z^2 r_x t_x, r_z^2 t_x^{-1}, m_x r_x t_x^{-1}, m_z t_y, r_x^{-1} t_y^{-1}, m_z t_y^{-1}, r_x^{-1} t_z, m_z t_z, r_x^{-1} t_z^{-1}$
56B						
	[10, 37, 78, 132, 204, 292, 396, 516, 652, 804]					
		2830*,				
	[11, 38, 76, 132, 204, 292, 396, 516, 652, 804]					
		2830	H_{779}	$\langle i, r_x^2, r_z^2 \rangle$	$r_z^2 r_x$	$m_x t_x, m_z r_x^{-1} t_x, t_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, m_x r_x^{-1} t_y, t_y^{-1}, r_z^2 r_x t_y^{-1}, r_z^2 r_x t_z, m_x r_x t_z^{-1}$
57						
	[10, 35, 76, 132, 204, 292, 396, 516, 652, 804]					
		2831*, 2832*, 2833*, 2834*,				
	[10, 36, 77, 132, 204, 292, 396, 516, 652, 804]					
		2835*, 2836*, 2837*, 2838*, 2839*, 2840*, 2841*, 2842*, 2843*, 2844*, 2845*, 2846*, 2847*, 2848*, 2849*, 2850*, 2851*, 2852*, 2853*, 2854*, 2855*, 2856*, 2857*, 2858*,				
	[10, 36, 78, 133, 204, 292, 396, 516, 652, 804]					
		2859*, 2860*,				
	[11, 36, 76, 132, 204, 292, 396, 516, 652, 804]					
		2831	H_{388}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_y^{-1}, i t_z, m_z r_x t_z, i t_z^{-1}, m_z r_x t_z^{-1}$
		2832	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_y^2 r_x t_y, r_x^2 t_y, i t_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		2833	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		2834	H_{407}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}, r_x t_z^{-1}$
	[11, 37, 76, 132, 204, 292, 396, 516, 652, 804]					
		2835	H_{389}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, m_z r_x t_y, i t_y^{-1}, m_z r_x t_y^{-1}, i t_z, m_z r_x t_z, i t_z^{-1}, m_z r_x t_z^{-1}$
		2836	H_{414}	1	$r_z^2 r_x$	$m_z r_x t_x, i t_x^{-1}, m_z r_x t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}, r_x t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2837	H_{415}	1	$r_z^2 r_x$	$m_z r_x t_x, it_x^{-1}, m_z r_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		2838	H_{396}	1	$r_z^2 r_x$	$m_z r_x t_x, it_x^{-1}, m_z r_x t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		2839	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		2840	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, m_x r_x^{-1} t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_z t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		2841	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		2842	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_x t_x^{-1}, r_y^2 r_x t_y, r_x^2 t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		2843	H_{394}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_y^2 r_x t_y, it_y^{-1}, m_z r_x t_y^{-1}, it_z, m_z r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		2844	H_{412}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_y^2 t_z, r_x t_z, m_x r_x t_z^{-1}$
		2845	H_{402}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		2846	H_{391}	1	$r_z^2 r_x$	$t_x, r_z^2 r_x t_x^{-1}, t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		2847	H_{398}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, m_z r_x t_y, it_y^{-1}, m_z r_x t_y^{-1}, it_z, m_z r_x t_z, it_z^{-1}, m_z r_x t_z^{-1}$
		2848	H_{410}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}, r_x t_z^{-1}$
		2849	H_{404}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		2850	H_{392}	1	$r_z^2 r_x$	$r_x^2 t_x, r_y^2 r_x t_x^{-1}, r_x^2 t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		2851	H_{400}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_z r_x t_y, it_y^{-1}, m_z r_x t_y^{-1}, it_z, m_z r_x t_z, it_z^{-1}, m_z r_x t_z^{-1}$
		2852	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_y^2 r_x t_y, it_y^{-1}, m_z r_x t_y^{-1}, it_z, m_z r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		2853	H_{395}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_y^2 r_x t_y, r_x^2 t_y, it_y^{-1}, m_z r_x t_y^{-1}, m_z r_x t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		2854	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_y^2 t_z, r_x t_z, m_x r_x t_z^{-1}$
		2855	H_{413}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		2856	H_{418}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_z^2 t_y, r_x^{-1} t_y, r_z^2 t_y^{-1}, r_x^{-1} t_y^{-1}, r_x t_z, r_y^2 t_z^{-1}, r_x t_z^{-1}$
		2857	H_{419}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y, m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		2858	H_{401}	1	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1}, r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
	[11, 37, 77, 132, 204, 292, 396, 516, 652, 804]					
		2859	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_x^2 r_y t_x^{-1}, r_y^{-1} r_z^{-1} t_x^{-1}, r_y^2 r_z t_y, r_y r_x t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y r_x t_z, r_x^2 r_y t_z^{-1}$
		2860	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y r_x t_x, r_y^{-1} r_z^{-1} t_x^{-1}, r_y^2 r_z t_y, r_y r_x t_y, r_x^2 r_y t_y^{-1}, r_y^{-1} r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y r_x t_z, r_y^{-1} r_z^{-1} t_z^{-1}$
58						
	[11, 36, 76, 132, 204, 292, 396, 516, 652, 804] 2861*, 2862*, 2863*, [12, 36, 76, 132, 204, 292, 396, 516, 652, 804]					
		2861	H_{779}	$\langle m_z, m_z r_x, r_x^2 \rangle$	$r_z^2 r_x$	$m_z r_x^{-1} t_x, m_x t_x^{-1}, m_z r_x^{-1} t_x^{-1}, r_z^2 t_y, r_x^2 t_y, m_x t_y^{-1}, m_z r_x^{-1} t_y^{-1}, m_x r_x^{-1} t_z, m_z r_x^{-1} t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		2862	H_{750}	$\langle m_y, m_z \rangle$	r_z^2	$m_y t_x, m_x t_x^{-1}, m_y t_x^{-1}, r_z^2 t_y, m_y t_y, m_x t_y^{-1}, m_y t_y^{-1}, r_y^2 r_z t_z, m_z r_z t_z, m_x r_z t_z^{-1}, r_z t_z^{-1}$
		2863	H_{690}	$\langle m_x \rangle$	r_z^2	$r_z^2 t_x, m_x t_x, m_y t_x^{-1}, m_x t_x^{-1}, m_x t_y, m_y t_y^{-1}, m_x t_y^{-1}, r_y^2 r_z t_z, m_z r_z^{-1} t_z, r_x^2 t_z^{-1}, r_y^2 t_z^{-1}$
59						
	[11, 37, 77, 132, 204, 292, 396, 516, 652, 804] 2864*, 2865*, 2866*, 2867*, 2868*, 2869*, 2870*, 2871*, 2872*, [12, 37, 76, 132, 204, 292, 396, 516, 652, 804]					
		2864	H_{649}	$\langle m_x \rangle$	$r_y^2 r_x$	$it_x, r_z^2 r_x t_x, r_x^2 t_x^{-1}, r_z^2 r_x t_x^{-1}, r_z^2 r_x t_y, r_x^2 t_y^{-1}, r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z, r_x^2 t_z^{-1}, r_z^2 r_x t_z^{-1}$
		2865	H_{652}	$\langle m_x \rangle$	$r_y^2 r_x$	$it_x, r_z^2 r_x t_x, r_x^2 t_x^{-1}, r_z^2 r_x t_x^{-1}, m_y t_y, m_x r_x t_y, m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$

Nbr.	gr	№	H_i	L	m	X
		2866	H_{422}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_y^2 t_x^{-1}, r_x t_x^{-1}, m_x r_x^{-1} t_y, m_y t_y,$ $m_x r_x^{-1} t_y^{-1}, m_y t_y^{-1}, m_x r_x t_z, m_x r_x t_z^{-1}, m_z t_z^{-1}$
		2867	H_{409}	1	$r_z^2 r_x$	$r_z^2 t_x, r_x^{-1} t_x, r_y^2 t_x^{-1}, r_x t_x^{-1}, r_y^2 r_x t_y, r_y^2 r_x t_y^{-1},$ $r_x^2 t_y^{-1}, r_y^2 r_x t_z, r_x^2 t_z, r_y^2 r_x t_z^{-1}, r_x^2 t_z^{-1}$
		2868	H_{648}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_x t_x, m_z r_x t_x^{-1}, m_x t_x^{-1}, r_z^2 r_x t_y, r_x^2 t_y^{-1},$ $r_z^2 r_x t_y^{-1}, r_x^2 t_z, r_z^2 r_x t_z, r_x^2 t_z^{-1}, r_z^2 r_x t_z^{-1}$
		2869	H_{650}	$\langle m_x \rangle$	$r_y^2 r_x$	$r_y^2 r_x t_x, m_x t_x, m_z r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, m_x r_x t_y,$ $m_y t_y^{-1}, m_x r_x t_y^{-1}, m_x r_x^{-1} t_z, m_x r_x^{-1} t_z^{-1}, r_y^2 t_z^{-1}$
		2870	H_{393}	1	$r_z^2 r_x$	$r_y^2 r_z t_x, r_y r_x t_x, r_x^2 r_y t_x^{-1}, r_y^{-1} r_z^{-1} t_x^{-1}, r_y^2 r_z t_y, r_y r_x t_y,$ $r_y^{-1} r_z^{-1} t_y^{-1}, r_y^2 r_z t_z, r_y r_x t_z, r_x^2 r_y t_z^{-1}, r_y^{-1} r_z^{-1} t_z^{-1}$
		2871	H_{560}	1	$m_z r_x$	$i t_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_z r_x^{-1} t_y, r_x^2 t_y^{-1},$ $m_z r_x^{-1} t_y^{-1}, r_x^2 t_z, m_z r_x^{-1} t_z, r_x^2 t_z^{-1}, m_z r_x^{-1} t_z^{-1}$
		2872	H_{580}	1	$m_z r_x$	$i t_x, r_z^2 r_x t_x, r_y^2 r_x t_x^{-1}, m_x t_x^{-1}, m_y t_y, r_x t_y,$ $m_y t_y^{-1}, r_x t_y^{-1}, r_x^{-1} t_z, r_x^{-1} t_z^{-1}, m_z t_z^{-1}$

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Infinite Paley graphs

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Abstract

Infinite analogues of the Paley graphs are constructed, based on uncountably many locally finite fields. By using character sum estimates due to Weil, they are shown to be isomorphic to the countable random graph of Erdős, Rényi and Rado.

Keywords: Paley graph, random graph, universal graph, quadratic residue, character sum.

Math. Subj. Class.: 05C63, 03C13, 03C15, 05C80, 05E18, 11L40, 12E20, 20B25, 20B27.

1 Introduction

In 1963 Erdős and Rényi [14] described two constructions of graphs which have subsequently become well-known and well-understood parts of the landscape of graph theory. One construction gave a countably infinite family of finite graphs, defined deterministically, which later became known as the Paley graphs $P(q)$. The other gave a single countably infinite graph R (or more precisely an uncountable family of mutually isomorphic countably infinite graphs), defined randomly and later variously named after Erdős, Rényi and Rado, who gave an alternative construction in [24] the following year. It is perhaps surprising that in the following half-century and more, a strong connection between these very different graphs seems to have received little notice, except in the world of model theory (see [20, Examples 1.3.6 and 1.8.3]), though there are hints to be found in papers such as [2, 3]. Perhaps this lacuna is less surprising when one realises that an essential ingredient in this connection comes from algebraic geometry, namely Weil's estimate for character-sums, used in his proof of the Riemann hypothesis for curves over finite fields.

The first aim of this paper is give a more combinatorial explanation of this connection by constructing, for each odd prime p, infinite analogues of the Paley graphs, defined over uncountably many locally finite fields of characteristic p, and its second aim is to show that these graphs are all isomorphic to R. The finite and infinite Paley graphs are described in

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Sections 2 and 3, and R is described in Section 4. The isomorphism is proved in Section 5, with remarks on the proof in Section 6. The automorphism groups of these finite and infinite graphs are compared in Section 7, and the construction and the isomorphism with R are extended in Section 8 to the generalised Paley graphs introduced by Lim and Praeger in [19]. The paper [14] is revisited in Section 9.

2 The Paley graphs and their inclusions

For each prime power $q = p^e \equiv 1 \bmod (4)$ the *Paley graph* $P(q)$ has as its vertex set the field $\mathbb{F}_q$ of q elements, with vertices x and y adjacent if and only if $x - y$ is a quadratic residue (non-zero square) in $\mathbb{F}_q$. It is an undirected strongly regular graph with parameters $v = q$ (the number of vertices), $k = (q-1)/2$ (their common valency), $\lambda = (q-5)/4$ and $\mu = (q-1)/4$ (the number of common neighbours of two adjacent or non-adjacent vertices). See [4] for further basic properties of the Paley graphs.

These graphs were introduced, not (as is often asserted) by Paley [23] in 1933, but in the case $e = 1$ in 1962 by Sachs [25], as examples of self-complementary graphs, and in the general case $e \geq 1$ in 1963 by Erdős and Rényi [14, §1], as part of their study of asymmetric graphs. Neither paper attached a name to these graphs; they appear to have been named around 1970, no doubt by analogy with Paley designs (see [12]) which, like the orthogonal matrices constructed by Paley in [23], are based on properties of quadratic residues in finite fields. See [18] for a discussion of the history of these graphs.

A finite field $\mathbb{F}_q$ is a subfield of $\mathbb{F}_{q'}$ if and only if q' is a power q^f of q, in which case the subfield is unique, consisting of the solutions of the equation $x^q = x$. In this case, if $q \equiv 1 \bmod (4)$ then $q' \equiv 1 \bmod (4)$, so we have Paley graphs $P(q)$ and $P(q')$. Clearly each quadratic residue in $\mathbb{F}_q$ is also a quadratic residue in $\mathbb{F}_{q'}$, so $P(q)$ is a subgraph of $P(q')$. If f is even then every element of $\mathbb{F}_q$ has a square root in $\mathbb{F}_{q'}$ (in fact, in the quadratic subfield $\mathbb{F}_{q^2} \subseteq \mathbb{F}_{q'}$) so the subgraph of $P(q')$ induced by $P(q)$ is a complete graph K_q. However, if f is odd then an element of $\mathbb{F}_q$ has a square root in $\mathbb{F}_{q'}$ if and only if it has one in $\mathbb{F}_q$, so the induced subgraph is simply $P(q)$, that is, $P(q)$ is a full subgraph of $P(q')$.

3 Infinite Paley graphs

Let E be any set of odd $e \in \mathbb{N}$ which is closed under taking divisors and least common multiples. For any prime $p \equiv 1 \bmod (4)$ let

$$\mathbb{F}_{p^E} := \bigcup_{e \in E} \mathbb{F}_{p^e},$$

the direct limit of the direct system of fields $\mathbb{F}_{p^e}$ for $e \in E$ and inclusions between them. This is a subfield of the algebraic closure $\overline{\mathbb{F}}_p$ of $\mathbb{F}_p$, infinite if and only if E is, and locally finite in the sense that each finite subset is contained in a finite subfield. The finite subfields of $\mathbb{F}_{p^E}$ are just the fields $\mathbb{F}_{p^e}$ for $e \in E$, so distinct sets E determine distinct (and non-isomorphic) fields $\mathbb{F}_{p^E}$. There are uncountably many sets E satisfying the above conditions (consider, for example, the set of integers e whose prime factors all belong to a given set of odd primes), so for each p we obtain uncountably many non-isomorphic fields $\mathbb{F}_{p^E}$.

Now let us define

$$P(p^E) := \bigcup_{e \in E} P(p^e),$$

the direct limit of the Paley graphs $P(p^e)$ for $e \in E$, with respect to the embeddings $P(p^e) \subseteq P(p^{e'})$ where e divides e' in E. By our remarks in Section 2, each $P(p^e)$ is a full subgraph of $P(p^E)$. If E is finite then E is just the set of all divisors of $l := \mathrm{lcm}(E)$, so that $P(p^E)$ is just another Paley graph $P(p^l)$. We will therefore assume from now on that E is infinite, in which case we will call $P(p^E)$ an *infinite Paley graph* (see [20, Example 1.8.3] for a similar construction by Macpherson and Steinhorn, though the exponents $e = 2^i$ used there should be replaced with odd integers). In Section 5 we will use the fact that if, as assumed, E is infinite then each $e \in E$ divides infinitely many elements $e' \in E$: only finitely many elements of E can have a given least common multiple e' with e, so e' takes infinitely many distinct values, all divisible by e. Thus each finite subfield $\mathbb{F}_{p^e}$ of $\mathbb{F}_{p^E}$ or Paley subgraph $P(p^e)$ of $P(p^E)$ is contained in infinitely many others.

In the same way as this one can construct infinite Paley graphs $P(p^{2E})$ for primes $p \equiv -1 \bmod (4)$ as unions of Paley subgraphs $P(p^{2e})$ where e is odd.

Although they are constructed from uncountably many mutually non-isomorphic fields, these infinite Paley graphs $P(p^E)$ and $P(p^{2E})$ are all isomorphic to each other. In fact, we shall prove:

Theorem 3.1. *Each infinite Paley graph $P(p^{rE})$ for $r = 1, 2$ is isomorphic to the random graph R.*

4 The countable random graph

The *countable random graph*, or *universal graph* R was introduced by Erdős and Rényi [14, §3] in 1963 and Rado [24] in 1964. For details of its properties see [6, 7, 8] or [13, Section 9.6], and for some recent generalisations see [1, 15]. Theorem 3.1 should not be as surprising as it might at first appear, since in a sense we shall now explain 'almost all' countably infinite graphs are isomorphic to R. (However, the isomorphism class containing R is very far from being random, in the colloquial sense of being typical, since it is just one among uncountably many isomorphism classes of countably infinite graphs.)

Erdős and Rényi showed that if a graph Γ has a countably infinite vertex set, and its edges are chosen randomly, then with probability 1 it has the following property U: *given any two disjoint finite sets A and B of vertices of Γ, there is a vertex which is a neighbour of each vertex in A and a non-neighbour of each vertex in B.* They used this to show that Γ is symmetric (has a non-identity automorphism) with probability 1 (by contrast with the finite case, where they showed that a random graph of order n is symmetric with probability approaching 0 as $n \to \infty$). In fact, a similar argument shows that any two countably infinite graphs with property U are isomorphic: one can construct an isomorphism between them by using U to extend, by a back-and-forth argument, one vertex at a time, any isomorphism between finite induced subgraphs, such as a single vertex in each of them. (See, for example, [21, Theorem 2.4.2], which in the language of model theory shows that the theory of graphs with property U is satisfiable and $\aleph_0$-categorical, and hence complete and decidable.) Thus any two graphs Γ constructed randomly as above are isomorphic with probability 1.

As a model of R one can therefore take any countably infinite graph with property U. For instance, Rado [24] constructed a 'universal graph', in which every countable graph is embedded as an induced subgraph, by using the vertex set $V = \mathbb{N}$ (including 0), with vertices $x < y$ adjacent if and only if 2^x appears in the binary representation of y as a sum of distinct powers of 2; this easily implies property U.

For an alternative model of R, let the vertex set V be the (countably infinite) set of all primes $p \equiv 1 \bmod (4)$, and define distinct vertices p and q to be adjacent if and only if q is a quadratic residue mod (p), that is, the Legendre symbol $(\frac{q}{p}) = 1$. By quadratic reciprocity, which states that $(\frac{p}{q})(\frac{q}{p}) = 1$ for primes $p, q \equiv 1 \bmod (4)$, this is a symmetric relation, so it defines an undirected graph. To show that this graph has property U, given disjoint finite subsets A and B of V, for each prime $a \in A$ choose an integer n_a which is a quadratic residue mod (a), and for each prime $b \in B$ choose an integer n_b which is a non-residue mod (b). By the Chinese Remainder Theorem, the simultaneous congruences $n \equiv 1 \bmod (4)$ and $n \equiv n_c \bmod (c)$ for all $c \in C := A \cup B$ have a unique solution n mod (d) where $d = 4\prod_{c\in C} c$, and by a theorem of Dirichlet this congruence class contains a prime (infinitely many, in fact). This gives a vertex in V adjacent to all the vertices $a \in A$ and to none of the vertices $b \in B$, as required.

5 Proof of Theorem 3.1

In order to prove Theorem 3.1 it is sufficient to prove that the infinite Paley graphs $P(p^{rE})$ all have property U. Any pair of disjoint finite sets of vertices A and B are contained in some finite subfield $\mathbb{F}_q$ of $\mathbb{F}_{p^{rE}}$. As noted earlier, since E is infinite $\mathbb{F}_q$ is contained in finite subfields $\mathbb{F}_{q'}$ $(q' = q^f)$ of $\mathbb{F}_{p^{rE}}$ for infinitely many odd f. It is therefore sufficient for us to show that for all sufficiently large powers q' of q there is an element $x \in \mathbb{F}_{q'}$ such that $x - a$ is a quadratic residue in $\mathbb{F}_{q'}$ for all $a \in A$ and $x - b$ is a non-residue in $\mathbb{F}_{q'}$ for all $b \in B$.

We will adapt an argument used by Blass, Exoo and Harary [2] to obtain a similar result concerning the family of Paley graphs $P(p)$ for primes $p \equiv 1 \bmod (4)$. Given such subsets A and B of $\mathbb{F}_q$, let S be the set of all $x \in \mathbb{F}_{q'}$ satisfying the above condition. Let $C := A \cup B$, let $n = |C|$, and let $\chi : \mathbb{F}_{q'} \to \mathbb{C}$ be the quadratic residue character of $\mathbb{F}_{q'}$, defined by $\chi(x) = 1, -1$ or 0 as x is a quadratic residue, a non-residue or 0. Note that $\chi(xy) = \chi(x)\chi(y)$ for all $x, y \in \mathbb{F}_{q'}$.

For each $x \in \mathbb{F}_{q'} \setminus C$ we have

$$\prod_{a\in A}(1 + \chi(x - a)).\prod_{b\in B}(1 - \chi(x - b)) = \begin{cases} 2^n & \text{if } x \in S, \\ 0 & \text{otherwise.} \end{cases} \tag{5.1}$$

It follows that S is non-empty if and only if

$$s := \sum_{x\notin C}\left(\prod_{a\in A}(1 + \chi(x - a)).\prod_{b\in B}(1 - \chi(x - b))\right) > 0.$$

Summing over *all* $x \in \mathbb{F}_{q'}$ instead, let us define

$$t := \sum_{x\in\mathbb{F}_{q'}}\left(\prod_{a\in A}(1 + \chi(x - a)).\prod_{b\in B}(1 - \chi(x - b))\right).$$

Expanding the product on the right-hand side, we have

$$t = \sum_x 1 + \sum_x\sum_a \chi(x - a) - \sum_x\sum_b \chi(x - b) + \cdots,$$

where the first term is q' and the second and third are 0. To aid our consideration of the remaining terms, let us write $C = \{c_1, \ldots, c_n\}$. Then it follows from the above that

$$|t-q'| \leq \sum_{i_1<i_2} |\sum_x \chi(x-c_{i_1})\chi(x-c_{i_2})| + \cdots + \sum_{i_1<\cdots<i_k} |\sum_x \chi(x-c_{i_1})\cdots\chi(x-c_{i_k})| + \cdots$$

where $i_1, \ldots, i_k \in \{1, \ldots, n\}$ in each case. Weil's estimate [28] for character sums implies that

$$\sum_x \chi(x-c_{i_1})\cdots\chi(x-c_{i_k}) = O(\sqrt{q'}) \quad \text{as} \quad q' \to \infty \tag{5.2}$$

for each such k-tuple $(i_1, \ldots, i_k)$ (see Remark 1 for further explanation), so it follows immediately that for a given pair of sets A and B, and thus for a fixed n, we have

$$|t-q'| = O(\sqrt{q'}) \quad \text{as} \quad q' \to \infty.$$

Now

$$t - s = \sum_{x \in C} \left(\prod_{a \in A} (1 + \chi(x-a)). \prod_{b \in B} (1 - \chi(x-b)) \right)$$

depends only on the sets A and B, and not on q', so we have $s > 0$ for all sufficiently large q', as required.

6 Remarks on the proof

1. Weil proved in [28] that if χ is a multiplicative character of order d of a finite field $\mathbb{F}_q$ (one whose values are the dth roots of 1 in $\mathbb{C}$), and $f(x)$ is a polynomial of degree k over $\mathbb{F}_q$ not of the form $cg(x)^d$ for any $c \in \mathbb{F}_q$ and $g(x) \in \mathbb{F}_q[x]$, then

$$\left| \sum_{x \in \mathbb{F}_q} \chi(f(x)) \right| \leq (k-1)\sqrt{q}. \tag{6.1}$$

(See [26, p. 53], for example.) Replacing q with q', taking χ to be the quadratic residue character, which has degree $d = 2$, and taking $f(x) = (x - c_{i_1}) \cdots (x - c_{i_k})$ we obtain the estimate (5.2) used above. In fact, when $k = 2$ we have an exact value in (5.2): this is Jacobsthal's Lemma [17], used by Paley in [23], which states that

$$\sum_{x \in \mathbb{F}_q} \chi(x-u)\chi(x-v) = -1$$

for all $u \neq v$ in $\mathbb{F}_q$. This can be proved in a few simple lines by using the substitution $w = (x-v)/(x-u)$. The parameters $\lambda = (q-5)/4$ and $\mu = (q-1)/4$ for the strongly regular graph $P(q)$ then follow by a simple version of the calculation used in Section 5.

2. The argument used to prove Theorem 3.1 in fact shows that

$$|S| = \frac{s}{2^n} \sim \frac{q'}{2^n} \quad \text{as} \quad q' \to \infty, \; n \text{ fixed},$$

which is what one would expect for Paley graphs on heuristic grounds, regarding adjacency or non-adjacency of vertices as independent events with equiprobable outcomes. Bollobás and Thomason [3] have given a more precise estimate, equivalent in our notation to

$$\big||S| - \frac{q'}{2^n}\big| \leq \frac{1}{2}(n - 2 + 2^{1-n})\sqrt{q'} + \frac{n}{2}.$$

3. In [2] Blass, Exoo and Harary, working with the Paley graphs $P(p)$ for primes $p \equiv 1$ mod (4), needed to show that given any integer $n \geq 1$, if p is sufficiently large then for any disjoint n-element sets A and B of vertices of $P(p)$ there is a vertex x adjacent to every $a \in A$ and to no $b \in B$. Their argument (based on one for tournaments by Graham and Spencer [16]) was similar to that used in Section 5, except that in place of Weil's character sum estimate for fields $\mathbb{F}_q$ they used one by Burgess [5], that if p is prime and $c_1, \ldots, c_k$ are distinct elements of $\mathbb{F}_p$, then

$$\big|\sum_{x \in \mathbb{F}_p} \chi(x - c_1) \ldots \chi(x - c_k)\big| \leq (k-1)\sqrt{p}$$

where χ is the quadratic residue character (Legendre symbol) mod (p).

4. Chung [11] has given some generalisations of the character sum estimates by Weil and Burgess, with applications to the *discrepancy* of finite graphs, including the Paley graphs; for any graph this is the maximum, over all s, of the difference between the maximum number of edges of an s-vertex subgraph and the average for that s. Estimating character sums is a major activity; Paley himself was an early contributor in [22], but this was in connection with number theory (specifically Dirichlet series), not graph theory.

5. For prime powers $q \equiv -1$ mod (4) the construction in Section 2 yields the Paley tournament $T(q)$, a complete graph K_q with directed edges, and the construction in Section 3 yields, for each prime $p \equiv -1$ mod (4) and infinite set E satisfying the conditions given there, an infinite Paley tournament $T(p^E)$. Again, there are uncountably many of these objects, but a slight adaptation of the preceding arguments shows that they are all isomorphic to the countable random tournament; a model of this can be obtained by applying the construction in Section 4 to primes $p, q \equiv -1$ mod (4), where quadratic reciprocity now gives $(\frac{p}{q})(\frac{q}{p}) = -1$.

6. Peter Cameron [9] has suggested a more general construction using ultraproducts of finite fields, rather than direct limits, together with Łoś's Theorem, to approximate the random graph (see also [20, Example 1.3.6], based on asymptotic classes and ultraproducts); this has the advantage of allowing finite fields of different characteristics to be used, thus yielding fields of characteristic 0.

7 Automorphism groups

It follows from a theorem of Carlitz [10] that the automorphism group $\mathrm{Aut}\,P(q)$ of $P(q)$ is the subgroup $A\Delta L_1(q)$ of index 2 in $A\Gamma L_1(q)$ consisting of the transformations

$$t \mapsto at^\gamma + b \quad (a, b \in \mathbb{F}_q,\ \chi(a) = 1,\ \gamma \in \mathrm{Gal}\,\mathbb{F}_q)$$

of the vertex set $\mathbb{F}_q$, where $\mathrm{Gal}\,\mathbb{F}_q$ is the Galois group or automorphism group of $\mathbb{F}_q$, a cyclic group of order $\log_p q$ generated by the Frobenius automorphism $t \mapsto t^p$. The affine transformations (those elements with $\gamma = 1$) and the translations (those with $\gamma = 1$ and $a = 1$) form normal subgroups $AHL_1(q)$ ('H' for 'half') and $T_1(q)$ of $A\Delta L_1(q)$ with

$$A\Delta L_1(q) \geq AHL_1(q) > T_1(q) > 1,$$

and the abelian quotients in this series show that $A\Delta L_1(q)$ is solvable, of derived length at most 3.

One might hope that the automorphism group of $P(p^{rE})$ for $r = 1$ or 2 would have a similar structure. Clearly it contains the subgroup $A\Delta L_1(p^{rE})$ of index 2 in $A\Gamma L_1(p^{rE})$ consisting of the transformations

$$t \mapsto at^{\gamma} + b \quad (a, b \in \mathbb{F}_{p^{rE}},\ \chi(a) = 1,\ \gamma \in \mathrm{Gal}\,\mathbb{F}_{p^{rE}}).$$

Here $\mathrm{Gal}\,\mathbb{F}_{p^{rE}}$ is not the direct limit of the groups $\mathrm{Gal}\,\mathbb{F}_{p^{re}}$ for $e \in E$, but their *inverse* limit: this can be identified with the (uncountable) subgroup of the cartesian product $\prod_{e \in E} \mathrm{Gal}\,\mathbb{F}_{p^{re}}$ consisting of those elements whose coordinates $\gamma_{re} \in \mathrm{Gal}\,\mathbb{F}_{p^{re}}$ are consistent with the restriction mappings $\mathrm{Gal}\,\mathbb{F}_{p^{rf}} \to \mathrm{Gal}\,\mathbb{F}_{p^{re}}$ induced by inclusions $\mathbb{F}_{p^{re}} \subseteq \mathbb{F}_{p^{rf}}$ for e dividing $f \in E$.

As in the finite case, this group $A\Delta L_1(p^{rE})$ is solvable, of derived length 3. However, the facts that $P(p^{rE}) \cong R$ and that $\mathrm{Aut}\,R$ acts transitively on isomorphism classes of finite induced subgraphs of R (by the back-and-forth argument used in Section 4) destroy any hope that this subgroup might be the whole of $\mathrm{Aut}\,P(p^{rE})$. Indeed, far from being solvable, $\mathrm{Aut}\,R$ has been shown by Truss [27] to be a simple group, and to contain a subgroup isomorphic to the symmetric group on a countably infinite set.

8 Generalised Paley graphs

In 2009 Lim and Praeger [19] introduced *generalised Paley graphs* $P_d(q)$, where q is a prime power p^e and d divides $q - 1$ (for convenience, we have changed their notation). Again the vertex set is $\mathbb{F}_q$, but now vertices x and y are adjacent if and only if $x - y$ is contained in the unique subgroup D of index d in the multiplicative group $\mathbb{F}_q^*$, consisting of the non-zero dth powers. To give an undirected graph we assume that if q is odd then the order $(q - 1)/d$ of D is even. For example, taking $d = 2$ gives the Paley graphs $P(q) = P_2(q)$.

The construction in Section 3 carries through in the obvious way to give *infinite generalised Paley graphs* $P_d(p^{rE})$ where r is the multiplicative order of the prime p mod $(2d)$ (or mod (d) if $p = 2$), except that we now need E to consist of integers e coprime to d. The proof of Theorem 3.1 also carries through, provided we take χ to be a multiplicative character of $\mathbb{F}_{q^e}$ of degree d (equivalently with kernel D), and replace the factor $1 + \chi(x - a)$ in equation (5.1) with

$$1 + \chi(x-a) + \chi(x-a)^2 + \cdots + \chi(x-a)^{d-1} = \prod_{j=1}^{d-1} (\chi(x-a) - \omega^j)$$

where ω is a primitive dth root of 1 in $\mathbb{C}$; again we can apply Weil's estimate, now in the more general form (6.1) given in Remark 1, to show that $P_d(p^{rE}) \cong R$.

The remarks in Section 7 about automorphism groups also apply here, though it should be noted that, as shown in [19], there are examples where d does not divide $p - 1$ and $\mathrm{Aut}\,P_d(q)$ is significantly larger than the obvious analogue of $A\Delta L_1(q)$.

9 Symmetry versus asymmetry

The main aim of Erdős and Rényi in [14] was to consider, in the contexts of finite and countably infinite graphs, the balance between symmetric and asymmetric graphs, those with and without a non-identity automorphism. Most of the paper concerns finite graphs, and here they proved, in a very precise sense, that not only are most graphs asymmetric, but in fact they are on average a long way from being symmetric. For a finite graph $G = (V, E)$ they defined $A(G)$ to be the least number of edge-changes (insertions or deletions) required to convert G into a symmetric graph on V. We may identify G with its edge set E, regarded as an element of the power set $\mathcal{P}(V^{(2)}) = (\mathbb{F}_2)^{V^{(2)}}$ of the set $V^{(2)}$ of 2-element subsets of V; the Hamming distance between two graphs (V, E) and (V, E'), with respect to the basis consisting of the graphs with one edge, is $|E \oplus E'|$ where $\oplus$ denotes symmetric difference, so $A(G)$ is the distance from G to the nearest symmetric graph on V.

For distinct vertices u and v in G Erdős and Rényi defined Δ_{uv} to be the number of vertices $w \neq u, v$ adjacent to just one of u and v. By making Δ_{uv} edge-changes one can give u and v the same neighbours, allowing an automorphism transposing them and fixing all other vertices, so

$$A(G) \leq \min_{u \neq v} \Delta_{uv}.$$

By a simple counting argument they showed that if G has order n then

$$\min_{u \neq v} \Delta_{uv} \leq \lfloor \frac{n-1}{2} \rfloor, \tag{9.1}$$

so that

$$A(G) \leq \lfloor \frac{n-1}{2} \rfloor.$$

They then showed that 'most' graphs G of order n have $A(G)$ close to $\lfloor (n-1)/2 \rfloor$, so that they are very far from being symmetric. As an aside they defined a Δ-*graph* to be one achieving equality in (9.1), and noted that the graphs $P(q)$ have this property: indeed, $\Delta_{uv} = (q-1)/2$ for all pairs $u \neq v$ in $P(q)$, another simple consequence of Jacobsthal's Lemma. Of course, these graphs are exceptional from this point of view, in that they satisfy $A(P(q)) = 0$.

By contrast, Erdős and Rényi showed in the last part of their paper that 'most' countably infinite graphs are symmetric. Indeed, it follows from their construction of R and the alternative one due to Rado [24] that most such graphs are isomorphic to R and are therefore *highly* symmetric: for example, $\mathrm{Aut}\, R$ acts transitively on isomorphic finite induced subgraphs, and hence has rank 3 on the vertices. In fact, one can show that this group is uncountable, for instance by choosing a prime $p \equiv 1 \bmod (4)$ and taking $E = \{q^n \mid n \geq 1\}$ in Section 3 for some odd prime q, so that by our remarks in Section 7 $\mathrm{Aut}\, R$ contains a copy of

$$\mathrm{Gal}\, P(p^E) = \varprojlim \mathrm{Gal}\, P(p^{q^n}) \cong \varprojlim \mathbb{Z}/q^n\mathbb{Z} \cong \mathbb{Z}_q,$$

the uncountable group of q-adic integers.

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Minimal generating orbit sets of torsion elements in $GL_n(\mathbb{Z})$*

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Abstract

We construct minimal generating orbit sets for torsion elements in $GL_n(\mathbb{Z})$ for $n \leq 4$.

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1 Introduction

Let $\mathbb{Z}^n = \mathbb{Z} \times \cdots \times \mathbb{Z}$ be a direct product of n copies of the ring of integers $\mathbb{Z}$. We consider $\mathbb{Z}^n$ as an additive group and it is known as the free abelian group of rank n. An element $v \in \mathbb{Z}^n$ is called an integer vector of size n and can be written as a column vector $v = [v_1, ..., v_n]^T$. The standard basis of $\mathbb{Z}^n$ is $\{e_1, ..., e_n\}$ where $e_i = [0, ..., 1, ..., 0]^T$ $(i = 1, ..., n)$ having 1 in the i-th position and 0 otherwise.

Denote the set of $n \times n$ matrices over $\mathbb{Z}$ by $M_n(\mathbb{Z})$. An unimodular matrix of size n is an element $A \in M_n(\mathbb{Z})$ having determinant ± 1. All unimodular matrices of size n form a group with the operation of matrix multiplication. It is known as the general linear group $GL_n(\mathbb{Z})$. That is to say

$$GL_n(\mathbb{Z}) = \{A \in M_n(\mathbb{Z}) | \det A = \pm 1\}.$$

An element $A \in GL_n(\mathbb{Z})$ induces an automorphism of $\mathbb{Z}^n$ by

$$\begin{aligned} A: \quad \mathbb{Z}^n &\to \mathbb{Z}^n \\ v &\mapsto Av \end{aligned}$$

and in fact $GL_n(\mathbb{Z})$ is the automorphism group of $\mathbb{Z}^n$. The orbit of $v \in \mathbb{Z}^n$ by A is the set $\{A^k v \mid k \in \mathbb{Z}\}$. It generates a subgroup of $\mathbb{Z}^n$ whose elements are integral linear combinations of finitely many elements in $\{A^k v \mid k \in \mathbb{Z}\}$.

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Definition 1.1. Let S be a subset of $\mathbb{Z}^n$ and $A \in GL_n(\mathbb{Z})$. The orbit subgroup $OG_A(S)$ on S by A is the subgroup of $\mathbb{Z}^n$ generated by $\{A^k v \mid k \in \mathbb{Z}, v \in S\}$. If $OG_A(S)$ is the full group $\mathbb{Z}^n$, we call S a generating orbit set of A.

Remark 1.2. If S generates $\mathbb{Z}^n$, then it is a generating orbit set for any $A \in GL_n(\mathbb{Z})$ while any generating orbit set of the identity matrix I_n must generate $\mathbb{Z}^n$.

We consider the question that if S is a generating orbit set of a fixed element $A \in GL_n(\mathbb{Z})$, how many elements must S contain. Among all generating orbit sets of A those having minimal cardinalities are called minimal generating orbit sets. So the question is:

Question 1.3. Let $A \in GL_n(\mathbb{Z})$, what is

$$m_A = \min\{\#S \mid OG_A(S) = \mathbb{Z}^n\}$$

the cardinality of a minimal generating orbit set of A?

In this paper, we determine m_A and construct an explicit minimal generating orbit set for each torsion element (defined below) A in $GL_n(\mathbb{Z})$ $(n \leq 4)$.

Definition 1.4. $A \in GL_n(\mathbb{Z})$ is called a torsion element if A^m is the identity matrix I_n for some positive integer m. A torsion element A has order d if d is the minimal positive integer such that $A^d = I_n$.

There are two other interpretations of m_A. The first one is from ring and module theory. Fixing $A \in GL_n(\mathbb{Z})$, $\mathbb{Z}^n$ can be viewed as a module over the ring of integral polynomials $\mathbb{Z}[X]$ by defining $p(X) \cdot v = p(A)v$ $(p(x) \in \mathbb{Z}[X], v \in \mathbb{Z}^n)$. Denote the rank (i.e., the minimal number of generators) of the $\mathbb{Z}[X]$-module $\mathbb{Z}^n$ by $\mathrm{rk}_{\mathbb{Z}[X]}(\mathbb{Z}^n)$, then $m_A = \mathrm{rk}_{\mathbb{Z}[X]}(\mathbb{Z}^n)$. Since A is invertible, we can also define $\mathbb{Z}^n$ as a module over the ring of integral Laurent polynomials $\mathbb{Z}[X, X^{-1}]$ by the same rule and m_A is equal to the rank of the $\mathbb{Z}[X, X^{-1}]$-module $\mathbb{Z}^n$. The second one is from combinatorial group theory. Let $G = \mathbb{Z}^n \rtimes_A \mathbb{Z}$ be the semidirect product of $\mathbb{Z}^n$ and $\mathbb{Z}$ determined by A, the rank (i.e., the minimal number of generators) of G is denoted by $\mathrm{rk}(G)$, then $m_A = \mathrm{rk}(G) - 1$ (see [6, Corollary 2.4]).

It is obvious that $m_A \leq n$ since we can choose S to be a basis of $\mathbb{Z}^n$. m_A is computable for each $A \in GL_2(\mathbb{Z})$ ([6, Corollary 3.3]) because in this case $m_A = 1$ or 2 and by Lemma 2.4 we know when m_A=1. To the authors' knowledge, it is not known whether m_A is computable for each non-torsion element $A \in GL_n(\mathbb{Z})$ even when $n = 3$. Another fact is that

Proposition 1.5. *m_A is a conjugacy invariant. That is to say $m_{XAX^{-1}} = m_A$ for any $X \in GL_n(\mathbb{Z})$.*

Proof. If S is a generating orbit set of A, then $\{Xv \mid v \in S\}$ is a generating orbit set for XAX^{-1} and has the same cardinality as S. So $m_{XAX^{-1}} \leq m_A$. For the same reason $m_A = m_{X^{-1}XAX^{-1}X} \leq m_{XAX^{-1}}$. □

Remark 1.6. Throughout this paper, conjugation always means integral conjugation. This is to say, B is conjugate to A by X if and only if $B = XAX^{-1}$ for some $X \in GL_n(\mathbb{Z})$. If the basis of $\mathbb{Z}^n$ is changed, an automorphism of $\mathbb{Z}^n$ may correspond to different matrices, but they are (integrally) conjugate to each other.

The problem of the classification of conjugacy classes in $GL_n(\mathbb{Z})$ has long history and is not completely solved, see [1, 4, 5, 8]. For more results about classifying torsion elements up to conjugacy, see [7, 9, 10].

After introducing some facts in Section 2, we use classification results (Theorems 2.6, 2.8 and 2.10) from [7, 9, 10] and construct a minimal generating orbit set for each representative of conjugacy class of torsion elements in Section 3. The results are listed in Table 1, Table 2 and Table 3 respectively.

2 Preliminary

Definition 2.1. The companion matrix of a monic polynomial $f(x) = a_0 + a_1x + \cdots + a_{n-1}x^{n-1} + x^n$ is the square matrix

$$C(f) = \begin{bmatrix} 0 & 0 & \dots & 0 & -a_0 \\ 1 & 0 & \dots & 0 & -a_1 \\ 0 & 1 & \dots & 0 & -a_2 \\ \vdots & \vdots & \ddots & \vdots & \vdots \\ 0 & 0 & \dots & 1 & -a_{n-1} \end{bmatrix}.$$

Remark 2.2 ([3, p147])**.** The characteristic and minimal polynomials of a companion matrix do coincide.

Definition 2.3. The companion matrix of the characteristic polynomial of $A \in GL_n(\mathbb{Z})$ is called the companion of A.

The following observation is standard (see [6]), we prefer to write down a proof here by using our notations.

Lemma 2.4. *Suppose $A \in GL_n(\mathbb{Z})$, then $m_A = 1$ if and only if A is conjugate to its companion.*

Proof. Denote the characteristic polynomial of A by $p(x)$ and the companion of A by C. Note that $C = C(p)$.

If $m_A = 1$, suppose $S = \{v\}$ is a minimal generating orbit set of A, then $\{A^k v | k \in \mathbb{Z}\}$ generates $\mathbb{Z}^n$. By Cayley-Hamilton theorem, for any $k \in \mathbb{Z}$, $A^k v$ is an integral linear combination of $\{v, Av, ..., A^{n-1}v\}$. That is to say $\{v, Av, ..., A^{n-1}v\}$ is a basis of $\mathbb{Z}^n$. The matrix of the automorphism $A : \mathbb{Z}^n \to \mathbb{Z}^n$ under this basis is the companion matrix $C(p)$ and so A is conjugate to $C(p)$.

Conversely, if A is conjugate to its companion $C = C(p)$, it is easy to check that $\{e_1, Ce_1, ..., C^{n-1}e_1\}$ generates $\mathbb{Z}^n$ where $e_1 = [1, 0, ..., 0]^T$. So $m_C = 1$ and $m_A = m_C$ by Proposition 1.5. □

For convenience, suppose $A \in GL_m(\mathbb{Z}), B \in GL_n(\mathbb{Z})$, denote by $A \oplus B$ the matrix $\begin{bmatrix} A & 0 \\ 0 & B \end{bmatrix} \in GL_{m+n}(\mathbb{Z})$. Similarly, for $u \in \mathbb{Z}^m, v \in \mathbb{Z}^n$, the column vector $\begin{bmatrix} u \\ v \end{bmatrix} \in \mathbb{Z}^m \oplus \mathbb{Z}^n = \mathbb{Z}^{m+n}$ is denoted by $u \oplus v$. We have $(A \oplus B)(u \oplus v) = Au \oplus Bv$.

Lemma 2.5. *(1)* $m_A = m_{-A}$*; (2)* $\max\{m_A, m_B\} \leq m_{A\oplus B} \leq m_A + m_B$.

Proof. (1) A and $-A$ have same generating orbit sets.

(2) For $A \in GL_m(\mathbb{Z}), B \in GL_n(\mathbb{Z})$, suppose S is a minimal generating orbit set of $A \oplus B$ and each element $s \in S$ is written as $\begin{bmatrix} s_A \\ s_B \end{bmatrix}$ where $s_A \in \mathbb{Z}^m, s_B \in \mathbb{Z}^n$. Then $S_A = \{s_A | s \in S\}$ is a generating orbit set for A and so $m_A \leq |S_A| \leq |S| = m_{A\oplus B}$. Similarly, $m_B \leq m_{A\oplus B}$.

Suppose S_A and S_B are minimal generating orbit sets of $A \in GL_m(\mathbb{Z})$ and $B \in GL_n(\mathbb{Z})$ respectively. Let $S = \{u \oplus 0 | u \in S_A\} \cup \{0 \oplus v | v \in S_B\} \subset \mathbb{Z}^{m+n}$. Then S is a generating orbit set for $A \oplus B$ and $m_{A\oplus B} \leq |S| = |S_A| + |S_B| = m_A + m_B$. □

Theorem 2.6 ([7], [8, Chapter IX], [10, Lemma 1.6])**.** *Each torsion element in* $GL_2(\mathbb{Z})$ *is conjugate to one of the matrices listed in the second row of the table below where* $K = \begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}, U = \begin{bmatrix} 1 & 1 \\ 0 & -1 \end{bmatrix}, W = \begin{bmatrix} 0 & -1 \\ 1 & -1 \end{bmatrix}, J = \begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$.

Order	$d=1$	$d=2$	$d=3$	$d=4$	$d=6$
Representative of conjugacy class	I_2	$-I_2, K, U$	W	J	$-W$

Remark 2.7. In some literatures, the representative U is replaced by $V = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$.

Theorem 2.8 ([9, page 173, 174, 184])**.** *Each torsion element in* $GL_3(\mathbb{Z})$ *is conjugate to one of the matrices listed in the second column of the table below where* $K = \begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}, V = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}, W = \begin{bmatrix} 0 & -1 \\ 1 & -1 \end{bmatrix}, J = \begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}, E_1 = \begin{bmatrix} 0 & 1 \end{bmatrix}$.

Order	Representative of conjugacy class
$d=1$	I_3
$d=2$	$-I_3,\quad I_1 \oplus (-I_2),\quad (-I_1) \oplus V,\quad (-I_1) \oplus I_2,\quad I_1 \oplus (-V)$
$d=3$	$I_1 \oplus W,\quad \begin{bmatrix} 0 & I_2 \\ I_1 & 0 \end{bmatrix}$
$d=4$	$I_1 \oplus J,\quad \begin{bmatrix} I_1 & E_1 \\ 0 & J \end{bmatrix},\quad -(I_1 \oplus J),\quad -\begin{bmatrix} I_1 & E_1 \\ 0 & J \end{bmatrix}$
$d=6$	$I_1 \oplus (-W),\quad (-I_1) \oplus W,\quad -(I_1 \oplus W),\quad -\begin{bmatrix} 0 & I_2 \\ I_1 & 0 \end{bmatrix}$

Remark 2.9. Since $\begin{bmatrix} 0 & -1 \\ 1 & 1 \end{bmatrix}$ is conjugate to $-W = \begin{bmatrix} 0 & 1 \\ -1 & 1 \end{bmatrix}$ by $\begin{bmatrix} -1 & 1 \\ 1 & 0 \end{bmatrix}$, the order 6 element $W_1 = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & -1 \\ 0 & 1 & 1 \end{bmatrix}$ in [9, page 184] is conjugate to $I_1 \oplus (-W)$ and we choose the latter as a representative for simplicity and replace W_2 (in the same page) by $(-I_1) \oplus W$ for the same reason.

Theorem 2.10 ([10, page 492]). *Each torsion element in $GL_4(\mathbb{Z})$ is conjugate to one of the matrices listed in the second column of the table below where* $K = \begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$, $U = \begin{bmatrix} 1 & 1 \\ 0 & -1 \end{bmatrix}$, $W = \begin{bmatrix} 0 & -1 \\ 1 & -1 \end{bmatrix}$, $J = \begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$, $E = \begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix}$ *and* C_5, C_8, C_{10}, C_{12} *are the companion matrices of the cyclotomic polynomials* $\Phi_5(x) = x^4 + x^3 + x^2 + x + 1$, $\Phi_8(x) = x^4 + 1$, $\Phi_{10}(x) = x^4 - x^3 + x^2 - x + 1$, $\Phi_{12}(x) = x^4 - x^2 + 1$ *respectively.*

Order	Representative of conjugacy class
$d = 1$	I_4
$d = 2$	$-I_4$, $K \oplus (-I_2)$, $U \oplus (-I_2)$, $I_2 \oplus (-I_2)$, $K \oplus U$, $U \oplus U$, $I_2 \oplus K$, $I_2 \oplus U$
$d = 3$	$W \oplus W$, $I_2 \oplus W$, $\begin{bmatrix} I_2 & E \\ 0 & W \end{bmatrix}$
$d = 4$	$J \oplus J$, $I_2 \oplus J$, $\begin{bmatrix} I_2 & E \\ 0 & J \end{bmatrix}$, $(-I_2) \oplus J$, $\begin{bmatrix} -I_2 & E \\ 0 & J \end{bmatrix}$, $K \oplus J$, $\begin{bmatrix} K & E \\ 0 & J \end{bmatrix}$, $\begin{bmatrix} K & I_2 \\ 0 & J \end{bmatrix}$, $\begin{bmatrix} K & I_2 - E \\ 0 & J \end{bmatrix}$, $U \oplus J$, $\begin{bmatrix} U & E \\ 0 & J \end{bmatrix}$, $\begin{bmatrix} U & I \\ 0 & J \end{bmatrix}$
$d = 5$	C_5
$d = 6$	$-(W \oplus W)$, $I_2 \oplus (-W)$, $(-I_2) \oplus W$, $-(I_2 \oplus W)$, $\begin{bmatrix} -I_2 & E \\ 0 & -W \end{bmatrix}$, $K \oplus W$, $\begin{bmatrix} K & E \\ 0 & W \end{bmatrix}$, $U \oplus W$, $\begin{bmatrix} U & E \\ 0 & W \end{bmatrix}$, $-(K \oplus W)$, $\begin{bmatrix} -K & E \\ 0 & -W \end{bmatrix}$, $-(U \oplus W)$, $\begin{bmatrix} -U & E \\ 0 & -W \end{bmatrix}$, $W \oplus (-W)$, $\begin{bmatrix} W & E \\ 0 & -W \end{bmatrix}$
$d = 8$	C_8
$d = 10$	C_{10}
$d = 12$	C_{12}, $J \oplus W$, $J \oplus (-W)$

3 Constructing minimal generating orbit sets

In this section, we determine m_A and construct a minimal generating orbit set S_A for A being a representative of conjugacy class in $GL_n(\mathbb{Z})$ $(n \leq 4)$. Results for other torsion elements can be obtained as follows:

Given a torsion element B in $GL_n(\mathbb{Z})$ $(n \leq 4)$, then B is conjugate to some representative A listed in Theorem 2.6, 2.8, 2.10 by some $X \in GL_n(\mathbb{Z})$. There is an algorithm for deciding whether two elements in $GL_n(\mathbb{Z})$ are conjugate.

Theorem 3.1 ([2, Theorem A]). *Given two matrices $A, B \in GL_n(\mathbb{Z})$, there is an algorithm to deciding whether there exists a matrix $X \in GL_n(\mathbb{Z})$ such that $B = XAX^{-1}$. If* *the answer is "yes" the algorithm constructs a conjugating matrix X.*

So we can determine A and construct X at the same time by the algorithm from Theorem 3.1 through enumerating A in the lists. Now $m_B = m_A$ and a minimal generating orbit set for B can be obtained as $\{Xv \mid v \in S_A\}$.

3.1 Conjugacy classes of companion matrices

In Theorem 2.6, 2.8 and 2.10, the representatives of conjugacy classes of torsion elements in the tables are not always companion matrices. The algorithm in Theorem 3.1 for deciding whether $A \in GL_n(\mathbb{Z})$ is conjugate to its companion is hard to be conducted by hand. But for torsion elements, especially when n is small, there is a simpler method to handle most cases. We describe it as the following three steps.

Step 1: Compute the characteristic polynomial and minimal polynomial of A, if they are not the same, then A is not conjugate to its companion, moreover $m_A \geq 2$, otherwise go to Step 2.

Step 2: If there is only one representative with the same characteristic and minimal polynomials as those of A in the table, then A is conjugate to its companion because the companion of A is also a torsion element and has the same characteristic and minimal polynomials, otherwise go to Step 3.

Step 3: If we can find a minimal generating orbit set with only one element for A, then by Lemma 2.4 A is conjugate to its companion, otherwise we apply the algorithm in Theorem 3.1.

3.2 Direct sum

We already know $m_{A \oplus B} \leq m_A + m_B$ by Lemma 2.5, the equality is not always true, for instance:

Example 3.2. Suppose $W = \begin{bmatrix} 0 & -1 \\ 1 & -1 \end{bmatrix}$, the companion matrix of $f(x) = x^2 + x + 1$, so $m_W = 1$ and by Lemma 2.5, $m_{-W} = 1$. Now for $I_1 \oplus (-W) = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 1 \\ 0 & -1 & 1 \end{bmatrix}$, one can check $\{[1, 1, 0]^T\}$ is a minimal generating orbit set. Another example is shown in Example 3.9.

But for some special cases the equality can be obtained. We have:

Proposition 3.3. *If $m_A = 1$ then $m_{A \oplus A} = 2$.*

Proof. By Lemma 2.5, $m_{A \oplus A} \leq 2$. The characteristic polynomial and minimal polynomial of $A \oplus A$ are not the same, so $A \oplus A$ is not conjugate to its companion and $m_{A \oplus A} \geq 2$ by Lemma 2.4. □

3.3 Construction

Let $e_1 = [1, 0, 0, 0]^T$, $e_2 = [0, 1, 0, 0]^T$, $e_3 = [0, 0, 1, 0]^T$, $e_4 = [0, 0, 0, 1]^T$ be the standard basis elements of $\mathbb{Z}^4$.

Proposition 3.4. *Suppose* $A = I_2 \oplus W = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & -1 \\ 0 & 0 & 1 & -1 \end{bmatrix}$, *then* $m_A = 3$.

Proof. Suppose some generating orbit set of A contains only $u = [u_1, u_2, u_3, u_4]^T$ and $v = [v_1, v_2, v_3, v_4]^T$, that is to say, $\{A^k u, A^k v | k \in \mathbb{Z}\}$ generates $\mathbb{Z}^4$. By Cayley-Hamilton theorem, for any $k \in \mathbb{Z}, w \in \mathbb{Z}^4$, $A^k w$ is an integral linear combination of w, Aw, A^2w, A^3w. Since $A^3 = I_4$, we have $\langle u, Au, A^2u, v, Av, A^2v\rangle = \mathbb{Z}^4$.

Note that $A^2 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & 1 \\ 0 & 0 & -1 & 0 \end{bmatrix}$ so

$$\langle \begin{bmatrix} u_1 \\ u_2 \\ u_3 \\ u_4 \end{bmatrix}, \begin{bmatrix} u_1 \\ u_2 \\ -u_4 \\ u_3 - u_4 \end{bmatrix}, \begin{bmatrix} u_1 \\ u_2 \\ -u_3 + u_4 \\ -u_3 \end{bmatrix}, \begin{bmatrix} v_1 \\ v_2 \\ v_3 \\ v_4 \end{bmatrix}, \begin{bmatrix} v_1 \\ v_2 \\ -v_4 \\ v_3 - v_4 \end{bmatrix}, \begin{bmatrix} v_1 \\ v_2 \\ -v_3 + v_4 \\ -v_3 \end{bmatrix} \rangle = \mathbb{Z}^4,$$

if and only if

$$\langle \begin{bmatrix} u_1 \\ u_2 \\ u_3 \\ u_4 \end{bmatrix}, \begin{bmatrix} 0 \\ 0 \\ u_3 + u_4 \\ 2u_4 - u_3 \end{bmatrix}, \begin{bmatrix} 0 \\ 0 \\ 2u_3 - u_4 \\ u_4 + u_3 \end{bmatrix}, \begin{bmatrix} v_1 \\ v_2 \\ v_3 \\ v_4 \end{bmatrix}, \begin{bmatrix} 0 \\ 0 \\ v_3 + v_4 \\ 2v_4 - v_3 \end{bmatrix}, \begin{bmatrix} 0 \\ 0 \\ 2v_3 - v_4 \\ v_4 + v_3 \end{bmatrix} \rangle = \mathbb{Z}^4,$$

if and only if

$$\langle \begin{bmatrix} u_1 \\ u_2 \\ u_3 \\ u_4 \end{bmatrix}, \begin{bmatrix} 0 \\ 0 \\ u_3 + u_4 \\ 2u_4 - u_3 \end{bmatrix}, \begin{bmatrix} 0 \\ 0 \\ 3u_3 \\ 3u_4 \end{bmatrix}, \begin{bmatrix} v_1 \\ v_2 \\ v_3 \\ v_4 \end{bmatrix}, \begin{bmatrix} 0 \\ 0 \\ v_3 + v_4 \\ 2v_4 - v_3 \end{bmatrix}, \begin{bmatrix} 0 \\ 0 \\ 3v_3 \\ 3v_4 \end{bmatrix} \rangle = \mathbb{Z}^4,$$

if and only if

$$\begin{bmatrix} u_1 & v_1 \\ u_2 & v_2 \end{bmatrix} \in GL_2(\mathbb{Z}) \text{ and } \{ \begin{bmatrix} u_3 + u_4 \\ 2u_4 - u_3 \end{bmatrix}, \begin{bmatrix} 3u_3 \\ 3u_4 \end{bmatrix}, \begin{bmatrix} v_3 + v_4 \\ 2v_4 - v_3 \end{bmatrix}, \begin{bmatrix} 3v_3 \\ 3v_4 \end{bmatrix} \}$$

generates $\mathbb{Z}^2$.

We take $\mod 3$, then $\{ \begin{bmatrix} u_3 + u_4 \\ 2u_4 - u_3 \end{bmatrix}, \begin{bmatrix} v_3 + v_4 \\ 2v_4 - v_3 \end{bmatrix} \}$ generates $\mathbb{Z}_3^2$. It is impossible because the determinant of $\begin{bmatrix} u_3 + u_4 & v_3 + v_4 \\ 2u_4 - u_3 & 2v_4 - v_3 \end{bmatrix}$ is $0 \mod 3$.

We have proved that $m_A > 2$. One can check $S = \{e_1, e_2, e_4\}$ is a generating orbit set for A. So S is minimal and $m_A = 3$. □

Remark 3.5. Suppose $A = (-I_m) \oplus I_{n-m} \in GL_n(\mathbb{Z})$, then $m_A = n$. More or less this fact is trivial, it can be proved by using similar method for proving Proposition 3.4.

3.4 Summary

Now we can determine m_A for every torsion element $A \in GL_n(\mathbb{Z})$ $(n \leq 4)$ by using methods discussed in Section 3.1, 3.2, 3.3. We summarize them as the following reasons:

Trivial: For some trivial cases, we have $m_A = n$, for instance $A = I_n$, $A = (-I_m) \oplus I_{n-m}$ and so on.

R1: A is conjugate to its companion or we can find a generating orbit set for A with only one element, so $m_A = 1$. It can be done through the three steps in Section 3.1.

R2: A is not conjugate to its companion and we can find a generating orbit set for A with two elements, so $m_A = 2$. It can be done through steps in Section 3.1 and for some special cases by Proposition 3.3.

R3: We can prove $m_A > 2$ and find a generating orbit set for A with three elements, so $m_A = 3$. We have shown how to do it through an example by Proposition 3.4 in Section 3.3. The argument there can be applied to similar cases.

We will show part of the procedure by Example 3.9, 3.10 after the statements of main results in Section 3.5.

3.5 Determination of m_A for torsion elements in $GL_n(\mathbb{Z})$ $(n \leq 4)$

3.5.1 Torsion elements in $GL_2(\mathbb{Z})$

The representatives of conjugacy classes of torsion elements in $GL_2(\mathbb{Z})$ are already listed in Theorem 2.6. It is easy to find minimal generating orbit sets for these elements and we have

Theorem 3.6. *For a given torsion element $A \in GL_2(\mathbb{Z})$, m_A is determined and a minimal generating orbit set is constructed explicitly. The results are listed in Table 1 where* $K = \begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$, $U = \begin{bmatrix} 1 & 1 \\ 0 & -1 \end{bmatrix}$, $W = \begin{bmatrix} 0 & -1 \\ 1 & -1 \end{bmatrix}$, $J = \begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$, $e_1 = [1, 0]^T$, $e_2 = [0, 1]^T$.

Table 1: Minimal generating orbit sets for torsion elements in $GL_2(\mathbb{Z})$

Order	Representative of Conjugacy Class	m_A	Minimal Generating Orbit Set	Characteristic polynomial; Minimal Polynomial	Reason
d=1	I_2	2	$\{e_1, e_2\}$	$(x-1)^2; x-1$	Trivial
d=2	$-I_2$	2	$\{e_1, e_2\}$	$(x+1)^2; x+1$	Trivial
	$K = I_1 \oplus (-I_1)$	2	$\{e_1, e_2\}$	$x^2-1; x^2-1$	Trivial
	U	1	$\{e_2\}$	$x^2-1; x^2-1$	R1
d=3	W	1	$\{e_1\}$	$x^2+x+1; x^2+x+1$	R1
d=4	J	1	$\{e_1\}$	$x^2+1; x^2+1$	R1
d=6	$-W$	1	$\{e_1\}$	$x^2-x+1; x^2-x+1$	R1

In Table 1 (also Table 2 and 3 below), the representatives of conjugacy classes of torsion elements are listed in the second column and their orders in the first column, m_A and explicit minimal generating orbit sets are listed in the third and fourth columns respectively.

For the convenience of checking the results through the procedure in Section 3.4, we record the characteristic and minimal polynomials in the fifth column and the reasons for determining m_A in the last column.

3.5.2 Torsion elements in $GL_3(\mathbb{Z})$

The representatives of conjugacy classes of torsion elements in $GL_3(\mathbb{Z})$ are already listed in Theorem 2.8 and we have

Theorem 3.7. *For a given torsion element $A \in GL_3(\mathbb{Z})$, m_A is determined and a minimal generating orbit set is constructed explicitly. The results are listed in Table 2 where* $K = \begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$, $V = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$, $W = \begin{bmatrix} 0 & -1 \\ 1 & -1 \end{bmatrix}$, $J = \begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$, $E_1 = \begin{bmatrix} 0 & 1 \end{bmatrix}$, $e_1 = [1,0,0]^T$, $e_2 = [0,1,0]^T$, $e_3 = [0,0,1]^T$.

Table 2: Minimal generating orbit sets for torsion elements in $GL_3(\mathbb{Z})$

Order	Representative of Conjugacy Class	m_A	Minimal Generating Orbit Set	Characteristic polynomial; Minimal Polynomial	Reason
d=1	I_3	3	$\{e_1, e_2, e_3\}$	$(x-1)^3; x-1$	Trivial
d=2	$-I_3$	3	$\{e_1, e_2, e_3\}$	$(x+1)^3; x+1$	Trivial
	$I_1 \oplus (-I_2)$	3	$\{e_1, e_2, e_3\}$	$x^3+x^2-x-1; x^2-1$	Trivial
	$(-I_1) \oplus V$	2	$\{e_1, e_2\}$	$x^3+x^2-x-1; x^2-1$	R2
	$(-I_1) \oplus I_2$	3	$\{e_1, e_2, e_3\}$	$x^3-x^2-x+1; x^2-1$	Trivial
	$I_1 \oplus (-V)$	2	$\{e_1, e_2\}$	$x^3-x^2-x+1; x^2-1$	R2
d=3	$I_1 \oplus W$	2	$\{e_1, e_2\}$	$x^3-1; x^3-1$	R2
	$\begin{bmatrix} 0 & I_2 \\ I_1 & 0 \end{bmatrix}$	1	$\{e_1\}$	$x^3-1; x^3-1$	R1
d=4	$I_1 \oplus J$	2	$\{e_1, e_3\}$	$x^3-x^2+x-1;$ x^3-x^2+x-1	R2
	$\begin{bmatrix} I_1 & E_1 \\ 0 & J \end{bmatrix}$	1	$\{e_2\}$	$x^3-x^2+x-1;$ x^3-x^2+x-1	R1
	$(-I_1) \oplus J$	2	$\{e_1, e_3\}$	$x^3+x^2+x+1;$ x^3+x^2+x+1	R2
	$-\begin{bmatrix} I_1 & E_1 \\ 0 & J \end{bmatrix}$	1	$\{e_2\}$	$x^3+x^2+x+1;$ x^3+x^2+x+1	R1
d=6	$I_1 \oplus (-W)$	1	$\{e_1+e_2\}$	$x^3-2x^2+2x-1;$ x^3-2x^2+2x-1	R1
	$(-I_1) \oplus W$	1	$\{e_1+e_2\}$	$x^3+2x^2+2x+1;$ x^3+2x^2+2x+1	R1

Order	Representative of Conjugacy Class	m_A	Minimal Generating Orbit Set	Characteristic polynomial Minimal Polynomial	Reason
	$-(I_1 \oplus W)$	2	$\{e_1, e_2\}$	$x^3+1; x^3+1$	R2
	$-\begin{bmatrix} 0 & I_2 \\ I_1 & 0 \end{bmatrix}$	1	$\{e_1\}$	$x^3+1; x^3+1$	R1

3.5.3 Torsion elements in $GL_4(\mathbb{Z})$

The representatives of conjugacy classes of torsion elements in $GL_4(\mathbb{Z})$ are already listed in Theorem 2.10 and we have

Theorem 3.8. *For a given torsion element $A \in GL_4(\mathbb{Z})$, m_A is determined and a minimal generating orbit set is constructed explicitly. The results are listed in Table 3 where* $K = \begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$, $U = \begin{bmatrix} 1 & 1 \\ 0 & -1 \end{bmatrix}$, $W = \begin{bmatrix} 0 & -1 \\ 1 & -1 \end{bmatrix}$, $J = \begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$, C_5, C_8, C_{10}, C_{12} *are the companion matrices of the cyclotomic polynomials* $\Phi_5(x) = x^4+x^3+x^2+x+1$, $\Phi_8(x) = x^4+1$, $\Phi_{10}(x) = x^4-x^3+x^2-x+1$, $\Phi_{12}(x) = x^4-x^2+1$ *respectively and* $e_1 = [1,0,0,0]^T$, $e_2 = [0,1,0,0]^T$, $e_3 = [0,0,1,0]^T$, $e_4 = [0,0,0,1]^T$.

Table 3: Minimal generating orbit sets for torsion elements in $GL_4(\mathbb{Z})$

Order	Representative of Conjugacy Class	m_A	Minimal Generating Orbit Set	Characteristic polynomial Minimal Polynomial	Reason
d=1	I_4	4	$\{e_1, e_2, e_3, e_4\}$	$(x-1)^4; x-1$	Trivial
d=2	$-I_4$	4	$\{e_1, e_2, e_3, e_4\}$	$(x+1)^4; x+1$	Trivial
	$K \oplus (-I_2)$	4	$\{e_1, e_2, e_3, e_4\}$	$x^4+2x^3-2x-1;$ x^2-1	Trivial
	$U \oplus (-I_2)$	3	$\{e_2, e_3, e_4\}$	$x^4+2x^3-2x-1;$ x^2-1	R3
	$I_2 \oplus (-I_2)$	4	$\{e_1, e_2, e_3, e_4\}$	$x^4-2x^2+1; x^2-1$	Trivial
	$K \oplus U$	3	$\{e_1, e_2, e_4\}$	$x^4-2x^2+1; x^2-1$	R3
	$U \oplus U$	2	$\{e_2, e_4\}$	$x^4-2x^2+1; x^2-1$	R2
	$I_2 \oplus K$	4	$\{e_1, e_2, e_3, e_4\}$	$x^4-2x^3+2x-1;$ x^2-1	Trivial
	$I_2 \oplus U$	3	$\{e_1, e_2, e_4\}$	$x^4-2x^3+2x-1;$ x^2-1	R3
d=3	$W \oplus W$	2	$\{e_1, e_3\}$	$x^4+2x^3+3x^2+2x+1;$ x^2+x+1	R2
	$I_2 \oplus W$	3	$\{e_1, e_2, e_4\}$	$x^4-x^3-x+1;$ x^3-1	R3

Order	Representative of Conjugacy Class	m_A	Minimal Generating Orbit Set	Characteristic polynomial Minimal Polynomial	Reason
	$\begin{bmatrix} I_2 & E \\ 0 & W \end{bmatrix}$	2	$\{e_2, e_4\}$	$x^4 - x^3 - x + 1;$ $x^3 - 1$	R2
d=4	$J \oplus J$	2	$\{e_1, e_3\}$	$x^4 + 2x^2 + 1; x^2 + 1$	R2
	$I_2 \oplus J$	3	$\{e_1, e_2, e_4\}$	$x^4 - 2x^3 + 2x^2 - 2x + 1;$ $x^3 - x^2 + x - 1$	R3
	$\begin{bmatrix} I_2 & E \\ 0 & J \end{bmatrix}$	2	$\{e_2, e_3\}$	$x^4 - 2x^3 + 2x^2 - 2x + 1;$ $x^3 - x^2 + x - 1$	R2
	$(-I_2) \oplus J$	3	$\{e_1, e_2, e_4\}$	$x^4 + 2x^3 + 2x^2 + 2x + 1;$ $x^3 + x^2 + x + 1$	R3
	$\begin{bmatrix} -I_2 & E \\ 0 & J \end{bmatrix}$	2	$\{e_2, e_3\}$	$x^4 + 2x^3 + 2x^2 + 2x + 1;$ $x^3 + x^2 + x + 1$	R2
	$K \oplus J$	3	$\{e_1, e_2, e_4\}$	$x^4 - 1; x^4 - 1$	R3
	$\begin{bmatrix} K & E \\ 0 & J \end{bmatrix}$	2	$\{e_2, e_3\}$	$x^4 - 1; x^4 - 1$	R2
	$\begin{bmatrix} K & I_2 \\ 0 & J \end{bmatrix}$	2	$\{e_1, e_3\}$	$x^4 - 1; x^4 - 1$	R2
	$\begin{bmatrix} K & I_2 - E \\ 0 & J \end{bmatrix}$	2	$\{e_1, e_3\}$	$x^4 - 1; x^4 - 1$	R2
	$U \oplus J$	2	$\{e_2, e_3\}$	$x^4 - 1; x^4 - 1$	R2
	$\begin{bmatrix} U & E \\ 0 & J \end{bmatrix}$	2	$\{e_2, e_3\}$	$x^4 - 1; x^4 - 1$	R2
	$\begin{bmatrix} U & I \\ 0 & J \end{bmatrix}$	1	$\{e_4\}$	$x^4 - 1; x^4 - 1$	R1
d=5	C_5	1	$\{e_1\}$	$x^4 + x^3 + x^2 + x + 1;$ $x^4 + x^3 + x^2 + x + 1$	R1
d=6	$-(W \oplus W)$	2	$\{e_1, e_3\}$	$x^4 - 2x^3 + 3x^2 - 2x + 1;$ $x^2 - x + 1$	R2
	$I_2 \oplus (-W)$	2	$\{e_1, e_2 + e_3\}$	$x^4 - 3x^3 + 4x^2 - 3x + 1;$ $x^3 - 2x^2 + 2x - 1$	R2
	$(-I_2) \oplus W$	2	$\{e_1, e_2 + e_3\}$	$x^4 + 3x^3 + 4x^2 + 3x + 1;$ $x^3 + 2x^2 + 2x + 1$	R2
	$-(I_2 \oplus W)$	3	$\{e_1, e_2, e_4\}$	$x^4 + x^3 + x + 1;$ $x^3 + 1$	R3
	$\begin{bmatrix} -I_2 & E \\ 0 & -W \end{bmatrix}$	2	$\{e_2, e_4\}$	$x^4 + x^3 + x + 1;$ $x^3 + 1$	R2
	$K \oplus W$	2	$\{e_1, e_2 + e_3\}$	$x^4 + x^3 - x - 1;$ $x^4 + x^3 - x - 1$	R2
	$\begin{bmatrix} K & E \\ 0 & W \end{bmatrix}$	2	$\{e_1, e_2 + e_4\}$	$x^4 + x^3 - x - 1;$ $x^4 + x^3 - x - 1$	R2

Order	Representative of Conjugacy Class	m_A	Minimal Generating Orbit Set	Characteristic polynomial Minimal Polynomial	Reason
	$U \oplus W$	2	$\{e_2, e_3\}$	$x^4 + x^3 - x - 1;$ $x^4 + x^3 - x - 1$	R2
	$\begin{bmatrix} U & E \\ 0 & W \end{bmatrix}$	1	$\{e_2 - e_3\}$	$x^4 + x^3 - x - 1;$ $x^4 + x^3 - x - 1$	R1
	$-(K \oplus W)$	2	$\{e_1, e_2 + e_3\}$	$x^4 - x^3 + x - 1;$ $x^4 - x^3 + x - 1$	R2
	$\begin{bmatrix} -K & E \\ 0 & -W \end{bmatrix}$	2	$\{e_2, e_4\}$	$x^4 - x^3 + x - 1;$ $x^4 - x^3 + x - 1$	R2
	$-(U \oplus W)$	2	$\{e_2, e_3\}$	$x^4 - x^3 + x - 1;$ $x^4 - x^3 + x - 1$	R2
	$\begin{bmatrix} -U & E \\ 0 & -W \end{bmatrix}$	1	$\{e_2 + e_3\}$	$x^4 - x^3 + x - 1;$ $x^4 - x^3 + x - 1$	R1
	$W \oplus (-W)$	2	$\{e_1, e_3\}$	$x^4 + x^2 + 1;$ $x^4 + x^2 + 1$	R2
	$\begin{bmatrix} W & E \\ 0 & -W \end{bmatrix}$	1	$\{e_4\}$	$x^4 + x^2 + 1;$ $x^4 + x^2 + 1$	R1
d=8	C_8	1	$\{e_1\}$	$x^4 + 1; x^4 + 1$	R1
d=10	C_{10}	1	$\{e_1\}$	$x^4 - x^3 + x^2 - x + 1;$ $x^4 - x^3 + x^2 - x + 1$	R1
d=12	C_{12}	1	$\{e_1\}$	$x^4 - x^2 + 1;$ $x^4 - x^2 + 1$	R1
	$J \oplus W$	1	$\{e_1 + e_3\}$	$x^4 + x^3 + 2x^2 + x + 1;$ $x^4 + x^3 + 2x^2 + x + 1$	R1
	$J \oplus (-W)$	1	$\{e_1 + e_3\}$	$x^4 - x^3 + 2x^2 - x + 1;$ $x^4 - x^3 + 2x^2 - x + 1$	R1

Example 3.9. The last row in Table 3 is an order 12 representative

$$J \oplus (-W) = \begin{bmatrix} 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & -1 & 1 \end{bmatrix},$$

its characteristic polynomial and minimal polynomial are both $x^4 - x^3 + 2x^2 - x + 1$, so it may be conjugate to its companion. But there are no other elements in Table 3 with the same characteristic and minimal polynomials as those of $J \oplus (-W)$, so it must be conjugate to its companion. By Lemma 2.4, $J \oplus (-W)$ has a minimal generating orbit set with only one element and we can easily find it.

Example 3.10. In Table 3, $A = \begin{bmatrix} U & I \\ 0 & J \end{bmatrix} = \begin{bmatrix} 1 & 1 & 1 & 0 \\ 0 & -1 & 0 & 1 \\ 0 & 0 & 0 & -1 \\ 0 & 0 & 1 & 0 \end{bmatrix}$ is of order 4, the characteristic polynomial and minimal polynomial are both $x^4 - 1$, but other representatives (including $K \oplus J$, $U \oplus J$ and so on) have the same characteristic and minimal polynomials $x^4 - 1$, so we do Step 3 in Section 3.1 and find the orbit of $\{e_4 = [0, 0, 0, 1]^T\}$ by A generates $\mathbb{Z}^4$:

$$\langle e_4, Ae_4, A^2e_4, A^3e_4\rangle = \left\langle \begin{bmatrix} 0 \\ 0 \\ 0 \\ 1 \end{bmatrix}, \begin{bmatrix} 0 \\ 1 \\ -1 \\ 0 \end{bmatrix}, \begin{bmatrix} 0 \\ -1 \\ 0 \\ -1 \end{bmatrix}, \begin{bmatrix} -1 \\ 0 \\ 1 \\ 0 \end{bmatrix} \right\rangle = \mathbb{Z}^4.$$

This is to say, A is conjugate to its companion, but we don't need this fact since we already found a minimal generating orbit set.

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On deformation of polygonal dendrites preserving the intersection graph

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Abstract

Let $\mathcal{S} = S_1, ..., S_m$ be a system of contracting similarities of $\mathbb{R}^2$. The attractor $K(\mathcal{S})$ of the system $\mathcal{S}$ is a non-empty compact set satisfying $K = S_1(K) \cup ... \cup S_m(K)$. We consider contractible polygonal systems $\mathcal{S}$ which are defined by a finite family of polygons whose intersection graph is a tree and therefore the attractor $K(\mathcal{S})$ is a dendrite. We find conditions under which a deformation $\mathcal{S}'$ of a contractible polygonal system $\mathcal{S}$ has the same intersection graph and therefore the attractor $K(\mathcal{S}')$ is a self-similar dendrite which is isomorphic to the attractor K of the system $\mathcal{S}$.

Keywords: Self-similar dendrite, generalized polygonal system, attractor, intersection graph, index diagram.

Math. Subj. Class.: 28A80

Introduction

Our work is part of a series of works aimed at studying self-similar dendrites in $\mathbb{R}^d$. A dendrite K is called self-similar, if it can be represented as an union $K = S_1(K) \cup ... \cup$

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$S_m(K)$ of its images under a finite system $\mathcal{S} = \{S_1, ..., S_m\}$ of contracting similarities of $\mathbb{R}^d$. This representation defines a self-similar structure on K.

The history of fractal geometry contains remarkable examples of dendrites such as Hata tree [8], Vicsek set, Pentadendrite and others, as well as certain important theorems obtained by various authors.

In 1985, M. Hata [8] obtained a criterion for the connectedness of self-similar sets and proved that if a dendrite K is the attractor of a system of weak contractions in a complete metric space, then the set of its endpoints is infinite. In 1990, C. Bandt showed in [3] that the Jordan arcs connecting pairs of points of a postcritically finite self-similar dendrite are self-similar, and the set of possible dimensions of such arcs is finite. J. Kigami in his work [11] considered finite topological subgraphs of a dendrite generated by a given set of points and studied shortest path metrics on self-similar dendrites.

Many examples of dendrites are defined as fractal squares [14]. A special case of such squares, fractal labyrinths, were studied in [5, 6, 7].

A systematic approach to the study of self-similar dendrites required finding answers to the following questions: What topological constraints characterize the class of dendrites generated by systems of similarities in $\mathbb{R}^d$? What are the explicit algorithms for constructing self-similar dendrites? What are the metric and analytical properties of morphisms of self-similar structures on dendrites?

Starting from the simplest and most obvious settings that have been used implicitly by many authors [3, 19], we considered systems $\mathcal{S} = \{S_1, .., S_m\}$ of contracting similarities in $\mathbb{R}^2$, defined by some polygon $P \in \mathbb{R}^2$ and a family of polygons $P_i = S_i(P) \subset P$, which (i) intersect each other only by their vertices; (ii) whose union $\widetilde{P} = \bigcup\limits_{i=1}^{n} P_i$ is a contractible set; and (iii) whose set of vertices contains all the vertices of P. We called such systems $\mathcal{S}$ contractible P-polygonal systems [15, 16, 17, 18].

The attractor K of each such system $\mathcal{S}$ is a dendrite. The properties of such dendrites directly follow from the geometry of the system of polygons P_i and from the properties of the intersection graph $\Gamma(\mathcal{S})$ of this system.

For example, the upper bound for the order of ramification points of K depends only on the values of angles and on the number of vertices of P. The addresses of ramification points of K and their order can be derived from the intersection graph $\Gamma(\mathcal{S})$ of the system $\mathcal{S}$.

Moreover, by [18, Theorem 27], if two contractible polygonal systems $\mathcal{S}, \mathcal{S}'$ have isomorphic intersection graphs $\Gamma(\mathcal{S}), \Gamma(\mathcal{S}')$, then there is a homeomorphism $\varphi : K \to K'$ of their attractors, which defines the isomorphism of self-similar structures $(K, \mathcal{S})$ and $(K', \mathcal{S}')$.

As we define in Section 2, the system $\mathcal{S}$ is called a generalised P-polygonal system if the system of polygons $P_i = S_i(P)$ satisfies the conditions (ii)–(iii), but the requirement $P_i \subset P$ is omitted.

If $\mathcal{S}$ is a contractible P-polygonal system and $\mathcal{S}'$ is a generalized P'-polygonal system, the intersection graphs $\Gamma(\mathcal{S}), \Gamma(\mathcal{S}')$ are isomorphic and for any i, j, $P'_i \cap P'_j = S'_i(K') \cap S'_j(K')$, then there is a homeomorphism $\varphi : K \to K'$ which defines the isomorphism of $(K, \mathcal{S})$ and $(K', \mathcal{S}')$.

In the current paper we find the conditions under which a small deformation $\mathcal{S}'$ of a contractible polygonal system $\mathcal{S}$ preserves the intersection graph of the system $\mathcal{S}$.

In Section 1 we expound basic definitions of the theory of self-similar sets and the definition of contractible polygonal systems. In Section 2 we make a reference to some of our results from [20] on self-similar sets possessing one-point intersection property. Then we proceed to generalized polygonal systems and prove the Theorem 2.6 providing the condition **D0** under which the attractor of a generalized polygonal system is a dendrite. Then we give the Definition 2.7 of δ-deformations of a contractible P-polygonal system $\mathcal{S}$ and prove the Theorem 2.9 which shows that if a δ-deformation $\mathcal{S}'$ of the polygonal system $\mathcal{S}$ satisfies the condition **D0** then the self-similar structures $(K, \mathcal{S})$ and $(K', \mathcal{S}')$ are isomorphic.

So the question arises, how to ensure that the system $\mathcal{S}'$ satisfies Condition **D0** which guarantees that the deformation preserves the intersection graph of the system $\mathcal{S}$. The answer is given by two following statements.

First is the Parameter Matching Theorem 3.12 which gives necessary condition for one-point intersections at common vertices $P_i' \cap P_j'$.

The second is the Small Deformations Theorem 4.6 which states that there is a number $\nu > 0$, depending on the system $\mathcal{S}$ such that if δ is not greater than ν and if the Parameter Matching condition holds, then the system $\mathcal{S}'$ has the same intersection graph as $\mathcal{S}$.

In Section 3 we introduce the Index Diagram $\mathcal{G}(\mathcal{S})$ of a P-polygonal system $\mathcal{S}$. This allows us to understand the role of cyclic vertices of the polygon P and to show that each vertex A of P is subordinate to some cyclic vertex B. In subsection 3.2 we define the standard neighbourhood U_A of a non-cyclic vertex A and therefore of any of its images $S_{\mathbf{j}}(A)$. Proceeding to generalized polygonal systems we prove the existence of invariant arcs at cyclic points of these systems and prove the Parameter Matching Theorem. Section 4 is rather technical. We find the estimates for δ-deformations, and in the end we prove the Small Deformations Theorem 4.6.

1 Preliminaries

1.1 Self-similar sets

Definition 1.1. Let $\mathcal{S} = \{S_1, S_2, \ldots, S_m\}$ be a system of (injective) contraction maps on the complete metric space (X, d). A nonempty compact set $K \subset X$ is called the attractor of the system $\mathcal{S}$, if $K = \bigcup\limits_{i=1}^{m} S_i(K)$.

Throughout the whole paper, the maps $S_i \in \mathcal{S}$ are supposed to be similarities and the set X to be $\mathbb{R}^2$. We will use complex notation for the point on the plane, so each similarity will be written as $S_j(z) = q_j e^{i\alpha_j}(z - z_j) + z_j$, where $q_j = \mathrm{Lip}\, S_j$ and $z_j = \mathrm{fix}(S_j)$. For a system $\mathcal{S}$, we denote $q_{min} = \min\{q_j, j = 1, ..., m\}$ and $q_{max} = \max\{q_j, j = 1, ..., m\}$.

The system $\mathcal{S}$ defines its *Hutchinson operator* T by the equation $T(A) = \bigcup\limits_{i=1}^{m} S_i(A)$. By Hutchinson's Theorem [9], the attractor K is unique for $\mathcal{S}$ and for any compact set $A \subset X$ the sequence $T^n(A)$ converges to K. We also call the set K *self-similar* with respect to $\mathcal{S}$.

The set $I = \{1, 2, ..., m\}$ is called the *set of indices*, while $I^* = \bigcup\limits_{n=1}^{\infty} I^n$ is the set of all finite I-tuples, or *multi-indices* $\mathbf{j} = j_1 j_2 ... j_n$. The length n of the multi-index $\mathbf{j} = j_1 ... j_n$ is denoted by $|\mathbf{j}|$ and $\mathbf{ij}$ denote the concatenation of respective multi-indices. We say $\mathbf{i} \sqsubset \mathbf{j}$, if $\mathbf{j} = \mathbf{il}$ for some $\mathbf{l} \in I^*$; if $\mathbf{i} \not\sqsubset \mathbf{j}$ and $\mathbf{j} \not\sqsubset \mathbf{i}$, $\mathbf{i}$ and $\mathbf{j}$ are *incomparable*.

For any $\mathbf{j} \in I^*$ we write $S_{\mathbf{j}} = S_{j_1 j_2 ... j_n} = S_{j_1} S_{j_2} ... S_{j_n}$; given a set A, we denote $S_{\mathbf{j}}(A)$ by $A_{\mathbf{j}}$. The set $G_{\mathcal{S}} = \{S_{\mathbf{j}}, \mathbf{j} \in I^*\}$ is *the semigroup, generated by* $\mathcal{S}$.

The set of all infinite sequences $I^\infty = \{\boldsymbol{\alpha} = \alpha_1\alpha_2\ldots, \alpha_i \in I\}$ is called *the index space* of the system $\mathcal{S}$; the map $\pi : I^\infty \to K$ called the *index map*, sends each $\boldsymbol{\alpha}$ to the point $\pi(\boldsymbol{\alpha}) = \bigcap\limits_{n=1}^{\infty} K_{\alpha_1\ldots\alpha_n}$. If $\pi(\boldsymbol{\alpha}) = x$, then $\boldsymbol{\alpha}$ is called *an address* of the point x. For each address $\boldsymbol{\alpha}$ of a point $x \in K$, the point $x_n = S^{-1}_{\alpha_1\ldots\alpha_n}(x)$ is called the n-th predecessor of the point x, and the sequence $x_1, x_2, \ldots$ is called the sequence of predecessors of x. Along with the system $\mathcal{S}$ we will consider its *n-th refinement* $\mathcal{S}^{(n)} = \{S_{\mathbf{j}}, \mathbf{j} \in I^n\}$. The Hutchinson operator of the system $\mathcal{S}^{(n)}$ is equal to T^n.

The pair $(K, \mathcal{S})$ is called a self-similar structure. A map $f : K \to K'$ agrees with the structures $(K, \mathcal{S})$, $(K', \mathcal{S}')$ if for any $x \in K$ and any $i \in I$, $f \circ S_i(x) = S'_i \circ f(x)$. If the map f is a homeomorphism, then it defines the isomorphism of self-similar structures $(K, \mathcal{S})$ and $(K', \mathcal{S}')$.

Definition 1.2. The system $\mathcal{S}$ satisfies the *open set condition* (OSC) if there exists a non-empty open set $O \subset X$ such that the sets $S_i(O), \{1 \le i \le m\}$ are pairwise disjoint and are contained in O.

For any $\mathbf{i}, \mathbf{j} \in I^*$, $\mathbf{i} \sqsubset \mathbf{j}$ iff $S_{\mathbf{i}}(O) \supset S_{\mathbf{j}}(O)$ and $\mathbf{i}$ and $\mathbf{j}$ are incomparable, iff $S_{\mathbf{i}}(O) \cap S_{\mathbf{j}}(O) = \varnothing$. The union $\mathcal{C}$ of all intersections $S_i(K) \cap S_j(K)$, $i, j \in I, i \ne j$ is called *the critical set* of the system $\mathcal{S}$. The set of all predecessors of the points in $\mathcal{C}$, $\partial K = \{x \in K :$ for some $\mathbf{j} \in I^*$, $S_{\mathbf{j}} \in \mathcal{C}$ is called the *self-similar boundary* of the set K.

The post-critical set $\mathcal{P}$ of the system $\mathcal{S}$ is the set of all $\boldsymbol{\alpha} \in I^\infty$ such that $\pi(\boldsymbol{\alpha}) \in \partial K$. A system $\mathcal{S}$ is called *post-critically finite* (PCF) if its post-critical set $\mathcal{P}$ is finite [12]. Thus, if the system $\mathcal{S}$ is post-critically finite then the self-similar boundary ∂K is a finite set $\mathcal{V} = \pi(\mathcal{P})$ such that for any non-comparable $\mathbf{i}, \mathbf{j} \in I^*$, $K_{\mathbf{i}} \cap K_{\mathbf{j}} = S_{\mathbf{i}}(\mathcal{V}) \cap S_{\mathbf{j}}(\mathcal{V})$.

1.2 Dendrites

A *dendrite* is a locally connected continuum containing no simple closed curve [4, 13]. The order $Ord(p, X)$ of the point p with respect to a dendrite X is the number of components of the set $X \setminus \{p\}$. Points of order 1 in a dendrite X are called *end points* of X; a point $p \in X$ is called a *cut point* of X if $X \setminus \{p\}$ is disconnected; points of order at least 3 are called *ramification points* of X. A continuum X is a dendrite iff X is locally connected and uniquely arcwise connected.

1.3 Contractible polygonal systems

Let $P \subset \mathbb{R}^2$ be a finite polygon homeomorphic to a disk, $\mathcal{V}_P = \{A_1, \ldots, A_{n_P}\}$ be the set of its vertices. Let $\Omega(P, A)$ denote the angle with vertex A in the polygon P. We consider a system of similarities $\mathcal{S} = \{S_1, \ldots, S_m\}$ in $\mathbb{R}^2$ such that:

(D1) for any $i \in I$ set $P_i = S_i(P) \subset P$;

(D2) for any $i \ne j, i, j \in I, P_i \bigcap P_j = \mathcal{V}_{P_i} \bigcap \mathcal{V}_{P_j}$ and $\#(\mathcal{V}_{P_i} \bigcap \mathcal{V}_{P_j}) < 2$;

(D3) $\mathcal{V}_P \subset \bigcup\limits_{i \in I} S_i(\mathcal{V}_P)$;

(D4) the set $\widetilde{P} = \bigcup\limits_{i=1}^{m} P_i$ is contractible.

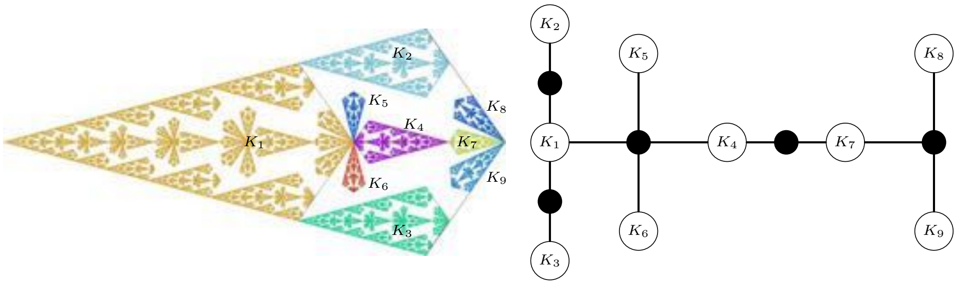


Figure 1: A polygonal system and its intersection graph.

Definition 1.3. The system $\mathcal{S}$ satisfying the conditions **(D1)–(D4)**, is called a *contractible P-polygonal system of similarities*.

Theorem 1.4 ([18, Theorem 12])**.** *The attractor K of a contractible P-polygonal system of similarities $\mathcal{S}$ is a dendrite.*

It was proved in [16, Theorem 4], that:

1. Every contractible polygonal system satisfies (OSC), where we can take $\dot{P}$ as an open set.

2. $P_{\mathbf{j}} \subset P_{\mathbf{i}}$ iff $\mathbf{j} \sqsupset \mathbf{i}$, and if $\mathbf{i} \sqsubset \mathbf{j}$, then $S_{\mathbf{i}}(\mathcal{V}_P) \cap P_{\mathbf{j}} \subset S_{\mathbf{j}}(\mathcal{V}_P)$. If $\mathbf{i}, \mathbf{j} \in I^*$ are incomparable, then $P_{\mathbf{i}} \cap P_{\mathbf{j}}$ is either empty or is a common vertex of the polygons $P_{\mathbf{i}}$ and $P_{\mathbf{j}}$.

3. All the vertices of P lie in K, therefore the set $G_{\mathcal{S}}(\mathcal{V}_P)$ of vertices of the polygons $P_{\mathbf{j}}$ is contained in K and dense in K.

4. Every point $x \in K \backslash G_{\mathcal{S}}(\mathcal{V}_P)$ has a unique address.

2 Generalized polygonal systems

2.1 One-point intersection systems and intersection graph

When considering generalized polygonal systems, we will rely on a number of definitions and statements from our paper [20]:

Definition 2.1. Let $\mathcal{A} = \{A_i, i \in I\}$ be a finite system of compact sets such that for any $i \neq j \in I$, $\#A_i \cap A_j \leq 1$. Then $\mathcal{A}$ is a system of sets with one-point intersection (or a FIP1-system of sets).

Let $\mathcal{B}$ be the set of points of pairwise intersection of the sets A_i, and $\mathcal{B}_i = A_i \cap \mathcal{B}$.

Definition 2.2. The intersection graph $\Gamma(\mathcal{A})$ of a FIP1-system of sets $\mathcal{A}$ is a bipartite graph $(\mathcal{A}, \mathcal{B}; E)$ for which $e = \{A_i, B\} \in E$ if and only if $B \in A_i$.

We call $A_i \in \mathcal{A}$ *white vertices* and $B \in \mathcal{B}$ - *black vertices*. The set $N(A_i)$ of the neighbors of a white vertex A_i is $\mathcal{B}_i$, whereas for a black vertex B, $N(B) = \{A_i : B \in A_i\}$. Since B is the intersection point of at least two sets A_i, we have $\deg(B) \geq 2$.

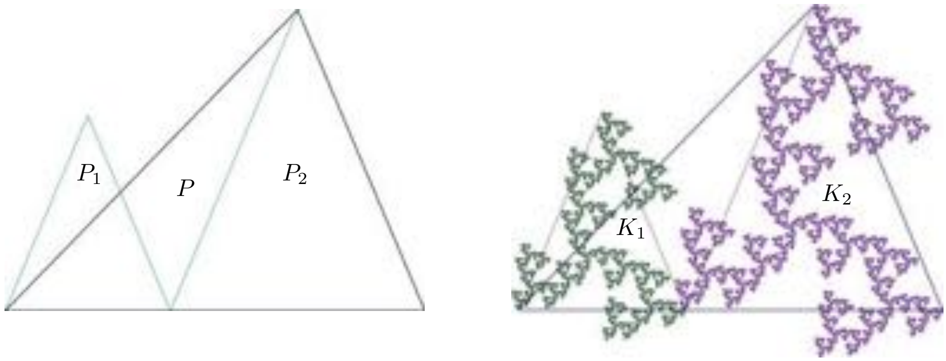


Figure 2: A generalized polygonal system and its attractor.

Definitions 2.1 and 2.2 can be applied to the systems of contractions and their attractors. Let $\mathcal{S} = \{S_1, ..., S_m\}$ be a system of injective contractions in a complete metric space X and K be its attractor. Let $\mathcal{A}(\mathcal{S}) = \{K_1, ..., K_m\}$ and $\mathcal{A}_n(\mathcal{S}) = \{K_{\mathbf{i}} : \mathbf{i} \in I^n\}$.

Definition 2.3. A system of injective contractions $\mathcal{S}$ is called a system with one-point intersection property (or FIP1-system of injective contractions), if the system of sets $\mathcal{A}(\mathcal{S}) = \{S_1(K), ..., S_m(K)\}$ is a FIP1-system of sets.

Theorem 2.4 ([20, Th.1.7]). *Let $\mathcal{S}$ be a system of injective contraction maps in a complete metric space X such that the intersection graph $\Gamma(S)$ is a tree. Then the attractor K of the system $\mathcal{S}$ is a dendrite.*

2.2 Generalized polygonal systems

If we omit the condition **(D1)** in the definition of contractible P-polygonal system $\mathcal{S}$, we get the definition of a *generalized P-polygonal system*:

Definition 2.5. A system $\mathcal{S} = \{S_1, ..., S_m\}$ satisfying the conditions **D2-D4**, is called a generalized P-polygonal system of similarities.

Theorem 2.6. *Let $\mathcal{S}$ be a generalized P-polygonal system. If*

$$\text{for any } i, j \in I \qquad S_i(K) \cap S_j(K) = P_i \cap P_j, \tag{D0}$$

then

(i) *the attractor K of the system $\mathcal{S}$ is a dendrite;*

(ii) *the system $\mathcal{S}$ satisfies OSC;*

(iii) *the set of addresses $\pi^{-1}(x)$ of any point $x \in K$ is finite.*

Remark 1. If the generalized polygonal system $\mathcal{S}$ satisfies Condition **D0**, then $\mathcal{S}$ is a system with a connected attractor K which has one-point intersection property and whose self-similar boundary $\partial K = \mathcal{V}_P$ is finite. Such systems were studied in our paper [20]. It was proved there that for any two incomparable multi-indices $\mathbf{i}, \mathbf{j} \in I^*$, the intersection $K_{\mathbf{i}} \cap K_{\mathbf{j}} = S_{\mathbf{i}}(\mathcal{V}_P) \cap S_{\mathbf{j}}(\mathcal{V}_P)$ is either empty set or a singleton.

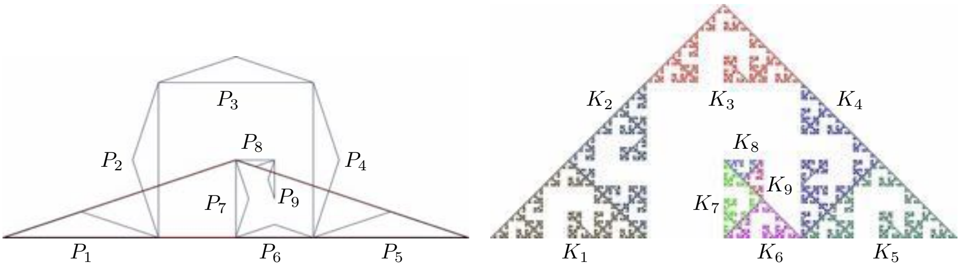


Figure 3: Example for the Remark 2

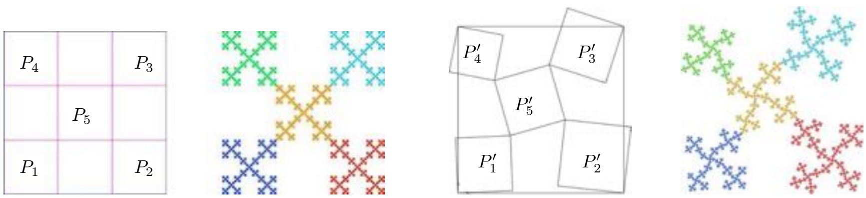


Figure 4: Polygonal system $\mathcal{S}$ and its δ-deformation $\mathcal{S}'$

Proof. (i) Indeed, it follows from formula (**D0**) that the intersections graphs $\Gamma(\{K_i\})$ and $\Gamma(\{P_i\})$ are isomorphic. Also, it follows from the properties **(D2)-(D4)** that the intersection graph of generalized polygonal system $\Gamma(\{P_i\})$ is a tree. Then, by Theorem 2.4, K is a dendrite. (ii) Since $\mathcal{S}$ is a system of contracting similarities in $\mathbb{R}^2$ which has finite intersection property and has connected attractor K then, by [2, Theorem 2], it satisfies the Open Set Condition. (iii) Finiteness of the set $\pi^{-1}(x)$ follows from (ii) and [20, Proposition 2.3]. □

Remark 2. It is possible for a generalized P-polygonal system $\mathcal{S}$ not to satisfy the Condition **D0** and to have the attractor K which is a dendrite. The attractor K of a generalized polygonal system $\mathcal{S}$ in the picture below is a dendrite, but $P_7 \cap P_9 = \varnothing$, whereas $K_7 \cap K_9$ is a line segment.

2.3 δ-deformations of contractible polygonal systems

Definition 2.7. Let $\delta > 0$. A generalized P'-polygonal system $\mathcal{S}' = \{S_1', ..., S_m'\}$ is called a δ-deformation of the P-polygonal system $\mathcal{S} = \{S_1, ..., S_m\}$,
if there is a bijection $f : \bigcup\limits_{k=1}^{m} \mathcal{V}_{P_k} \to \bigcup\limits_{k=1}^{m} \mathcal{V}_{P_k'}$ such that

a) $f|_{\mathcal{V}_P}$ extends to a homeomorphism $\tilde{f} : P \to P'$;

b) $|f(x) - x| < \delta$ for any $x \in \bigcup\limits_{k=1}^{m} \mathcal{V}_{P_k}$;

c) $f(S_k(x)) = S_k'(f(x))$ for any $k \in I$ and $x \in \mathcal{V}_P$.

Since $\hat{f}$ is a homeomorphism of polygons mapping vertices to vertices, we can assume that $\hat{f}$ is a simplicial isomorphism of some triangulation of the polygon P whose vertex set is V_P to equivalent triangulation of P' whose vertex set is $V_{P'}$.

By condition c), if $i, j \in I$, $A_1, A_2 \in \mathcal{V}_P$ and $S_i(A_1) = S_j(A_2)$, then $S'_i(f(A_1)) = S'_j(f(A_2))$.

The same relation is fulfilled in the case when $\mathbf{i}, \mathbf{j} \in I^*$ are multi-indices:

Lemma 2.8. *If $A_1, A_2 \in \mathcal{V}_P$, $\mathbf{i}, \mathbf{j} \in I^*$ and $S_\mathbf{i}(A_1) = S_\mathbf{j}(A_2)$, then $S'_\mathbf{i}(f(A_1)) = S'_\mathbf{j}(f(A_2))$.*

Proof. Suppose that $S_\mathbf{i}(A) = B \in \mathcal{V}_{\widetilde{P}}$ for some $A \in \mathcal{V}_P$, and let $\mathbf{i} = i_1 i_2 ... i_n$. We denote $S_{i_{k+1}...i_n}(A)$ by A_k.

Then we have a finite sequence of relations between $B \in \mathcal{V}_{\widetilde{P}}$ and the vertices $A_k \in \mathcal{V}_P$:

$$B = S_{i_1}(A_1),\ A_1 = S_{i_2}(A_2), \dots A_{n-1} = S_{i_n}(A). \tag{2.1}$$

By c), the map f transforms these relations into

$$B' = S'_{i_1}(A'_1),\ A'_1 = S'_{i_2}(A'_2), \dots A'_{n-1} = S'_{i_n}(A'). \tag{2.2}$$

This implies $S'_\mathbf{i}(A') = B'$. Moreover, if $S_\mathbf{i}(A_1) = S_\mathbf{j}(A_2) \in \mathcal{V}_{\widetilde{P}}$, then $S'_\mathbf{i}(f(A_1)) = S'_\mathbf{j}(f(A_2))$.

Now suppose that $S_\mathbf{i}(A_1) = S_\mathbf{j}(A_2)$ and $\mathbf{i} = \mathbf{l}\mathbf{i}'$, $\mathbf{j} = \mathbf{l}\mathbf{j}'$ and $S_\mathbf{i}(A_1) = S_\mathbf{j}(A_2) = S_\mathbf{l}(B)$ for some $B \in \mathcal{V}_{\widetilde{P}}$. Then $S_{\mathbf{i}'}(A_1) = S_{\mathbf{j}'}(A_2) = B$, therefore $S'_{\mathbf{i}'}(f(A_1)) = S'_{\mathbf{j}'}(f(A_2)) = f(B)$ and $S'_\mathbf{i}(f(A_1)) = S'_\mathbf{j}(f(A_2)) = S'_\mathbf{l}(f(B))$. □

Theorem 2.9. *Let $\mathcal{S}'$ be a δ-deformation of a contractible P-polygonal system $\mathcal{S}$ defined by the map f and let $\pi : I^\infty \to K, \pi' : I^\infty \to K'$ be respective address maps.*
(i) f has unique continuous extension $\hat{f} : K \to K'$ such that $\hat{f} \circ \pi = \pi'$;
(ii) if $\mathcal{S}'$ satisfies Condition **D0***, then $\hat{f}$ is a homeomorphism.*

Remark 3. The equality $\hat{f} \circ \pi = \pi'$ holds if and only if for any $z \in K$ and any $\mathbf{i} \in I^*$,

$$\hat{f}(S_\mathbf{i}(z)) = S'_\mathbf{i}(\hat{f}(z)). \tag{2.3}$$

Proof. The proof is similar to (cf. [1, Lemma 1]). First, we define the function $\hat{f}$ which is a surjection of the dense subset $G_\mathcal{S}(\mathcal{V}_P) \subset K$ to the dense subset $G_{\mathcal{S}'}(\mathcal{V}_{P'}) \subset K'$. Second, we show that $\hat{f}$ is Hölder continuous on $G_\mathcal{S}(\mathcal{V}_P)$ and therefore has unique continuous extension to a surjection from K to K', which we denote by the same symbol $\hat{f}$. Thirdly, we show that the Condition **D0** implies that $\hat{f}$ is injective and therefore is a homeomorphism.

1. Define a map $\hat{f}(z) : G_\mathcal{S}(\mathcal{V}_P) \to G_{\mathcal{S}'}(\mathcal{V}_{P'})$ by

$$\hat{f}(z) = S'_\mathbf{i}(f(S_\mathbf{i}^{-1}(z)), \text{ where } z \in S_\mathbf{i}(\mathcal{V}_P). \tag{2.4}$$

As it follows from Lemma 2.8, if $S_\mathbf{i}(A_1) = S_\mathbf{j}(A_2) = z$, then $S'_\mathbf{i}(f(S_\mathbf{i}^{-1}(z))) = S'_\mathbf{j}(f(S_\mathbf{j}^{-1}(z)))$, so the map $\hat{f}$ is well defined.

Obviously $\hat{f}(G_\mathcal{S}(\mathcal{V}_P)) = G_{\mathcal{S}'}(\mathcal{V}_{P'})$, because if $A' \in \mathcal{V}_{P'}$ and $z' = S'_\mathbf{i}(A')$, then there is a vertex $A = f^{-1}(A') \in \mathcal{V}_P$, therefore $z' = \hat{f}(S_\mathbf{i}(A))$.

Moreover, for any $z \in G_\mathcal{S}(\mathcal{V}_P)$ and $\mathbf{i} \in I^*$, $\hat{f}(S_\mathbf{i}(z)) = S'_\mathbf{i}(\hat{f}(z))$ and if $z_1, z_2 \in G_\mathcal{S}(\mathcal{V}_P)$, $\mathbf{i}, \mathbf{j} \in I^*$ and $S_\mathbf{i}(z_1) = S_\mathbf{j}(z_2)$, then $S'_\mathbf{i}(\hat{f}(z_1)) = S'_\mathbf{j}(\hat{f}(z_2))$.

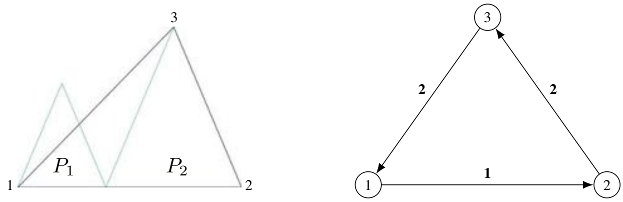


Figure 5: An example of a generalized polygonal system and its index diagram. It contains 3 equivalent cyclic vertices.

2. Let $q_k = \text{Lip}\, S_k$, $q'_k = \text{Lip}\, S'_k$, $\beta = \min\limits_{k\in I} \dfrac{\log q'_k}{\log q_k}$.

Then, following the proof [18, Theorem 27, step 4], in which we use K' instead of P', one can see that for any $z_1, z_2 \in G_{\mathcal{S}}(\mathcal{V}_P)$,

$$|z'_1 - z'_2| \le \frac{2|K'|}{(\rho_0 \cdot \sin(\alpha_0/2))^\beta} |z_1 - z_2|^\beta.$$

Therefore, the map $\hat{f}$ can be extended to a Hölder continuous surjective mapping of the set K in K'. Since for any $z \in K$ and any $k \in I$, $\hat{f}(S_k(z)) = S'_k(f(z))$, then $\hat{f} \circ \pi = \pi'$.

3. Now suppose the system $\mathcal{S}'$ satisfies Condition **D0**. Suppose that for some $\boldsymbol{\sigma} = i_1 i_2 ... \in I^\infty$and $\boldsymbol{\tau} = j_1 j_2 ... \in I^\infty$ $\hat{f} \circ \pi(\boldsymbol{\sigma}) = \hat{f} \circ \pi(\boldsymbol{\tau})$. Then, if $i_1 \ne j_1$, then, by Condition **D0** , $P'_{i_1} \cap P'_{j_1} \ne \varnothing$, resulting in $P_{i_1} \cap P_{j_1} = \{B\}$ for some $B \in \mathcal{V}_{\widetilde{P}}$ and $\pi(\boldsymbol{\sigma}) = \pi(\boldsymbol{\tau}) = B$.

Let now $\boldsymbol{\sigma} = \mathbf{l}\boldsymbol{\sigma}'$ and $\boldsymbol{\tau} = \mathbf{l}\boldsymbol{\tau}'$, and $\hat{f} \circ \pi(\boldsymbol{\sigma}) = \hat{f} \circ \pi(\boldsymbol{\tau})$. Then, by the formula 2.3, $\hat{f} \circ \pi(\boldsymbol{\sigma}') = \hat{f} \circ \pi(\boldsymbol{\tau}')$, so if the first indices in $\boldsymbol{\sigma}'$ and $\boldsymbol{\tau}'$ are different then $\pi(\boldsymbol{\sigma}) = \pi(\boldsymbol{\tau}) = S_l(B)$ for some $B \in \mathcal{V}_{\widetilde{P}}$.

This implies that the mapping $\hat{f}$ is injective. Thus, $\hat{f}$ is a homeomorphism of the compact sets K and K'. □

3 Parameter matching theorem

3.1 Cyclic vertices and the index diagram

Definition 3.1. Let $\mathcal{S} = \{S_i, i \in I\}$ be a generalized P-polygonal system. The index diagram of the system $\mathcal{S}$ is an edge-labeled directed multigraph $\mathcal{G} = (V_P, E, \mu)$, where the vertex set of $\mathcal{G}$ is the set V_P. Given $A, B \in V_P$, there is an edge $e \in E$ which is directed from A to B and is labeled by an index $i \in I$, iff there is S_i such that $S_i(B) = A$. The labeling map $\mu : E \to I$ is defined by the equation $\mu(e) = i$.

We use the following notation for edges in directed graphs: if e is an edge in a graph $\mathcal{G}$, directed from A to B, then $\alpha(e) = A$ and $\omega(e) = B$. A walk σ in $\mathcal{G}$ is a sequence of edges $e_1 e_2 \dots e_n \dots$ such that $\alpha(e_k) = \omega(e_{k-1})$ for all $k > 1$. The walk starts at $\alpha(\sigma) = \alpha(e_1)$ and if the walk ends at an edge e_n, then $\omega(\sigma) = \omega(e_n)$. For a walk $\sigma = e_1 e_2 \dots e_n \dots$ we define $\mu(\sigma) = \mu(e_1)\mu(e_2) \dots = i_1 i_2 \dots$

By condition **D3** for each vertex $A \in \mathcal{V}_P$ there is at least one edge starting from A, so the outdegree of each vertex ≥ 1, and for any vertex $A \in \mathcal{V}_P$ the set of infinite walks $\sigma = e_1 e_2 ...$, starting from A is nonempty.

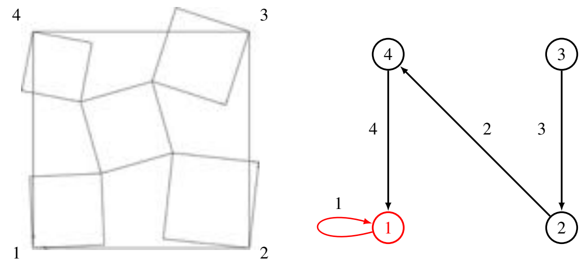


Figure 6: Each walk in the index diagram arrives to some cyclic vertex

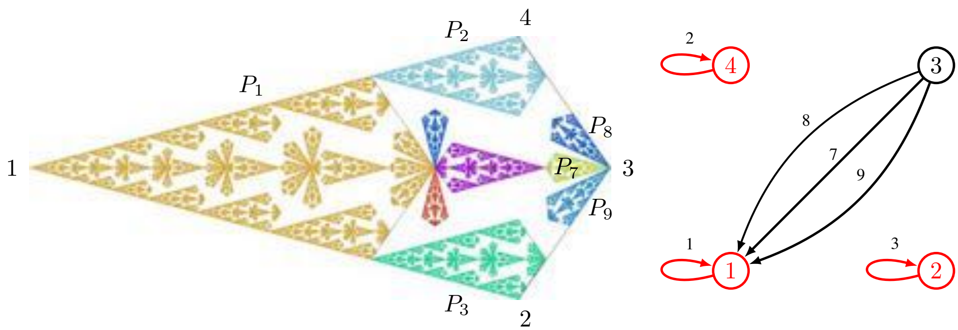


Figure 7: An example of disconnected index diagram. The vertex 3 is non-cyclic and is subordinate to the vertex 1 by the maps S_7, S_8 and S_9.

Consider the sequence $A, A_1, \dots, A_n, \dots$ of vertices of the walk σ. By finiteness of V_P, there are k and l such that $A_l = A_{l+k}$. Then $A_l = S_{i_{l+1}\dots i_{l+k}}(A_l)$. In this case A_l is a *cyclic vertex*.

It follows from **D3** that all the predecessors of a vertex $A \in \mathcal{V}_P$ are also vertices of P. That is, if $A \in S_{i_1\dots i_n}(P)$, then there is a vertex A_n such that $A = S_{i_1\dots i_n}(A_n)$. Therefore for any two vertices $A, B \in \mathcal{V}_P$ the equality $A = S_{\mathbf{i}}(B)$ holds iff there is a walk $\sigma_{AB} = e_1 e_2 e_3 \dots e_n$ from A to B such that $\mathbf{i} = \mu(\sigma_{AB})$.

Consider some infinite walk $\sigma = e_1 e_2 e_3 \dots$, and let $A_n = \omega(e_n)$ be its vertices. As $A = S_{i_1\dots i_n}(A_n)$, the sequence $\{A_n\}$ is a sequence of predecessors of the vertex A. Due to equality $A = \lim\limits_{n\to\infty} S_{i_1\dots i_n}(P)$, the infinite sequence $\mu(\sigma) = i_1 \dots i_n \dots \in I^\infty$ is an address of the point A defined by the walk σ. Conversely, each address $i_1 \dots i_n, \dots$ of the point A is equal to $\mu(\sigma)$ for some infinite walk σ starting from A.

Definition 3.2. A vertex $B \in V_P$ is called a *cyclic vertex* if there is a cycle $\sigma_B = e_1 \dots e_k$ such that $\alpha(\sigma_B) = \omega(\sigma_B) = B$. The length k of the cycle σ_B is called *the order* of the vertex B. We call B a *basepoint* of the cycle σ_B.

Remark 4. As we show in Proposition 3.5 (i), each cyclic vertex has outdegree 1 and therefore belongs to only one cycle.

The multi-index $\mathbf{j} = \mu(\sigma_B)$ is the shortest of the multi-indices $\mathbf{k}$ satisfying $S_{\mathbf{k}}(B) = B$. Conversely, if B is a vertex of P and $\mathbf{j} = j_1 \dots j_k$ is the shortest multi-index such that $S_{\mathbf{j}}(B) = B$ then $\mathbf{j} = \mu(\sigma_B)$ for some cycle σ_B in $\mathcal{G}$.

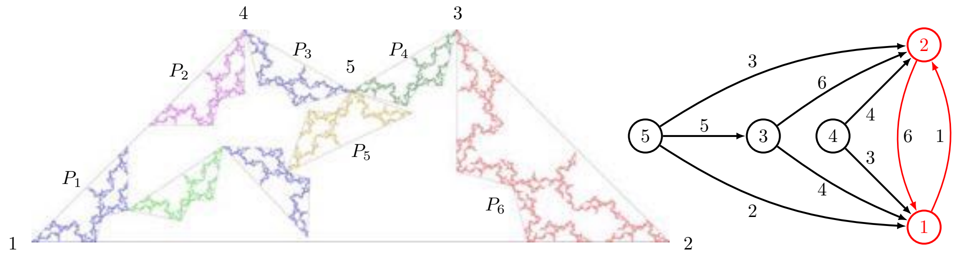


Figure 8: A more complicated example of index diagram. The vertex 5 is subordinate to the vertex 2 by the maps S_3 and S_{56} and to the vertex 1 by the maps S_2 and S_{54}.

Definition 3.3. A finite path η in $\mathcal{G}$ is called a pre-cyclic path if $\omega(\eta)$ is a unique cyclic vertex in η. Let $\mathbf{i} = \mu(\eta)$. Then we say the point $A = \alpha(\eta)$ is *subordinate* to the point $B = \omega(\eta)$ *by means of the map* $S_\mathbf{i}$.

In other words, each pre-cyclic path η starting from a vertex A defines a pair $(B, S_\mathbf{i}) = (\omega(\eta), S_{\mu(\eta)})$ such that B is a cyclic vertex and $A = S_\mathbf{i}(B)$.

Proposition 3.4. *Let $\mathcal{S}$ be a generalised P-polygonal system of similarities. For each vertex $A \in \mathcal{V}_P$ there is a finite number of pairs $(B_k, S_{\mathbf{i}_k})$, such that for each k the vertex A is subordinate to B_k by means of the map $S_{\mathbf{i}_k}$.*

Proof. Let $A \in \mathcal{V}_P$ be a non-cyclic vertex. Consider the set $\{\eta_1, \ldots \eta_n\}$ of all pre-cyclic paths starting from A. Let $(B_k, S_{\mathbf{i}_k})$ be the pair, defined by η_k. Notice that if for some k, l, $\omega(\eta_k) = \omega(\eta_l)$, then $\mu(\eta_k) \neq \mu(\eta_l)$. Therefore all the pairs $(B_k, S_{\mathbf{i}_k})$ are different. □

In the case when $\mathcal{S}$ is a generalized polygonal system, which satisfies condition (1) and particularly in the case when $\mathcal{S}$ is a contractible polygonal system, the vertex set $\mathcal{V}_P$ and the index diagram $\mathcal{G}(\mathcal{S})$ have the following properties:

Proposition 3.5. *Let $\mathcal{S}$ be a generalized polygonal system satisfying the condition (1), then:*

(i) *All the cyclic vertices of the index diagram $\mathcal{G}(\mathcal{S})$ have the outdegree equal to 1.*

(ii) *Each cyclic vertex B is a basepoint of a unique cycle σ_B.*

(iii) *There is n such that all cyclic vertices of the system $\mathcal{S}^{(n)} = \{S_\mathbf{i}, \mathbf{i} \in I^n\}$ have the order* 1.

Proof. Let the outdegree of some cyclic vertex B be greater than 1. This implies that there is a cycle σ_B in $\mathcal{G}$ with a basepoint B and an edge $e_1 : \alpha(e_1) = B$ such that $e_1 \notin \sigma_B$. Consider an infinite walk $\tau = e_1 e_2 e_3 ...$, starting from B. Then all the walks $\sigma_B^n \tau$ start from B and are pairwise different, therefore B has infinite set of addresses. Since a contractible polygonal system has finite intersection property and satisfies OSC, it follows from [20, Theorem 1.7], that the set of addresses of each vertex B is finite. The contradiction obtained proves (i).

Let B be a cyclic vertex and let τ be the periodic walk generated by the cycle σ_B. By (i) it is the only infinite walk originating from B, which proves (ii). Moreover, $\mu(\tau)$ is the unique address of the point B.

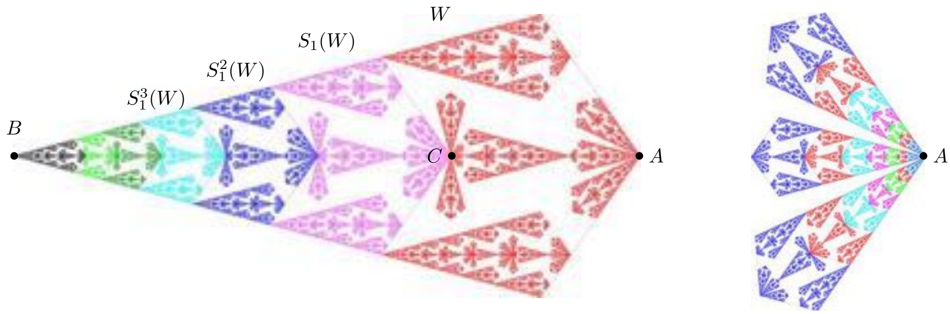


Figure 9: The decomposition (3.1) of the attractor K at the cyclic vertex B (left) and the decomposition (3.2) of the standard neighborhood U_A for a non-cyclic vertex A (right). Notice that the order of the point B is 3, and the order of the point A is 9.

Let $\mathcal{G}$ be the index diagram of the system $\mathcal{S}$. Since $\mathcal{S}^{(n)}$ is a generalized polygonal system satisfying condition (1), the set of vertices of its index diagram $\mathcal{G}^n$ is also $\mathcal{V}_P$, and the edges e' going from A to B correspond to the walks $\eta' = e_1 ... e_n$ of length n for which $\alpha(\eta') = A$, $\omega(\eta') = B$. Let n be the least common multiple of the orders of all cyclic vertices. Then for every walk η of length n outgoing from a cyclic vertex B, $\omega(\eta) = B$. Therefore, the order of any cyclic vertex in the system $\mathcal{S}^{(n)}$ is equal to 1. □

3.2 The structure of neighborhoods of points of the attractor of a contractible polygonal system

1. Cyclic vertices. Let $B \in \mathcal{V}_P$ be a cyclic vertex of the contractible polygonal system $\mathcal{S}$ and let σ_B be the cycle with the basepoint B. Let $\mathbf{j} = \mu(\sigma_B)$. Then the similarity $S_\mathbf{j}$ is a homothety, and the angle Ω_B formed by the sides of P adjacent to B contains P. Moreover, assuming $W = K \setminus S_\mathbf{j}(K)$ we obtain a decomposition of the set K to a disjoint union

$$K = \{B\} \cup \bigsqcup_{n=0}^{\infty} S_\mathbf{j}^n(W). \tag{3.1}$$

2. Non-cyclic vertices. Let $A \in V_P$ be a non-cyclic vertex. Let $\{\eta_1, \ldots \eta_n\}$ be the set of all pre-cyclic paths starting from A and $\{(B_k, S_{\mathbf{i}_k}), k = 1, ..., n\}$ be the corresponding set of pairs $(B_k, S_{\mathbf{i}_k})$.

Notice that if $k \neq l$, then $K_{\mathbf{i}_k} \cap K_{\mathbf{i}_l} = \{A\}$. Suppose contrary. Then by Remark 1, one of the multi-indices, say $\mathbf{i}_k$, satisfies $\mathbf{i}_k \sqsubset \mathbf{i}_l$. Then η_k is a subpath of η_l, which is impossible because η_l is pre-cyclic.

The sets $S_{\mathbf{i}_k}(K \setminus B_k)$ are pairwise disjoint and lie inside pairwise disjoint angles $S_{\mathbf{i}_k}(\Omega_{B_k})$ for which A is the common vertex.

The set $U_A = \bigcup\limits_{k=1}^{n} S_{\mathbf{i}_k}(K)$ is a neighborhood of A in K. It is called the *standard neighborhood* of the vertex A.

Let σ_k be the cycle whose basepoint is B_k and let $\mathbf{j}_k = \mu(\sigma_k)$. Assuming $W_k =$

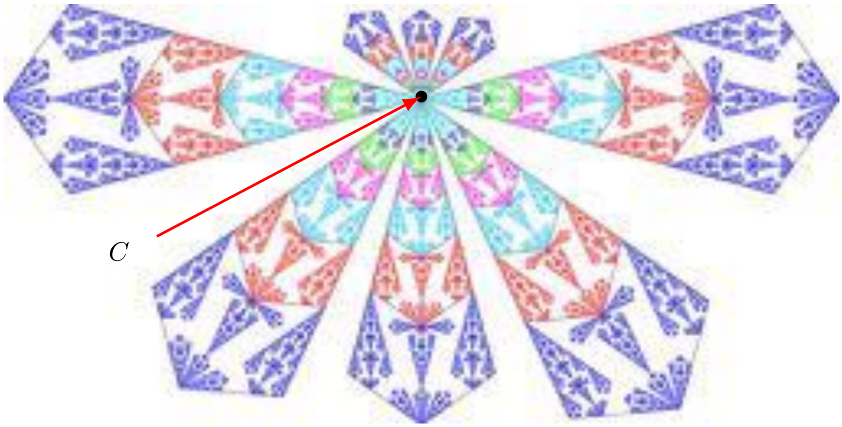


Figure 10: The decomposition (3.2) of the standard neighborhood U_C of a point $C \in G_{\mathcal{S}}(\mathcal{V}_P)$. The order of the point C is 24.

$K \setminus S_{\mathbf{j}_k}(K)$, we get the *canonical decomposition of the standard neighborhood* U_A:

$$U_A = \{A\} \cup \bigsqcup_{k=1}^{n} S_{\mathbf{i}_k} \bigsqcup_{l=0}^{\infty} S^l_{\mathbf{j}_k}(W_k) \tag{3.2}$$

3. The points of the set $G_{\mathcal{S}}(\mathcal{V}_P)$. Consider the point $A \in G_{\mathcal{S}}(\mathcal{V}_P)$.

Definition 3.6. We say that $A \in G_{\mathcal{S}}(\mathcal{V}_P)$ is subordinate to a cyclic vertex B by means of a map $S_{\mathbf{i}} = S_{i_1 \ldots i_k}$ if $A = S_{i_1 \ldots i_k}(B)$ and for any $l < k$ the point $S_{i_{l+1} \ldots i_k}(B)$ is not a cyclic vertex.

Proposition 3.7. *For any point $A \in G_{\mathcal{S}}(\mathcal{V}_P)$ there is a unique finite set of pairs $\mathfrak{U}_A = \{(B_k, S_{\mathbf{i}_k}), k = 1, \ldots, N_A\}$ such that the point A is subordinate to a cyclic vertex B by means of a map $S_{\mathbf{i}}$ if and only if the pair $(B, S_{\mathbf{i}})$ lies in $\mathfrak{U}_A$.*

For any non-equal $k, l \le N_A$, $S_{\mathbf{i}_k}(K) \cap S_{\mathbf{i}_l}(K) = \{A\}$.

The set $U_A = \bigcup\limits_{k=1}^{N_A} S_{\mathbf{i}_k}(K)$ is a neighborhood of A in K; it admits the decomposition (3.2).

3.3 Parameter matching theorem

Let A be a cyclic vertex of a generalized P-polygonal system $\mathcal{S}$. In this case the map $S_{\mathbf{i}}$ for which $S_{\mathbf{i}}(A) = A$, need not be a homothety and we have to define the rotation parameter for such map. Though the rotation angle α_i of the map $S_{\mathbf{i}}$ is formally defined up to $2n\pi$, in the case of polygonal systems the integer n is uniquely defined by the set $\widetilde{P}$ and depends on its geometric configuration.

Proposition 3.8. *Let $\mathcal{S}$ be a generalized P-polygonal system satisfying Condition* **D0** *and let A be a cyclic vertex of the polygon P. Then there is a vertex $B \in V_P$ and a multi-index $\mathbf{i} \in I^*$ such that $S_{\mathbf{i}}(A) = A$ and the Jordan arc $\gamma_{AB} \subset K$ satisfies the inclusion $S_{\mathbf{i}}(\gamma_{AB}) \subset \gamma_{AB}$.*

Proof. Let $\mathbf{j}$ be the shortest multi-index for which $A = S_{\mathbf{j}}(A)$. Let $W = K \backslash S_{\mathbf{j}}(K)$, then

$$K = \{A\} \cup \bigsqcup_{n=0}^{\infty} S_{\mathbf{j}}^n(W).$$

Let $Q = S_{\mathbf{j}}^{-1}(\bar{W} \cap S_{\mathbf{j}}(K))$. From the Remark 1 we see that $Q \subset \mathcal{V}_P \backslash \{A\}$.

The vertex A cannot belong to Q. Otherwise, there would be a piece $K_{\mathbf{i}}$ such that $K_{\mathbf{i}} \cap K_{\mathbf{j}} = \{A\}$, so for any k, l, $S_{\mathbf{j}}^k(K_{\mathbf{i}}) \cap S_{\mathbf{j}}^l(K_{\mathbf{i}}) = \{A\}$. In this case A would be a infinite order ramification point in K, which is impossible by Theorem 2.6.

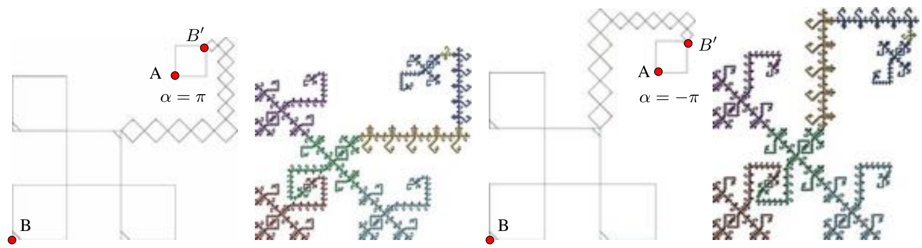
Since K is a dendrite, for any $B \in Q$ there is a unique arc $\gamma_{AB} \subset K$. Let $\gamma_{B'B}$ be the smallest of those subarcs of γ_{AB} for which $B' \in K_{\mathbf{j}}$. Then $B' \in S_{\mathbf{j}}(Q)$. Define a map $\psi : Q \to Q$ by the formula $\psi(B) = S_{\mathbf{j}}^{-1}(B')$. Then for any $B \in Q$, $S_{\mathbf{j}}(\gamma_{A\psi(B)}) \subset \gamma_{AB}$. Further, for any n, $S_{\mathbf{j}}^n(\gamma_{A\psi^n(B)}) \subset \gamma_{AB}$.

Thus ψ is a mapping of a finite set Q to itself. There is n and $B \in Q$, such that $\psi^n(B) = B$. Then $S_{\mathbf{j}}^n(\gamma_{AB}) \subset \gamma_{AB}$. So we put $S_{\mathbf{i}} = S_{\mathbf{j}}^n$. □

Definition 3.9. The arc γ_{AB} is called an *invariant arc* of the cyclic vertex A.

Let A be a cyclic vertex and γ_{AB} be its invariant arc and $S_{\mathbf{i}}(A) = A$. Let $B' = S_{\mathbf{i}}(B)$. We denote by α the total increase of the argument of $z - A$ as z travels along γ_{AB} from B to B'. This gives a unique representation $S_{\mathbf{i}}(z) = q_{\mathbf{i}} e^{i\alpha}(z - A) + A$.

Remark 5. The following picture shows how the angle α depends on the geometric configuration of the system $\mathcal{S}$, though the similarity which fixes A and sends B to B' is the same.



Definition 3.10. The number $\lambda_A = \dfrac{\alpha}{\ln q_{\mathbf{i}}}$ is called the parameter of the cyclic vertex A.

Definition 3.11. Generalized P-polygonal system $\mathcal{S}$ of similarities satisfies the *Parameter Matching Condition*, if for any $B \in \cup_{i=1}^m \mathcal{V}_{P_i}$ and for any cyclic vertices A, A' such that for some $\mathbf{i}, \mathbf{j} \in I^*$, $S_{\mathbf{i}}(A) = S_{\mathbf{j}}(A') = B$, the equality $\lambda_A = \lambda_{A'}$ holds.

From Propositions 3.4 and 3.8 and V.V.Aseev's Lemma on disjoint periodic arcs [1, Lemma 3.1] we come to the following Parameter Matching Theorem:

Theorem 3.12. *Let $\mathcal{S}$ be a generalized P-polygonal system whose attractor K is a dendrite. Then the system $\mathcal{S}$ satisfies the Parameter Matching Condition.*

Proof. Let $\mathcal{S}$ be a generalized polygonal system whose attractor K is a dendrite. Let $C \in \cup_{i=1}^m \mathcal{V}_{P_i}$ and $A, A' \in \mathcal{V}_P$ be such cyclic vertices that for some $i, j \in I$, $S_i(A) = S_j(A') = C$. Denote the images $S_i(K)$ and $S_j(K)$ by K_i, K_j respectively. Without loss of generality we can suppose that the point C has coordinate 0 in $\mathbb{C}$. Since for some

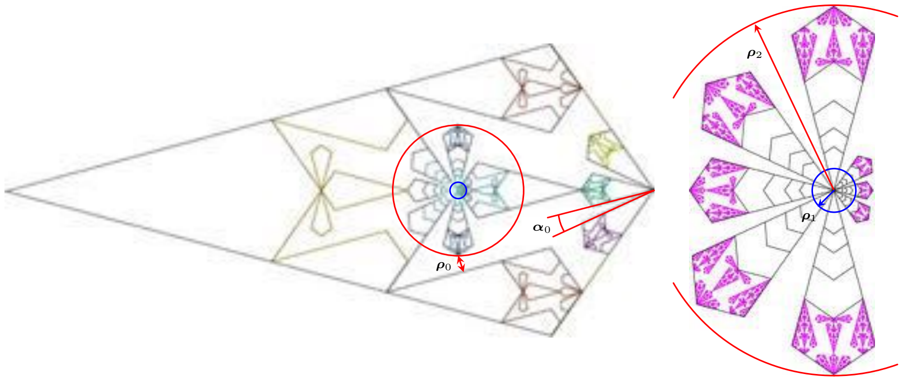


Figure 11: The choice of parameters α_0, ρ_0, ρ_1 and ρ_2 for the polygonal system.

$\mathbf{i}, \mathbf{j} \in I^*$, $S_{\mathbf{i}}(A) = A$ and $S_{\mathbf{j}}(A') = A'$, the maps $S_{b1} = S_i S_{\mathbf{i}} S_i^{-1}$ and $S_{b2} = S_j S_{\mathbf{j}} S_j^{-1}$ have C as their fixed point and $S_{b1}(K_i) \subset K_i$ and $S_{b2}(K_j) \subset K_j$. Let $S_{b1}(z) = q_{\mathbf{i}} e^{i\alpha_{\mathbf{i}}} z$ and $S_{b2}(z) = q_{\mathbf{j}} e^{i\alpha_{\mathbf{j}}} z$. So the parameters of the vertices A and A' will be $\lambda_1 = \dfrac{\alpha_{\mathbf{i}}}{\log q_{\mathbf{i}}}$ and $\lambda_2 = \dfrac{\alpha_{\mathbf{j}}}{\log q_{\mathbf{j}}}$. Let $\gamma_{AB} \subset K$ and $\gamma_{A'B'} \subset K$ be invariant arcs for the vertices A and A'. Let also $\gamma_1 = S_i(\gamma_{AB})$ and $\gamma_2 = S_j(\gamma_{A'B'})$. Then $S_{b1}(\gamma_1) \subset \gamma_1$ and $S_{b2}(\gamma_2) \subset \gamma_2$. From [1, Lemma 3.1] it follows that if $\gamma_1 \cap \gamma_2 = \{C\}$, then $\lambda_1 = \lambda_2$. □

4 Small deformation theorem

4.1 Main parameters of a contractible polygonal system

For any set $X \subset \mathbb{R}^2$ or point A by $V_\varepsilon(X)$ (resp.$V_\varepsilon(A)$) we denote ε-neighborhood of the set X (resp. of the point A) in the plane.

Parameter ρ_0: By $\rho_0 > 0$, we denote the smallest of all distances between the points of non-intersecting polygons P_i, P_j and distances between the vertices $A \in \mathcal{V}_P$ and the points of polygons $P_i \not\ni A$:
(i) for any vertex $A \in \mathcal{V}_P$, $V_\rho(A) \bigcap P_k \neq \varnothing \Rightarrow A \in P_k$;
(ii) for any $x, y \in P$, such that there are $P_k, P_l : x \in P_k, y \in P_l$ and $P_k \bigcap P_l = \varnothing, d(x, y) \geq \rho_0$.

Parameters ρ_1, ρ_2: Let $C \in \mathcal{V}_{\tilde{P}}$ be a non-cyclic vertex. Let U_C be its standard neighborhood and $\tilde{U}_C = \bigcup\limits_{l=1}^{k} S_{\mathbf{i}_l}(W_l)$. Then ρ_1 and ρ_2 are chosen so that for any $C \in \mathcal{V}_{\tilde{P}}$, the set $\tilde{U}_C$ is contained in the ring $\rho_1 < |z - C| \leq \rho_2$.

Parameter α_0: α_0 is the smallest possible angle between those sides of the polygons $P_i, P_j, i, j \in I$, which have a common vertex.

Notation for maps of cyclic vertices. In the case when $\mathcal{S}$ is a contractible P-polygonal system all of whose cyclic vertices are of order 1, we order the indices in I and enumerate the vertices in $\mathcal{V}_P$ in such a way that each cyclic vertex A_l corresponds to a homothety $S_l(z) = q_l(z - A_l) + A_l$. In this case, K is within the angle $\Omega(P, A_l)$ and $K \backslash \{A_l\} = \bigsqcup\limits_{n=0}^{\infty} S_l^n(W_l)$.

4.2 Estimate of δ and Main Theorem

Initial assumptions. Let $\mathcal{S} = \{S_1, ..., S_m\}$ be a contractible P-polygonal system, and the map f defines a δ-deformation of the system $\mathcal{S}$ to a generalized P'-polygonal system $\mathcal{S}' = \{S'_1, ..., S'_m\}$, where $S_k(z) = q_k e^{i\alpha_k}(z - z_k) + z_k$ and $S'_k(z) = q'_k e^{i\alpha'_k}(z - z'_k) + z'_k$. We assume that $\operatorname{diam} P = 1$, and $\delta > 0$ is such that

$$\delta < q_{min}/8 \quad \text{and} \quad \delta < (1 - q_{max})/8. \tag{4.1}$$

The estimates for $\Delta q_k = |q'_k - q_k|$ and $\Delta\alpha_k = |\alpha'_k - \alpha_k|$ under the deformation f are given by the following Lemma.

Lemma 4.1. *For any $k \in I$,*

$$\Delta q_k < 3\delta \quad \text{and} \quad \Delta\alpha_k < C_\alpha\delta, \text{ where } C_\alpha = 2.1(1 + 1/q_{min}). \tag{4.2}$$

Proof. Choose vertices A, B of the polygon P such that $|B - A| = 1$. For the images of A we use the notation $A_k = S_k(A)$, $A' = f(A)$ and $A'_k = f(A_k) = S'_k(A')$, and similar notation for the vertex B.
We estimate the increments $\Delta q_k = |q'_k - q_k|$ and $\Delta\alpha_k = |\alpha'_k - \alpha_k|$ for
$\dfrac{B_k - A_k}{B - A} = q_k e^{i\alpha_k}$ and $\dfrac{B'_k - A'_k}{B' - A'} = q'_k e^{i\alpha'_k}$.
Since f is a δ-deformation, $|(B_k - A_k)| - 2\delta \le |(B'_k - A'_k)| \le |(B_k - A_k)| + 2\delta$. This implies

$$3q_{min}/5 < \frac{q_{min} - 2\delta}{1 + 2\delta} < \frac{q_k - 2\delta}{1 + 2\delta} \le q'_k \le \frac{q_k + 2\delta}{1 - 2\delta} < \frac{q_{max} + 2\delta}{1 - 2\delta} < \frac{1 + 3q_{max}}{3 + q_{max}}. \tag{4.3}$$

Since

$$\alpha'_i - \alpha_i = \arg\frac{B'_k - A'_k}{B_k - A_k} - \arg\frac{B' - A'}{B - A}, \tag{4.4}$$

we get

$$|\alpha'_k - \alpha_k| \le \arcsin 2\delta + \arcsin\frac{2\delta}{q_k}. \tag{4.5}$$

Substituting the inequalities (4.1) to (4.3) and (4.5) and taking into account the inequality $0 < \arcsin x < 1.05x$, which holds for any $0 < x < 0.5$, we obtain the estimates

$$\Delta q_k = |q'_k - q_k| < \frac{2\delta(1 + q_k)}{1 - 2\delta} < 3\delta \quad \text{and} \quad \Delta\alpha_k = |\alpha'_k - \alpha_k| < C_\alpha\delta, \tag{4.6}$$

where $C_\alpha = 2.1(1 + 1/q_{min})$. □

Let $V_\delta(P)$ denote the δ-neighborhood of the polygon P.

Lemma 4.2. *Let $\delta_1 = \dfrac{4\delta}{1 - q_{max}}$, and $U = V_{\delta_1}(P)$. Then*

(1) *For any $k \in I$, $S_k(U) \subset U$ and $S'_k(U) \subset U$.*

(2) *For any $z \in U$, $|S'_k(z) - S_k(z)| < C_\Delta\delta$, where $C_\Delta = 6.5 + 1.5C_\alpha$.*

Proof. (1) By Definition 2.7, $V_\delta(P_k)\supset P'_k$, $V_\delta(P'_k)\supset P_k$, $V_\delta(P)\supset P'$ and $V_\delta(P')\supset P$.
Thus, $S'_k(P')\subset V_\delta(P_k)\subset V_\delta(P)$. Therefore $S'_k(P)\subset V_{2\delta}(P_k)\subset V_{2\delta}(P)$.
Since S'_k is a similarity, $S'_k(V_\rho(P))\subset V_{2\delta+q'_k\rho}(P)$ for any positive ρ.
If $\rho \geq \dfrac{2\delta}{1-q'_k}$, then $2\delta + q'_k\rho \leq \rho$. Therefore $S'_k(V_\rho(P))\subset V_\rho(P)$.
From the inequality $q'_k < \dfrac{q_{max}+2\delta}{1-2\delta}$ it follows that $\dfrac{2\delta}{1-q'_k} \leq \dfrac{2\delta(1-2\delta)}{1-q_{max}-4\delta} < \dfrac{4\delta}{1-q_{max}}$.
The latter implies (1). Moreover, due to (4.1), $\delta_1 < 1/2$.

(2) Take $z \in U$ and consider the difference $S'_k(z) - S_k(z)$. It can be represented in the form $S'_k(A) - S_k(A) + (q'_k e^{i\alpha'_k} - q_k e^{i\alpha_k})(z-A)$. Therefore

$$|S'_k(z) - S_k(z)| < |S'_k(A) - S_k(A)| + (|q'_k - q_k| + q_k|e^{i\alpha'_k} - e^{i\alpha_k}|)|z-A|. \qquad (4.7)$$

Since $|z-A| < 1+\delta_1 < 1.5$, $|S'_k(A) - S_k(A)| < 2\delta$, and $|e^{i\alpha'_k} - e^{i\alpha_k}| \leq |\alpha'_k - \alpha_k|$, the right hand side of (4.7) is no greater than $2\delta + 1.5(3\delta + C_\alpha\delta)$. □

Applying the Displacement Theorem [10, Theorem 17] to $\mathcal{S}, \mathcal{S}'$ and U we obtain the following statement.

Proposition 4.3. *Let π, π' be the address maps for the systems $\mathcal{S}$ and $\mathcal{S}'$ respectively.*
1. For any $\sigma \in I^\infty$,

$$|\pi'(\sigma) - \pi(\sigma)| < C_K\delta \text{ where } C_K = \frac{2C_\Delta}{1-q_{max}}. \qquad (4.8)$$

2. If the system $\mathcal{S}'^{(n)}$ satisfies **D2–D4**, *then it is a $(C_K\delta)$-deformation of the system $\mathcal{S}^{(n)}$.*

Remark 6. Let $\mathcal{S}' = \{S'_1, ..., S'_m\}$ be a δ-deformation of the contractible P-polygonal system $\mathcal{S}$. Let $A \in S_j(\mathcal{V}_P)$ for some $j \in I$. Let $g(z) = z - A + A'$ and $S''_k = g \circ S'_k \circ g^{-1}$. Then $\mathcal{S}'' = \{S''_1, ..., S''_m\}$ is a 2δ-deformation of the system $\mathcal{S}$, for which $A'' = A$, $K'' = g(K')$, $P''_{\mathbf{j}} = g(P_{\mathbf{j}})$. Since g is a translation, the estimates (4.1) and (4.2) for $\mathcal{S}''$ remain the same with the same δ, while $|\pi''(\sigma) - \pi(\sigma)| < (C_K+1)\delta$. Thus we will denote $\delta_2 = (C_K+1)\delta$.

Taking into account the Propositions 3.4 and 4.3, it is sufficient to prove the Theorem for the case when all cyclic vertices of the system $\mathcal{S}$ have order 1.

Proposition 4.4. *Let the initial assumptions be fulfilled, and let $S_k(z) = q_k(z - A_k) + A_k$ be the homothety fixing $A_k \in \mathcal{V}_P$. Then the parameter λ_k of the similarity S'_k satisfies the inequality*

$$|\lambda_k| < C_\lambda\delta, \text{ where } C_\lambda = \frac{2.1(1+1/q_{max})}{\log(3+q_{max}) - \log(3q_{max}+1)}. \qquad (4.9)$$

Proof. From Lemma 4.1 we have

$$|\lambda_k| \leq \frac{\arcsin 2\delta + \arcsin \dfrac{2\delta}{q_k}}{|\log(q_k+2\delta) - \log(1-2\delta)|}. \qquad (4.10)$$

Given the inequalities (4.3) and (4.5), we get (4.9). □

Lemma 4.5. *Let $\mathcal{S}$ be a contractible P-polygonal system whose cyclic vertices have order 1 and $\mathcal{S}'$ be its δ-deformation. Then if*

$$2.1\frac{\delta_2}{\rho_1} + \lambda \log \frac{\rho_2 + \delta_2}{\rho_1 - \delta_2} < \alpha_0 \text{ and } 2\delta_2 < \rho_0, \tag{4.11}$$

then the system $\mathcal{S}'$ satisfies condition (**D0**).

Remark 7. On the assumption that $\delta_2 < \rho_1/4$, and $\delta_2 < (1 - \rho_2)/4$, the inequality (4.11) holds if

$$2.1\frac{\delta_2}{\rho_1} + \lambda \log \frac{1 + 3\rho_2}{3\rho_1} < \alpha_0.$$

Proof. Take a vertex $B \in V_{\widetilde{P}}$. Taking into account Remark 6, we can assume that $B = 0$ and $f(0) = 0$, so $B' = B = 0$.

The decomposition of a standard neighborhood U_B of the point B has the form

$$U_B = \{B\} \cup \bigsqcup_{l=1}^{k} S_{\mathbf{j}_l} \bigsqcup_{n=0}^{\infty} S_l^n(W_l). \tag{4.12}$$

The maps $\bar{S}_l = S_{\mathbf{j}_l} S_{i_l} S_{\mathbf{j}_l}^{-1}$ are homotheties with a fixed point B such that

$$K_{\mathbf{j}_l} \backslash \{B\} = \bigsqcup_{n=0}^{\infty} \bar{S}_l^n(W_l). \tag{4.13}$$

Similarly, let $W_l' = \hat{f}(W_l)$ and $\bar{S}_l' = S_{\mathbf{j}_l}' S_{i_l}' S_{\mathbf{j}_l}'^{-1}$. Then

$$K_{\mathbf{j}_l}' \backslash \{B\} = \bigsqcup_{n=0}^{\infty} \bar{S}_l'^n(W_l'). \tag{4.14}$$

Notice that for any l, $\bar{S}_l(z) = q_{i_l} z$ and $\bar{S}_l'(z) = q_{i_l}' e^{i\alpha_{i_l}} z$, and due to Parameter Matching Condition, there is such λ, that for any l, $\alpha_{i_l} = \lambda \log q_{i_l}'$.

Consider the map $z = exp(w)$ of the plane $(w = \varrho + i\varphi)$ as a universal cover of the punctured plane $\mathbb{C} \backslash \{0\}$.

Consider the polygons $P_{\mathbf{j}_l}$ and choose their liftings in the plane $(w = \varrho + i\varphi)$. We may suppose that these liftings lie in respective horizontal strips $\theta_l^- \leq \varphi \leq \theta_l^+$, where $0 < \theta_l^- < \theta_l^+ < 2\pi$ and $\theta_l^+ + \alpha_0 < \theta_{l+1}^-$ for any $l < k$ and $\theta_k^+ + \alpha_0 < \theta_1^- + 2\pi$. We also consider liftings of $K_{\mathbf{j}_l}$, W_l, $K_{\mathbf{j}_l}'$ and W_l'. We denote these liftings by $\mathcal{K}_{\mathbf{j}_l}$, $\mathcal{W}_l$, $\mathcal{K}_{\mathbf{j}_l}'$ and $\mathcal{W}_l'$.

It follows from the equations (4.13) and (4.14) that

$$\mathcal{K}_{\mathbf{j}_l} = \bigsqcup_{n=0}^{\infty} \bar{T}_l^n(\mathcal{W}_l) \quad \text{and} \quad \mathcal{K}_{\mathbf{j}_l}' = \bigsqcup_{n=0}^{\infty} \bar{T}_l'^n(\mathcal{W}_l'), \tag{4.15}$$

where $T_l(w) = w + \log q_l$ and $T_l'(w) = w + (1 + i\lambda) \log q_l'$ are parallel translations for which $T_l(\mathcal{K}_l) \subset \mathcal{K}_l$ and $T_l'(\mathcal{K}_l') \subset \mathcal{K}_l'$.

The sets $\mathcal{K}_l$ lie in the half-strips $\varrho \leq \log \rho_2, \theta_l^- \leq \varphi \leq \theta_l^+$, while the sets $\mathcal{W}_l$ are contained in the rectangles $R_l = \{\log \rho_1 \leq \varrho \leq \log \rho_2, \theta_l^- \leq \varphi \leq \theta_l^+\}$.

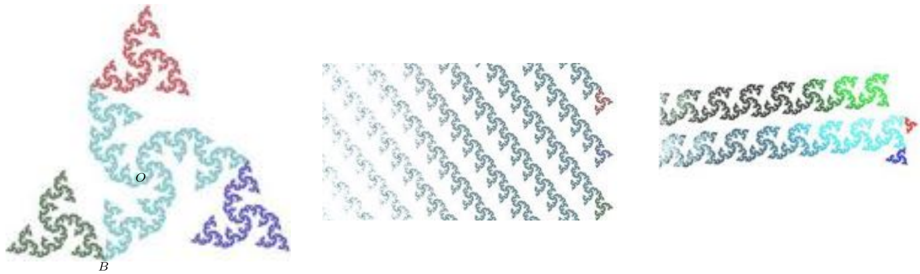


Figure 12: The images of the set K' under the map $w = \log(z - O)$ and the map $w = \log(z - B)$

Then the sets $\mathcal{W}'_l$ lie in the rectangle

$$R'_l = \left\{ \log(\rho_1 - \delta_2) \le \varrho \le \log(\rho_2 + \delta_2), \theta_l^- - 1.05\frac{\delta_2}{\rho_1} \le \varphi \le \theta_l^+ + 1.05\frac{\delta_2}{\rho_1} \right\}. \quad (4.16)$$

Each union $\bigcup\limits_{n=0}^{\infty} T_l'^n(R'_l)$ lies in a half-strip

$$\begin{cases} \varrho \le \log(\rho_2 + \delta_2) \\ \theta_l^- - 1.05\frac{\delta_2}{\rho_1} - \lambda \log(\rho_2 + \delta_2) \le \varphi - \lambda\varrho \le \theta_l^+ + 1.05\frac{\delta_2}{\rho_1} - \lambda \log(\rho_1 - \delta_2). \end{cases} \quad (4.17)$$

Therefore, the set $\mathcal{K}'_{\mathbf{j}_l}$ also lies in this half-strip. So if

$$\theta_{l-1}^+ + 1.05\frac{\delta_2}{\rho_1} - \lambda \log(\rho_1 - \delta_2) < \theta_l^- - 1.05\frac{\delta_2}{\rho_1} - \lambda \log(\rho_2 + \delta_2), \quad (4.18)$$

then $\mathcal{K}'_{\mathbf{j}_{l-1}} \cap \mathcal{K}'_{\mathbf{j}_l} = \varnothing$.

The inequality (4.18) holds for any l if $2.1\frac{\delta_2}{\rho_1} + \lambda \log \frac{\rho_2 + \delta_2}{\rho_1 - \delta_2} < \alpha_0$.

If, moreover, $2\delta_2 < \rho_0$, then for any $i_1, i_2 \in I$ such that $P_{i_1} \cap P_{i_2} = \varnothing$, $P'_{i_1} \cap P'_{i_2} = \varnothing$ and $K'_{i_1} \cap K'_{i_2} = \varnothing$. This implies that condition (**D0**) is fulfilled. □

Theorem 4.6. *Let $\mathcal{S}$ be a contractible P-polygonal system. There is $\delta > 0$ such that for any δ-deformation $\mathcal{S}'$ of the system $\mathcal{S}$ satisfying parameter matching condition the attractor $K(\mathcal{S}')$ is a dendrite, homeomorphic to $K(\mathcal{S})$.*

Proof. Let all the cyclic vertices of the P-polygonal system $\mathcal{S}$ have order 1. If we combine inequalities 4.2, 4.8, 4.9, 4.11 and take into account Remark 7, we see that if the following inequality holds:

$$\delta < \min\left(\frac{\min(q_{min}, 1 - q_{max})}{8}, \frac{\min(\rho_0, \rho_1, 1 - \rho_2)}{2(C_K + 1)}, \frac{\alpha_0}{\frac{2.1(C_K+1)}{\rho_1} + C_\lambda \log \frac{1+3\rho_2}{3\rho_1}} \right), \quad (4.19)$$

then the attractor K' of a δ-deformation $\mathcal{S}'$ of the system $\mathcal{S}$ satisfies condition (**D0**). Therefore K' is a dendrite. By Theorem 2.9, the map $\hat{f} : K \to K'$ is a bijection and therefore it is a homeomorphism.

Suppose now that $\mathcal{S}$ has cyclic vertices of order greater than 1. There is such n, that all the cyclic vertices of the system $\mathcal{S}^{(n)}$ have order 1. Suppose any δ-deformation of the system $\mathcal{S}^{(n)}$ generates a dendrite. Then for any δ/C_K-deformation $\mathcal{S}'$ of the system $\mathcal{S}$, the system $\mathcal{S}'^{(n)}$ is a δ-deformation of the system $\mathcal{S}^{(n)}$. □

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Three conjectures of Ostrander on digraph Laplacian eigenvectors*

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Abstract

Ostrander proposed three conjectures on the connections between topological properties of a weighted digraph and combinatorial properties of its Laplacian eigenvectors. We verify one of his conjectures, give counterexamples to the other two, and then seek for related valid connections and generalizations to Schrödinger operators on countable digraphs. We suggest the open question of deciding if the countability assumption can be dropped from our main results.

Keywords: Alexandrov topology, harmonic function, nonnegative eigenvector.

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1 Background

An eigenfunction of a linear operator can be viewed as a fixed point, namely a time-invariant point, of the operator in a corresponding projective space. Many dynamical processes on a geometric domain, including diffusion processes and consensus processes [18, 24, 29, 40, 42, 44, 57, 58], are driven by a Laplacian operator that reflects the local connectivity scenarios of the space. It is natural to expect that the shape of an eigenfunction of a Laplacian operator should somehow follow the shape of the underlying space; That is, you may be able to tell/predict the shape of space from some time-invariant data. Classical Fourier analysis provides deep understanding of signals over regular domains, to process graph-supported data we should accordingly develop spectral graph theory or the theory of graph Fourier transforms [3, 9, 12, 21, 27, 39, 41, 46, 50]. There are already quite some

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results and questions on the relationship between the oscillations of Laplacian eigenvector and the landscape of the underlying digraph, say those related to Courant's nodal line theorem [55], those related to Fiedler's monotonicity theorem [32, 48, 50], those related to Rauch's hot spots conjecture [16, 22] and others [52, 56]. To describe the influence of eigenstructures on connectivity patterns, various concepts on the digraphs, say diffusion distance [16] or Alexandrov topology [45], have been considered. Especially, Ostrander listed three conjectures on digraph Laplacians and Alexandrov topology [45], which is the starting point of this work.

2 Alexandrov topologies and Laplacian eigenvectors

We write $\mathbb{R}_+$ for the set of positive reals, $\mathbb{R}_{\geq 0}$ for the set of nonnegative reals, $\mathbb{N}_0$ for the set of nonnegative integers, $\mathbb{N}$ for the set of positive integers, and $\mathbb{K}$ for a field being either $\mathbb{R}$ or $\mathbb{C}$. For each $n \in \mathbb{N}$, $[n]$ refers to the set of first n positive integers. Let S be a set and let M be a nonnegative function on $S \times S$, namely $M : S \times S \to \mathbb{R}_{\geq 0}$. We naturally view this function M as a weighted digraph on S and say that S is the vertex set of M, denoted by $\mathrm{V}(M)$, and let the arc set of M be $\mathrm{A}(M) \coloneqq \{(v, w) : M(v, w) > 0\} \subseteq \mathrm{V}(M) \times \mathrm{V}(M)$. For each $v \in \mathrm{V}(M)$, its out-degree in M is $\deg^+_M(v) \coloneqq \sum_{w \in S} M(v, w)$ and its in-degree in M is $\deg^-_M(v) \coloneqq \sum_{w \in S} M(w, v)$. If the summation does not converge, it is regarded as $+\infty$. We say that a digraph M is a finite-out-degree (FOD) digraph if every vertex of M has a finite out-degree. Moreover, if the out-degrees of vertices of M is bounded, we say that M is a bounded-out-degree (BOD) digraph. The out-neighbors of a vertex v in M is $\mathrm{N}^+_M(v) \coloneqq \{w : M(v, w) > 0\}$ and the in-neighbors of v in M is $\mathrm{N}^-_M(v) \coloneqq \{w : M(w, v) > 0\}$. We call a digraph M a finite-out-neighbor (FON) digraph if every vertex of M has a finite set of out-neighbors. An FON digraph is surely a BOD digraph, and a BOD digraph is trivially an FOD digraph. We name a digraph a finite/countable digraph if its vertex set is a finite/countable set. Surely, every finite digraph is FON, and hence FOD. A path of length ℓ from a vertex v to a vertex w in M is a sequence of vertices $v = v_0, v_1, \ldots, v_\ell = w$ such that $(v_{i-1}, v_i) \in \mathrm{A}(M)$ for $i \in [\ell]$. We denote by $v \rightarrowtail w$ that $(v, w) \in \mathrm{A}(M)$ and by $v \twoheadrightarrow w$ that there is a path from v to w in M. The future of v in M is defined to be

$$v{\uparrow}_M \coloneqq \{w : v \twoheadrightarrow w\}$$

while the history of v in M is defined as

$$v{\downarrow}_M \coloneqq \{w : w \twoheadrightarrow v\}.$$

In general, for any subset T of $\mathrm{V}(M)$, let $T{\uparrow}_M \coloneqq \bigcup_{v \in T} v{\uparrow}_M$ and $T{\downarrow}_M \coloneqq \bigcup_{v \in T} v{\downarrow}_M$. If M takes value in $\{0, 1\}$, we call M transitive provided $M(u, v) = M(v, w) = 1$ implies $M(u, w) = 1$. In general, we refer to a digraph M as a transitive digraph provided $M(v, w) > 0$ implies that $M(u, v) \leq M(u, w)$ for all $u, v, w \in \mathrm{V}(M)$. The Alexandrov topology on $S = \mathrm{V}(M)$ induced by M has a set $T \subseteq \mathrm{V}(M)$ as an open set if and only if $T{\downarrow}_M = T$. We will simply speak of an open set or a closed set of M to mean such a set in the Alexandrov topology induced by M. To see the naturalness of the concept of Alexandrov topology, you can recall that basically the step from a digraph to its lattice of open sets is a Birkhoff transform and this operation produces all distributive lattices [47]. A strongly connected component of M is a minimal nonempty subset of $\mathrm{V}(M)$ which is the intersection of a closed set and an open set of M. A strongly connected component of

M is called a sink component if it is a closed set in M. We write the union of the set of sink components of a weighted digraph M by Ξ_M.

The Laplacian $\mathscr{L}_M$ of a digraph M is a linear operator from a suitable linear subspace U of $\mathbb{K}^{\mathrm{V}(M)}$ to some other subspace of $\mathbb{K}^{\mathrm{V}(M)}$ such that

$$(\mathscr{L}_M f)(v) = \sum_{w \in \mathrm{V}(M)} M(v,w)\big(f(v) - f(w)\big) \tag{2.1}$$

for every $f \in U$. In general, the summation in Equation (2.1) may not converge, and so, in order to make Equation (2.1) well-defined, we will specify the domain of the Laplacian for various digraph classes later. In particular, if the digraph M is viewed as an FOD digraph, the domain will be chosen as $\ell^\infty(\mathrm{V}(M))$; If the digraph M is viewed as a BOD digraph, the domain will be chosen as $\ell^1(\mathrm{V}(M))$; If the digraph M is viewed as an FON digraph, the domain will be chosen as all $\mathbb{K}$-valued functions on $\mathrm{V}(M)$. Additionally, when the digraph is finite, the Laplacian can be represented by the matrix $\mathscr{L}_M = \mathrm{D}_M - M$, where D_M is the diagonal matrix on $\mathrm{V}(M)$ whose v-th diagonal element is $\deg^+_M(v)$.

For any linear map L from U to U', $\operatorname{Ker} L$ stands for the right null (kernel) space $\{x \in U : L(x) = \mathbf{0} \in U'\}$. For each weighted digraph M, we refer to each $f \in \operatorname{Ker} \mathscr{L}_M$ as a harmonic function with respect to M. We say that f is harmonic at $v \in \mathrm{V}(M)$ with respect to M if $(\mathscr{L}_M f)(v) = 0$.

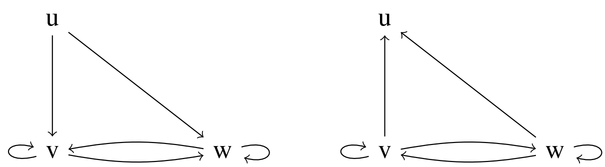

Figure 1: A transitive digraph and its reverse.

Example 2.1. Let M be the transitive digraph as shown on the left of Figure 1 and let $M^\top$ be its transpose, also called its reverse digraph, which is the transitive digraph as shown on the right of Figure 1.

We display a basis for the left eigenspaces of $\mathscr{L}_M$ and $\mathscr{L}_{M^\top}$ as follows:

$$\mathscr{L}_M : \begin{bmatrix} 0 & 1 & 1 \\ 2 & -1 & -1 \\ 0 & 1 & -1 \end{bmatrix} \begin{array}{c} \\ u \\ v \\ w \end{array} \!\!\begin{array}{c} \begin{array}{ccc} u & v & w \end{array} \\ \begin{bmatrix} 2 & -1 & -1 \\ 0 & 1 & -1 \\ 0 & -1 & 1 \end{bmatrix} \end{array} = \begin{bmatrix} 0 & & \\ & 2 & \\ & & 2 \end{bmatrix} \begin{bmatrix} 0 & 1 & 1 \\ 2 & -1 & -1 \\ 0 & 1 & -1 \end{bmatrix};$$

$$\mathscr{L}_{M^\top} : \begin{bmatrix} 2 & 0 & 0 \\ 2 & -1 & -1 \\ 0 & 1 & -1 \end{bmatrix} \begin{array}{c} \\ u \\ v \\ w \end{array} \!\!\begin{array}{c} \begin{array}{ccc} u & v & w \end{array} \\ \begin{bmatrix} 0 & 0 & 0 \\ -1 & 2 & -1 \\ -1 & -1 & 2 \end{bmatrix} \end{array} = \begin{bmatrix} 0 & & \\ & 1 & \\ & & 3 \end{bmatrix} \begin{bmatrix} 2 & 0 & 0 \\ 2 & -1 & -1 \\ 0 & 1 & -1 \end{bmatrix}.$$

We display a basis for the right eigenspaces of $\mathscr{L}_M$ and $\mathscr{L}_{M^\top}$ as below:

$$\mathscr{L}_M : \begin{array}{c} \\ u \\ v \\ w \end{array} \!\!\begin{array}{c} \begin{array}{ccc} u & v & w \end{array} \\ \begin{bmatrix} 2 & -1 & -1 \\ 0 & 1 & -1 \\ 0 & -1 & 1 \end{bmatrix} \end{array} \begin{bmatrix} 1 & 1 & 0 \\ 1 & 0 & 1 \\ 1 & 0 & -1 \end{bmatrix} = \begin{bmatrix} 1 & 1 & 0 \\ 1 & 0 & 1 \\ 1 & 0 & -1 \end{bmatrix} \begin{bmatrix} 0 & & \\ & 2 & \\ & & 2 \end{bmatrix};$$

$$\mathscr{L}_{M^\top}: \begin{matrix} & u & v & w \\ u & 0 & 0 & 0 \\ v & -1 & 2 & -1 \\ w & -1 & -1 & 2 \end{matrix} \begin{bmatrix} 1 & 0 & 0 \\ 1 & 1 & 1 \\ 1 & 1 & -1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ 1 & 1 & 1 \\ 1 & 1 & -1 \end{bmatrix} \begin{bmatrix} 0 & & \\ & 1 & \\ & & 3 \end{bmatrix}.$$

In general, for a matrix A, its Jordan canonical form J and an invertible matrix P, it surely holds

$$PA = JP \text{ if and only if } AP^{-1} = P^{-1}J.$$

Therefore, if we can say something on the relationship between the combinatorial patterns of a matrix and its inverse matrix, we may be able to somehow link the patterns of the left eigenspace and the right eigenspace of that matrix.

Ostrander proposed three conjectures in [45]. He stated each conjecture in two parts but one can easily check that the two parts are equivalent to each other. We summarize his conjectures as below and invite the readers verify the conjecture for Example 2.1.

Conjecture 2.2. *Let M be a finite digraph.*

(1) ([45, Conjecture 1]) *If M is transitive and f is a nonnegative right eigenvector of $\mathscr{L}_M$, then $f(v) \geq f(w)$ for every $v, w \in \mathrm{V}(M)$ such that $v \rightarrowtail w$.*

(2) ([45, Conjecture 2]) *If f is a nonnegative right eigenvector of $\mathscr{L}_M$, then $\mathrm{supp}(f)$ is open in M.*

(3) ([45, Conjecture 3]) *A set $P \subseteq \mathrm{V}(M)$ is the support of a nonnegative harmonic function with respect to M if and only if $P = S{\downarrow}_M$ for some sink component S of M.*

As with Conjecture 2.2 (2), it has a very simple proof.

Theorem 2.3. *[45, Conjecture 2] is correct. That is, for any nonnegative square matrix M and any nonnegative right eigenvector f of $\mathscr{L}_M$, it holds $\mathrm{supp}(f) = \mathrm{supp}(f){\downarrow}_M$.*

Proof. By the definition of open set, our task is to deduce $f(v) > 0$ from the assumption that $f(w) > 0$ and $M(v, w) > 0$. We assume that $\mathscr{L}_M f = \lambda f$. Evaluating both sides at the vertex v yields

$$(\deg^+_M(v) - \lambda) f(v) = \sum_{u \in \mathrm{V}(M)} M(v, u) f(u) \geq M(v, w) f(w) > 0.$$

This implies $f(v) \neq 0$ and so, since f is nonnegative, $f(v) > 0$ follows. □

Unfortunately, Conjecture 2.2 (1) does not hold true.

Example 2.4. Let $m \geq 3$ and let M be the matrix on $\{v_1, \ldots, v_m\}$ with

$$M(v_i, v_j) = \begin{cases} 1, & \text{if } i = 1 \text{ and } j > 1; \\ 0, & \text{otherwise.} \end{cases}$$

Then the function f with $f(v_1) = 1$, $f(v_2) = m - 1$ and $f(v_i) = 0$ for $i = 3, \ldots, m$, is a nonnegative harmonic function with respect to M; See Figure 2. Note that $f(v_1) < f(v_2)$ while $(v_1, v_2) \in \mathrm{A}(M)$.

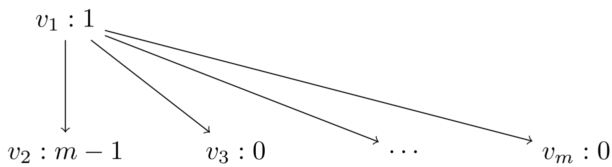

Figure 2: A digraph and a harmonic function with respect to it.

Let us further demonstrate that one can even see arbitrary oscillation pattern in a Laplacian eigenvector of a transitive digraph along a path of the digraph.

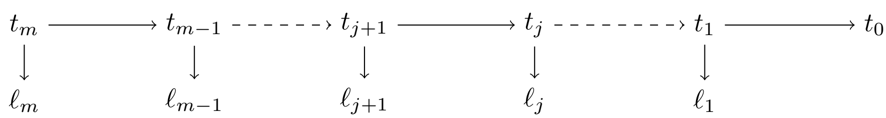

Figure 3: The Hasse diagram of a poset.

Example 2.5. Note that a poset is a transitive acyclic digraph. Consider a digraph M which induces a poset whose Hasse diagram is as depicted in Figure 3. In other words, $M(v, w) = 1$ if and only if $v \neq w$ and there is a path from v to w in the Hasse digram. We show that, for every element $\chi \in \{0, \pm 1\}^m$, there is a nonnegative harmonic function f on M such that $\chi = (\operatorname{sgn}\big(f(t_m) - f(t_{m-1})\big), \operatorname{sgn}\big(f(t_{m-1}) - f(t_{m-2})\big), \ldots, \operatorname{sgn}\big(f(t_1) - f(t_0)\big))$, where sgn is the sign function. For each $j \in [m]$, we choose $f_j \in \mathbb{R}^{\mathrm{V}(M)}$ by setting

$$f_j(v) = \begin{cases} 2j, & \text{if } v = \ell_j; \\ 1, & \text{if } v = \ell_k, k > j; \\ 1, & \text{if } v = t_k, k \geq j; \\ 0, & \text{otherwise.} \end{cases}$$

It is obvious that $f_j(\ell_j) = 2j > 1 = f_j(t_j)$ and that f_j is harmonic with respect to M. It follows that a convex combination of such f_j and the constant function can give us a required harmonic function.

Example 2.6. Consider a digraph M which has more than one sink component. The all-ones function on $\mathrm{V}(M)$ is surely harmonic with respect to M. But its support, namely $\mathrm{V}(M)$, is not the history of any single sink component of M.

In order to exclude Example 2.6 as a counterexample, we have to modify the statement of Conjecture 2.2 (3). Let us propose the following variant of Conjecture 2.2 (3), which will be proved in Section 3.

Theorem 2.7. *Let M be a finite digraph and let $P \subseteq \mathrm{V}(M)$. Then the following are equivalent.*

(1) *The set P is the support of a nonnegative harmonic function with respect to M.*

(2) *The set P is the history of the union of several sink components of M.*

(3) *The set P is the support of a nonnegative right eigenvector of $\mathscr{L}_M$ and $P \bigcap \Xi_M \neq \emptyset$.*

Here is a left eigenvector counterpart of Conjecture 2.2, which we will also prove in Section 3.

Theorem 2.8. *Let M be a finite digraph and let f be a nonnegative left eigenvector of the Laplacian matrix $\mathscr{L}_M$. Then the following hold.*

(1) $\mathrm{supp}(f)$ *is closed in M.*

(2) *If M is transitive, then for every $v, w \in \mathrm{V}(M)$ with $v \rightarrowtail w$ it holds $f(v) \leq f(w)$.*

(3) *A set $P \subseteq \mathrm{V}(M)$ is the support of a nonnegative left eigenvector of M if and only if P is the union of several sink components of M.*

3 Eigenfunctions of finite digraph Laplacians

To prove Theorems 2.7 and 2.8, we need to recall some facts on the right and left null spaces of digraph Laplacians. These facts are in the folklore in various guises for many years. For the purpose of our subsequent proof and for the convenience of readers, we will briefly outline a proof of these facts; Whenever possible, we will try to avoid the most well-known treatments. But let us also point out here several references where such facts and their proofs can be found explicitly. Agaev and Chebotarev [1, Theorem 4] obtained the rank of a Laplacian matrix. The right null space of a Laplacian matrix was determined by Caughman and Veerman [13, Theorem 3.3], by Gunawardena [25, p. 5], and by Mirzaev and Gunawardena [42, Proposition 5]. Ostrander [45, Proposition 16] described the structure of the right null space of the Laplacian of a transitive digraph. Veerman and Kummel [57, Theorem 4.5] presented the structure of the left null space of a Laplacian matrix.

The spectral radius of a matrix A is denoted by $\rho(A)$. An $n \times n$ matrix A is irreducible if for every $i, j \in [n]$ there exists a nonnegative integer t such that $A^t(i, j) \neq 0$. A nonnegative matrix is irreducible if and only if it is strongly connected. It turns out that Perron eigenvalues and Perron eigenvectors of nonnegative matrices [36] have close relation with Laplacian spectrum and Laplacian eigenvectors.

Theorem 3.1 (Perron-Frobenius Theorem [28, p. 10–4])**.** *Let A be an irreducible nonnegative $n \times n$ matrix with spectral radius r. Then the followings hold.*

(1) *The number r is an eigenvalue of A. If $n \geq 2$, we must have $r > 0$.*

(2) *The eigenvalue r is simple.*

(3) *The matrix A has a positive right eigenvector x and a positive left eigenvector $y^\top$ associated to the eigenvalue r.*

(4) *The only positive eigenvectors, left or right, are those associated to the eigenvalue r.*

(5) *The eigenvalue r satisfies $\min_{i \in [n]} \sum_{j \in [n]} A(i, j) \leq r \leq \max_{i \in [n]} \sum_{j \in [n]} A(i, j)$.*

Corollary 3.2. *Let M be a finite strongly connected weighted digraph. Then the following hold.*

(1) *The number 0 is an eigenvalue of $\mathscr{L}_M$.*

(2) *The eigenvalue 0 is simple. With the exception of the zero eigenvalue, all eigenvalues of M have a positive real part.*

(3) *$\mathscr{L}_M$ has a positive right eigenvector $x = \mathbf{1}_{\mathrm{V}(M)}$ and a positive left eigenvector $y^\top$ associated to the eigenvalue 0.*

(4) *The only positive eigenvectors of $\mathscr{L}_M$, left or right, are those associated to the eigenvalue 0.*

Proof. Let Δ be the maximum out-degree of M. Note that $\mathscr{L}_M = \Delta I - (\Delta I + M - \mathrm{D}_M)$ while $\Delta I + M - \mathrm{D}_M$ is an irreducible nonnegative square matrix. It is clear that λ is an eigenvalue of $\mathscr{L}_M$ if and only if $\Delta - \lambda$ is an eigenvalue of $\Delta I + M - \mathrm{D}_M$. By the last claim in Theorem 3.1, $\rho(\Delta I + M - \mathrm{D}_M) = \Delta$. We thus see that everything follows from Theorem 3.1. □

Let us fix M to be a finite weighted digraph throughout the remainder of this section. Let C be a strongly connected component of M, let $H = C{\downarrow_M} \setminus C$, and let $R = \mathrm{V}(M) \setminus C{\downarrow_M}$. We can represent the matrix $\mathscr{L}_M$ as follows:

$$\mathscr{L}_M = \begin{matrix} & H & C & R \\ H & D|_H - W_{H,H} & -W_{H,C} & -W_{H,R} \\ C & \mathbf{0} & D|_C - W_{C,C} & -W_{C,R} \\ R & \mathbf{0} & \mathbf{0} & L_R \end{matrix}, \tag{3.1}$$

where L_R is the Laplacian on the induced subgraph $M(R,R)$, $D|_H$ and $D|_C$ are the $H\times H$ diagonal matrix and the $C \times C$ diagonal matrix whose v-th diagonal element is equal to $\deg^+_M(v)$, and $W_{P,Q}$ records the weights of arcs from P to Q for $P,Q \in \{H,C,R\}$. Note that $W_{C,R} = \mathbf{0}$ and $D|_C - W_{C,C}$ coincides with the Laplacian of $M(C,C)$ if C is a sink component of M. We will write $D|_C - W_{C,C}$ as L_C in the case that C is a sink component of M.

Observation 3.3. For each sink component C of M, there exists $y_C \in {\mathbb{R}_{\geq 0}}^{\mathrm{V}(M)} \cap \mathrm{Ker}\, \mathscr{L}_M^\top$ with $\mathrm{supp}(y_C) = C$.

Proof. By Corollary 3.2, there exists $y \in \mathbb{R}_+^C$ such that $y^\top L_C = \mathbf{0}_C^\top$. Let

$$y_C = \begin{matrix} H \\ C \\ R \end{matrix}\begin{bmatrix} \mathbf{0} \\ y \\ \mathbf{0} \end{bmatrix}. \tag{3.2}$$

It is easy to see that $y_C^\top \mathscr{L}_M = \mathbf{0}^\top$. □

Observation 3.4 (Local minimum principle)**.** Let M be a finite weighted digraph. Suppose f is harmonic at v with respect to M, namely $f(v)$ is the weighted average of the values of f at the out-neighbors of v in M. If f takes local minimum value at v in the sense that $f(v) \leq f(w)$ for every $w \in \mathrm{N}^+_M(v)$, then f takes the same value at its out-neighbors.

Observation 3.5. If $H \neq \emptyset$, then

$$\operatorname{Ker}(D|_H - W_{H,H}) = \{\mathbf{0}\}. \tag{3.3}$$

In particular, $D|_H - W_{H,H}$ is of full rank.

Proof. Suppose $g \in \operatorname{Ker}(D|_H - W_{H,H})$. Define $f \in \mathbb{K}^{\mathrm{V}(M)}$ by setting

$$f(v) = \begin{cases} g(v), & \text{if } v \in H; \\ 0, & \text{otherwise.} \end{cases}$$

It is clear that f vanishes on all sink components of M and $\mathscr{L}_M f = \mathbf{0}$. By Observation 3.4, f must be the zero function and hence $g = \mathbf{0}$ follows. ☐

A perturbed Laplacian is the sum of a Laplacian and a nonzero nonnegative diagonal matrix. Observation 3.5 essentially says that a perturbed Laplacian of any strongly connected digraph is nonsingular. This fact has been proved many times in the literature. Caughman and Veerman [13, Lemma 2.4] as well as Mirzaev and Gunawardena [42, Lemma 2, Fig. 4] used the same trick of embedding a perturbed Laplacian into a Laplacian, which is somehow a disguised version of our deduction in Observation 3.5; Note that Gunawardena [25, p. 5] made use of the matrix-tree Theorem (indeed, Markov chain tree Theorem [2, 30]) to obtain the same result.

For any digraph M, a basic open set in the Alexandrov topology induced by M is a set of the form $S{\downarrow}_M$ for some finite sink component S of M.

Observation 3.6. For each sink component C of M, there exists $x_C \in {\mathbb{R}_{\geq 0}}^{\mathrm{V}(M)} \cap \operatorname{Ker} \mathscr{L}_M$ with $\operatorname{supp}(x_C) = C{\downarrow}_M$. That is, each basic open set of M is the support of a nonnegative harmonic function on M.

Proof. If $H = \emptyset$, we can simply take

$$x_C := \begin{matrix} C \\ R \end{matrix} \begin{bmatrix} \mathbf{1}_C \\ \mathbf{0}_R \end{bmatrix}.$$

Assume that $H \neq \emptyset$. By Observation 3.5, $D|_H - W_{H,H}$ is nonsingular. This allows us set

$$x_C := \begin{matrix} H \\ C \\ R \end{matrix} \begin{bmatrix} (D|_H - W_{H,H})^{-1} W_{H,C} \mathbf{1}_C \\ \mathbf{1}_C \\ \mathbf{0}_R \end{bmatrix}. \tag{3.4}$$

It is straightforward to check that $\mathscr{L}_M x_C = \mathbf{0}$. Note that x_C, a real harmonic function with respect to M, is determined by its values at the sink component C.

By Observation 3.4, the minimum value of x_C is achieved inside $R \cup C$ and so x_C is nonnegative. It then follows from Theorem 2.3 that $\operatorname{supp}(x_C)$ is open. Since $C \subseteq \operatorname{supp}(x_C)$, we must have $\operatorname{supp}(x_C) \subseteq C \cup H = C{\downarrow}_M \subseteq \operatorname{supp}(x_C)$, as wanted. ☐

For each $v \in H$ and $w \in C$, there is a path from v to w. This implies

$$\sum_{\ell=0}^{\infty} ((D|_H)^{-1} W_{H,H})^{\ell} (D|_H)^{-1} W_{H,C} \mathbf{1}_C \in \mathbb{R}_+^H.$$

Therefore, another way to get Observation 3.6 is to show that $(D|_H - W_{H,H})^{-1} = (I - D|_H^{-1} W_{H,H})^{-1} D|_H^{-1} = \sum_{\ell=0}^{\infty} ((D|_H)^{-1} W_{H,H})^{\ell} (D|_H)^{-1}$. This is not as trivial as it may seem: Note that $-\frac{1}{3} = (1-4)^{-1} \neq 1 + 4 + 4^2 + 4^3 + \cdots$. Anyway, we can derive it by appealing to the fact that $\rho(A) > \rho(B)$ if B is an irreducible matrix and $A \gneq B \geq 0$. If one thinks of C as one absorbing state, $I - (D|_H^{-1}) W_{H,H}$ plays a role as the fundamental matrix in the study of Markov chains and the argument in the proof above parallels the usual deduction there [58]. The inverse of $I - (D|_H^{-1}) W_{H,H}$, which exposes lots of geometric information of the Laplacian, can be said to be a discrete analogue of Green's function in analysis [4, 31, 35, 37, 59].

Remark 3.7. $\operatorname{Ker} \mathscr{L}_M^{\top}$ governs the asymptotic behavior of the diffusion process given by $\mathscr{L}_M$ while $\operatorname{Ker} \mathscr{L}_M$ records all data about the asymptotic behavior of the consensus process given by $\mathscr{L}_M$ [5, 57].

Theorem 3.8. *Let M be a finite weighted digraph. Then the following hold.*

(1) *A basis of* $\operatorname{Ker} \mathscr{L}_M$ *is given by nonnegative vectors x_S in Observation 3.6 where S ranges over all sink components of M.*

(2) *A basis of* $\operatorname{Ker} \mathscr{L}_M^{\top}$ *is given by nonnegative vectors y_S in Observation 3.3 where S ranges over all sink components of M.*

(3) *Both the algebraic multiplicity and the geometric multiplicity of the eigenvalue* 0 *of $\mathscr{L}_M$ are equal to the number of sink components of M.*

Proof. In light of Observation 3.4, a harmonic function with respect to M is uniquely determined by its restriction on Ξ_M. But for each $f \in \operatorname{Ker} \mathscr{L}_M$ and each sink component C of M, $f|_C$ is harmonic with respect to $M(C,C)$ and so, by Observation 3.4 again, can only be a constant function. It then follows from Observation 3.6 that the first reading is valid.

Since $\operatorname{Ker} \mathscr{L}_M$ and $\operatorname{Ker} \mathscr{L}_M^{\top}$ share the same dimension, the second reading follows from the first one and Observation 3.3.

For the third reading, it remains to verify that the number of nonzero eigenvalues of $\mathscr{L}_M$ plus the dimension of $\operatorname{Ker} \mathscr{L}_M$ equals $|\mathrm{V}(M)|$. When M has only one sink component, Corollary 3.2 together with Observation 3.5 proves the claim. In general, in view of Equation (3.1) and employing Theorem 3.2 and Observation 3.5, we can apply induction on the number of sink components to complete the proof. □

Proof of Theorem 2.7. Consider a nonnegative right eigenvector f of $\mathscr{L}_M$, say $\mathscr{L}_M f = \lambda f$. If $\operatorname{supp}(f) \cap C \neq \emptyset$ for some sink component C of M, then $y_C^{\top} f > 0$, according to Observation 3.3. This gives

$$0 = 0f = y_C^{\top} \mathscr{L}_M f = \lambda y_C^{\top} f,$$

and hence $\lambda = 0$. An application of the first part of Theorem 3.8 now concludes the proof. □

Proof of Theorem 2.8. Consider a nonnegative left eigenvector $f^{\top}$ of $\mathscr{L}_M$, say $f^{\top} \mathscr{L}_M = \lambda f^{\top}$. From Observation 3.6 we derive that

$$\bigcup_{C:\text{sink components of } M} \operatorname{supp}(x_C) = \bigcup_{C:\text{sink components of } M} C{\downarrow}_M = \mathrm{V}(M).$$

Therefore, there exists a sink component C of M such that $\operatorname{supp}(f) \cap C{\downarrow}_M \neq \emptyset$. It then follows

$$0 = f^\top \mathscr{L}_M\, x_C = \lambda f^\top x_C, \tag{3.5}$$

and hence $\lambda = 0$. By the second part of Theorem 3.8, the left null space of $\mathscr{L}_M$ has a basis y_S, where S runs through all sink components of M. This implies that f lies in the cone generated by this basis. Note that $\operatorname{supp}(y_S) = S$ for any sink component S of M, and that any union of finitely many sink components of M is a closed set of M. We thus arrive at Theorem 2.8 (1) and Theorem 2.8 (3).

If M is even transitive, we see that M takes a constant value on $C \times C$ for each strongly connected component C of M. Especially, for every sink component S of M, from Equation (3.2) we see that y_S satisfies the condition asserted in the second reading. Since f lies in the cone generated by such y_S, Theorem 2.8 (2) is proved. □

4 Schrödinger operators on countable digraphs

Trofimov [54] proved that every infinite locally finite vertex-transitive graph has a nonconstant harmonic function, which grows at most exponentially with respect to the distance to a base point. Tointon gave a lovely treatment of a qualitative version of this result on general weighted graphs [53, Proposition 1.4]. The next example indicates a difference between graphs and digraphs.

Example 4.1. Let M be the infinite directed path, namely $\mathrm{V}(M) = \mathbb{Z}$, $M(i, i+1) = 1$ and $M(i, j) = 0$ for $j \neq i + 1$. The digraph M is an infinite locally finite vertex-transitive digraph whose harmonic functions are all constant functions.

Let M be an out-finite digraph and let $\Lambda \in \mathbb{R}^{\mathrm{V}(M)}$. The Schrödinger operator on M with potential function Λ, denoted by $\mathscr{S}_{M,\Lambda}$, is the linear map from $\mathbb{K}^{\mathrm{V}(M)}$ to itself such that $(\mathscr{S}_{M,\Lambda}\, f)(v) := (\mathscr{L}_M\, f)(v) + \Lambda(v) f(v)$ for all $f \in \mathbb{K}^{\mathrm{V}(M)}$ [8, 10, 17, 20, 43, 51]. A Schrödinger operator with a nonnegative potential on a finite digraph is either a Laplacian matrix or a perturbed Laplacian matrix. We call any element from $\operatorname{Ker} \mathscr{S}_{M,\Lambda}$ a harmonic function with respect to $\mathscr{S}_{M,\Lambda}$. Here is an easy example to demonstrate the different behavirors of Schrödinger operators on finite and infinite digraphs.

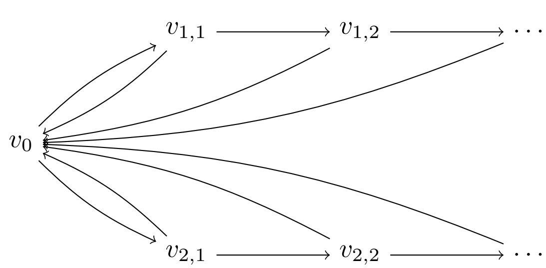

Figure 4: A strongly connected out-finite digraph which is not in-finite.

Example 4.2. Let $(a_i)_{i=1}^{\infty}$ be a sequence of increasing positive numbers. We assign weights to the arcs in Figure 4 by

$$M(x,y)=\begin{cases}\frac{1}{2}, & \text{if } y\in\{v_{1,1},v_{2,1}\}, x=v_0;\\ \frac{a_j}{a_{j+1}}, & \text{if } y=v_{i,j+1}, x=v_{i,j}, i\in\{1,2\}, j\in\mathbb{N};\\ 1-\frac{a_j}{a_{j+1}}, & \text{if } y=v_0, x=v_{i,j}, i\in\{1,2\}, j\in\mathbb{N}.\end{cases}$$

For the resulting weighted digraph M, and for every $\Lambda\in\mathbb{R}_{\geq 0}^{\mathrm{V}(M)}$, we have $f\in\operatorname{Ker}\mathscr{S}_{M,\Lambda}$, where

$$f(v)=\begin{cases}0, & \text{if } v=v_0;\\ (-1)^i a_j, & \text{if } v=v_{i,j}, i\in\{1,2\}, j\in\mathbb{N}.\end{cases}$$

In particular, if we let $a_i=i$ for $i\in\mathbb{N}$, then we obtain an unbounded harmonic function; If we let $a_i=\frac{i}{i+1}$ for $i\in\mathbb{N}$, then we obtain a bounded harmonic function without maximum value. Moreover, we can add new vertices $v_{i,j}$ with $i=3,4,\ldots,m$, $j\in\mathbb{N}$, and set

$$M(x,y)=\begin{cases}\frac{1}{m}, & \text{if } y\in\{v_{1,1},v_{2,1},\ldots,v_{m,1}\}, x=v_0;\\ \frac{a_j}{a_{j+1}}, & \text{if } y=v_{i,j+1}, x=v_{i,j}, i\in[m], j\in\mathbb{N};\\ 1-\frac{a_j}{a_{j+1}}, & \text{if } y=v_0, x=v_{i,j}, i\in[m], j\in\mathbb{N}.\end{cases}$$

For every $\Lambda\in\mathbb{R}_{\geq 0}^{\mathrm{V}(M)}$, the right null space of the Schrödinger operator $\mathscr{S}_{M,\Lambda}$ is of dimension at least $m-1$. Indeed, for every pair of integers i,i' such that $1\leq i<i'\leq m$, we have $f_{i,i'}\in\operatorname{Ker}\mathscr{S}_{M,\Lambda}$, where

$$f_{i,i'}(v)=\begin{cases}a_j, & \text{if } v=v_{i,j}, j\in\mathbb{N};\\ -a_j, & \text{if } v=v_{i',j}, j\in\mathbb{N};\\ 0, & \text{otherwise.}\end{cases}$$

Let us try to seek some counterparts of results about finite Laplacians in the infinite setting. Here is an obvious parallel to Theorem 2.3.

Lemma 4.3. *Let M be a digraph and let $\Lambda\in\mathbb{R}_{\geq 0}^{\mathrm{V}(M)}$ be a potential function on M. Let X be a subset of $\mathrm{V}(M)$ and let $M'=M(X,X)$. Suppose $f\in\mathbb{R}_{\geq 0}^{\mathrm{V}(M)}$ satisfy $(\mathscr{S}_{M,\Lambda}f)|_X=\lambda f|_X$. Then $\operatorname{supp}(f)\cap X$ is open in the Alexandrov topology induced by M'. In particular, if $X=\mathrm{V}(M)$, namely f is a nonnegative right eigenvector of $\mathscr{S}_{M,\Lambda}$, then $\operatorname{supp}(f)$ is open in the Alexandrov topology induced by M.*

Proof. Assume that $M'(u,v)>0$ for $u\in X$ and $v\in\operatorname{supp}(f)\cap X$. It follows that

$$(\deg^+_M(u)+\Lambda(u)-\lambda)f(u)=\sum_{w\in\mathrm{V}(M)}M(u,w)f(w)\geq M(u,v)f(v)=M'(u,v)f(v)>0,$$

and hence $u\in\operatorname{supp}(f)\cap X$. □

We now arrive at the main result of this paper.

Theorem 4.4. *Let M be a countable FON digraph and take $\Lambda\in\mathbb{R}_{\geq 0}^{\mathrm{V}(M)}$. Then exactly one of the following holds:*

(1) *There exists a basic open set of M which is the support of a nonnegative harmonic function for the Schrödinger operator $\mathscr{S}_{M,\Lambda}$.*

(2) *The Schrödinger operator $\mathscr{S}_{M,\Lambda}$ is a surjective map from $\mathbb{K}^{\mathrm{V}(M)}$ to itself.*

If $\mathrm{V}(M)$ is finite, basically, Theorem 4.4 will follow from Observations 3.5 and 3.6. For the general case, we need the additional ingredient of taking inverse limit (projective limit). Parallel to the roles of Observations 3.5 and 3.6, we split the proof of Theorem 4.4 into two steps; See Theorems 4.8 and 4.13.

For any $X \subseteq \mathrm{V}(M)$, we denote by $\mathbb{K}^{\mathrm{V}(M),X}$ the functions in $\mathbb{K}^{\mathrm{V}(M)}$ which vanish outside of X. Note that $\mathbb{K}^{\mathrm{V}(M),X}$ is isomorphic to $\mathbb{K}^X$ as a linear space. When $\mathrm{V}(M)$ is clear from the context, we often write the natural embedding map from $\mathbb{K}^X$ to $\mathbb{K}^{\mathrm{V}(M)}$ as ι_X, namely for each $f \in \mathbb{K}^X$ it holds

$$\iota_X(f)(v) = \begin{cases} f(v), & \text{if } v \in X; \\ 0, & \text{if } v \in \mathrm{V}(M) \setminus X. \end{cases}$$

Observation 4.5. Let M be a finite digraph and take $\Lambda \in \mathbb{R}_{\geq 0}^{\mathrm{V}(M)}$. Let M' be obtained from M by adding a new vertex r and setting $M'\big(\mathrm{V}(M), \mathrm{V}(M)\big) = M$, $M'(u,r) = \Lambda(u)$ for $u \in \mathrm{V}(M)$ and $M'(r,v) = 0$ for all $v \in \mathrm{V}(M')$. Then the embedding map $\iota_{\mathrm{V}(M)}$ from $\mathbb{K}^{\mathrm{V}(M)}$ to $\mathbb{K}^{\mathrm{V}(M')}$ induces an isomorphism from $\operatorname{Ker} \mathscr{S}_{M,\Lambda}$ to the space of those harmonic functions on M' whose supports do not contain r.

Proof. Take $h \in \operatorname{Ker} \mathscr{S}_{M,\Lambda}$. Then, for all $v \in \mathrm{V}(M) = \mathrm{V}(M') \setminus \{r\}$ we have

$$\begin{aligned} \mathscr{L}_{M'}(\iota_{\mathrm{V}(M)}(h))(r) &= \sum_{w \in \mathrm{V}(M')} M'(r,w)(h(r) - h(w)) \\ &= \sum_{w \in \mathrm{V}(M')} 0 \times (h(r) - h(w)) \\ &= 0 \end{aligned}$$

and

$$\begin{aligned} \mathscr{L}_{M'}(\iota_{\mathrm{V}(M)}(h))(v) &= \sum_{w \in \mathrm{V}(M')} M'(v,w)(h(v) - h(w)) \\ &= \sum_{w \in \mathrm{V}(M)} M(v,w)(h(v) - h(w)) + M(v,r)(h(v) - 0) \\ &= \sum_{w \in \mathrm{V}(M)} M(v,w)(h(v) - h(w)) + \Lambda(v)h(v) \\ &= \mathscr{S}_{M,\Lambda}(h) = 0. \end{aligned}$$

Suppose $h \in \operatorname{Ker} \mathscr{L}_{M'}$ and $h(r) = 0$. Then $h = \iota_{\mathrm{V}(M)}(h|_{\mathrm{V}(M)})$ and

$$\begin{aligned}(\mathscr{S}_{M,\Lambda}(h|_{\mathrm{V}(M)}))(v) &= \sum_{w \in \mathrm{V}(M)} M(v,w)(h(v) - h(w)) + \Lambda(v)h(v) \\ &= \sum_{w \in \mathrm{V}(M)} M'(v,w)(h(v) - h(w)) + M'(v,r)(h(v) - h(r)) \\ &= \sum_{w \in \mathrm{V}(M')} M'(v,w)\big(h(v) - h(w)\big) \\ &= \mathscr{L}_{M'}(h)(v) = 0\end{aligned}$$

for all $v \in \mathrm{V}(M)$. □

For any two complex numbers z_1 and z_2, the real inner product of z_1 and z_2, denoted by $\langle z_1, z_2\rangle_{\mathbb{R}}$, is the real part of $\overline{z_1}z_2$. If $z_1 = r_1 \exp\{\sqrt{-1}\theta_1\}$ and $z_2 = r_2 \exp\{\sqrt{-1}\theta_2\}$, where $r_1, r_2 \in \mathbb{R}_{\geq 0}$ and $\theta_1, \theta_2 \in \mathbb{R}$, then $\langle z_1, z_2\rangle_{\mathbb{R}} = r_1 r_2 \cos(\theta_2 - \theta_1)$. If $|z_2| \geq |z_1|$, the Cauchy-Schwarz inequality says that $\langle z_2, z_2 - z_1\rangle_{\mathbb{R}} = \langle z_2, z_2\rangle_{\mathbb{R}} - \langle z_2, z_1\rangle_{\mathbb{R}} \geq \langle z_2, z_2\rangle_{\mathbb{R}} - \sqrt{\langle z_2, z_2\rangle_{\mathbb{R}}\langle z_1, z_1\rangle_{\mathbb{R}}} \geq \langle z_2, z_2\rangle_{\mathbb{R}} - \sqrt{\langle z_2, z_2\rangle_{\mathbb{R}}\langle z_2, z_2\rangle_{\mathbb{R}}} = 0$.

Observation 4.6 (Local maximum modulus principle)**.** Let M be an FOD digraph and let $\Lambda \in \mathbb{R}_{\geq 0}^{\mathrm{V}(M)}$. Suppose $f \in \operatorname{Ker} \mathscr{S}_{M,\Lambda}$. If $|f(v)| \geq |f(w)|$ for every out-neighbor w of v in M, then $f(v) = f(w)$ for $w \in \mathrm{N}_M^+(v)$ and $\Lambda(v)f(v) = 0$. In particular, if $|f(v)| \geq |f(w)|$ for every $w \in v{\uparrow}_M$, then $f(v) = f(w)$ for every $w \in v{\uparrow}_M$.

Proof. By our remarks preceding Observation 4.6, $\langle f(v), f(v) - f(w)\rangle_{\mathbb{R}} \geq 0$ for all $w \in \mathrm{N}_M^+(v)$, with equality if and only if $f(v) = f(w)$. Observe that

$$\begin{aligned}0 = \langle f(v), 0\rangle_{\mathbb{R}} &= \left\langle f(v), \Lambda(v)f(v) + \sum_{w \in \mathrm{N}_M^+(v)} M(v,w)(f(v) - f(w))\right\rangle_{\mathbb{R}} \\ &= \Lambda(v)|f(v)|^2 + \sum_{w \in \mathrm{N}_M^+(v)} M(v,w)\langle f(v), (f(v) - f(w))\rangle_{\mathbb{R}} \\ &\geq \Lambda(v)|f(v)|^2.\end{aligned}$$

It then follows that $\Lambda(v) = 0$ and $f(v) = f(w)$ for all $w \in \mathrm{N}_M^+(v)$, as claimed. □

Lemma 4.7. *Let M be an FOD digraph. Let $\Lambda \in \mathbb{R}_{\geq 0}^{\mathrm{V}(M)}$ and let S be a finite sink component of M. If $x \in \operatorname{Ker} \mathscr{S}_{M,\Lambda}$ and $S \cap \operatorname{supp}(\Lambda) \neq \emptyset$, then $\operatorname{supp}(x) \cap S = \emptyset$.*

Proof. By Observation 4.6, x takes a constant value B inside S. Take $w \in S \cap \operatorname{supp}(\Lambda)$. Then $0 = \Lambda(w)x(w) + \sum_{v \in \mathrm{N}_M^+(w)} M(w,v)\big(x(w) - x(v)\big) = \Lambda(w)B$, showing that $B = 0$. This gives $\operatorname{supp}(x) \cap S = \emptyset$. □

The next result characterizes when a basic open set of a countable digraph M can be the support of a nonnegative element from the right null space of a Schrödinger operator on it.

Theorem 4.8. *Let M be a countable FOD digraph and take $\Lambda \in \mathbb{R}_{\geq 0}^{\mathrm{V}(M)}$. Suppose that S is a finite sink component of M. Then we can find $h_S \in \ell^\infty(\mathrm{V}(M)) \cap \operatorname{Ker} \mathscr{S}_{M,\Lambda}$ such that $h_S \geq 0$ and $\operatorname{supp}(h_S) = S{\downarrow}_M$ if and only if $S \cap \operatorname{supp}(\Lambda) = \emptyset$.*

Proof. In view of Lemma 4.7, we only need to prove the backward direction.

Fix an element in S, say p_0. Let $Q := \{h \in \mathbb{R}_{\geq 0}^{\mathrm{V}(M)} : h(v) \leq h(p_0), \forall v \in \mathrm{V}(M)\} \subseteq \ell^\infty(\mathrm{V}(M))$. Suppose that $S \cap \operatorname{supp}(\Lambda)$ is nonempty and we want to find $h \in Q$ such that $\mathscr{S}_{M,\Lambda}(h) = \mathbf{0}$ and $\operatorname{supp}(h) = S{\downarrow}_M$.

We enumerate the vertices in $\mathrm{V}(M) \setminus S$ as $p_1, p_2, \ldots$. If $\mathrm{V}(M) \setminus S$ is a finite set of c elements, we use the convention that $p_0 = p_{c+1} = p_{c+2} = \cdots$. We put $X_0 := S$ and $X_{n+1} := X_n \cup \{p_{n+1}\}$ for all $n \in \mathbb{N}_0$.

For each $n \in \mathbb{N}_0$, define

$$K_n := \{\mathbf{1}_{X_n} h : (\mathscr{S}_{M,\Lambda}\, h)|_{X_n} = \mathbf{0}, h \in Q, \operatorname{supp}(h) \subseteq S{\downarrow}_M\}.$$

Observations 3.6, 4.5 and 4.6 tell us that $K_n \supsetneq \{\mathbf{0}\}$. Let $\hat{K}_n := \bigcap_{m=n}^{\infty} K_m$ be the intersection of K_m for all $m \geq n$. We claim that $\hat{K}_n$ is not the trivial cone with a single point. Let S_n denote the unit sphere in the finite-dimensional inner product space $\mathbb{K}^{\mathrm{V}(M), X_n}$. Since S_n is compact, the descending chain of nonempty closed sets

$$K_n \cap S_n \supseteq u_{n+1,n}(K_{n+1}) \cap S_n \supseteq u_{n+2,n}(K_{n+2}) \cap S_n \supseteq \cdots$$

has a nonempty intersection $\hat{S}_n := \bigcap_{m=n}^{\infty} u_{m,n}(K_m) \cap S_n = \hat{K}_n \cap S_n$. Therefore $\hat{K}_n$ is not a trivial cone. Note that $\hat{K}_n \subseteq u_{n+1,n}(\hat{K}_{n+1})$ for all $n \in \mathbb{N}_0$. This allows us to find $h_n \in \hat{K}_n$ for all nonnegative integers n so that $h_0 = \mathbf{1}_S$ and $h_n = u_{n+1,n}(h_{n+1})$. We claim that the required function h can now be taken as the one satisfying $h|_{X_n} = h_n$ for all $n \in \mathbb{N}_0$.

What remains to be verified is $h(v) > 0$ for all $v \in S{\downarrow}_M$. Indeed, we can find m such that there is a path P_v from v to a vertex in S such that $P_v \subseteq X_m$. By the definition of K_m, there exists $\widetilde{h} \in Q$ such that $\mathscr{S}_{M,\Lambda}\, \widetilde{h}|_{X_m} = \mathbf{0}$ and $h_m = \mathbf{1}_{X_m} \widetilde{h}$. Note that $S \subseteq \operatorname{supp}(\widetilde{h}) \cap X_m = \operatorname{supp}(h_m)$. Accordingly, Lemma 4.3 tells us that $v \in \operatorname{supp}(\widetilde{h}) \cap X_m = \operatorname{supp}(h_m)$, and hence $h(v) = h_m(v) > 0$, as desired. □

Example 4.9. Let M be an infinite directed path with a single sink vertex, namely $\mathrm{V}(M) = \mathbb{N}_0$, $M(i+1, i) = 1$ and $M(j, i) = 0$ if $j \neq i+1$ for every $i, j \in \mathbb{N}_0$. Then M is an FOD digraph and it has a single finite sink component. If $h \in \operatorname{Ker} \mathscr{L}_M$ and $h(0) = c$, then $h(i) = c$ for every $i \in \mathbb{N}_0$. This gives $\ell^1(\mathrm{V}(M)) \cap \operatorname{Ker} \mathscr{L}_M = \{\mathbf{0}\}$. We thus see that the analogue of Theorem 4.8 with FOD replaced by BOD does not hold.

The next result is a generalization of Theorem 3.8 (1).

Theorem 4.10. *Let M be a countable FOD digraph and take $\Lambda \in \mathbb{R}_{\geq}^{\mathrm{V}(M)}$. Let $\mathfrak{S} = \{S :$ S is a sink component of $M, S \cap \operatorname{supp}(\Lambda) = \emptyset\}$ be the collection of sink components without intersection with $\operatorname{supp}(\Lambda)$. Suppose $|v{\uparrow}_M| < \infty$ for every $v \in \mathrm{V}(M)$. Then, for each $S \in \mathfrak{S}$, the function h_S as claimed in Theorem 4.8 is uniquely determined. Furthermore, the harmonic functions h_S, $S \in \mathfrak{S}$, are linearly independent, and they form a basis of* $\operatorname{Ker} \mathscr{S}_{M,\Lambda}$ *when $|\mathfrak{S}| < \infty$.*

Proof. For each $S \in \mathfrak{S}$, we fix one function h_S as claimed in Theorem 4.8. To finish the proof, it suffices to show that every function $h \in \operatorname{Ker} \mathscr{S}_{M,\Lambda}$ can be expressed as a unique linear combination of these h_S for $S \in \mathfrak{S}$.

Since $|v{\uparrow}_M| < \infty$ for every $v \in \mathrm{V}(M)$, each sink component of M is finite. What is more, M is actually an FON digraph. For every sink component S such that $S \cap \operatorname{supp}(\Lambda) \neq$

$\emptyset$, Lemma 4.7 has shown that h vanishes on S. In view of Observation 3.4, we now find that, for every sink component $S \in \mathfrak{S}$, the harmonic function h must take a constant value on S, say c_S. Since the harmonic functions h_S, where $S \in \mathfrak{S}$, are linearly independent, we will complete the proof by verifying that $h' = h - \sum_{S\in\mathfrak{S}} c_S h_S$ is the zero function.

Take $v \in \mathrm{V}(M)$. Consider the induced finite digraph $M' = M(v{\uparrow_M}, v{\uparrow_M})$. Note that $h'|_{\mathrm{V}(M')}$ vanishes on all sink components of M' and that $\mathscr{S}_{M',\Lambda'}\, h'|_{\mathrm{V}(M')} = \mathbf{0}$. By Theorem 3.8 and Observation 4.5, we get $h'(v) = 0$ and therefore we are done. □

Example 4.11. In Theorem 4.10 we cannot replace the assumption $|v{\uparrow_M}| < \infty$ by the condition that all sink components of M are finite. One may consider modifying Example 4.2 by adding a single sink vertex as an out-neighbour of v_0 in Figure 4 and associating with the new arc an arbitrary positive weight. The modified digraph is a countable FOD digraph. It has a single sink component, but it bears at least two linearly independent harmonic functions.

Lemma 4.12. *Let M be a digraph and let $\Lambda \in \mathbb{R}_{\geq 0}^{\mathrm{V}(M)}$. If M has a finite sink component S such that $\mathrm{supp}(\Lambda) \cap S = \emptyset$, then $\mathscr{S}_{M,\Lambda}$ is not surjective (to the corresponding codomain).*

Proof. Note that the Laplacian $\mathscr{L}_{M(S,S)}$ of the finite digraph $M(S,S)$ is not surjective. But, considering that S is a sink component, for every $g \in \mathbb{R}^{\mathrm{V}(M)}$ it holds $(\mathscr{S}_{M,\Lambda}\, g)|_S = \mathscr{L}_{M(S,S)}\, g|_S$. This is the proof. □

It is known that a linear operator is surjective provided it has finite hopping range and satisfies the pointwise maximum principle [15, 33]. Our Theorem 4.13 is in the same vein.

Theorem 4.13. *Let M be a countable FON digraph and let $\Lambda \in \mathbb{R}_{\geq 0}^{\mathrm{V}(M)}$. Then $\mathscr{S}_{M,\Lambda}$ is a surjective map from $\mathbb{K}^{\mathrm{V}(M)}$ to itself if and only if it holds $S \cap \mathrm{supp}(\Lambda) \neq \emptyset$ for every finite sink component S of M.*

Proof. In view of Lemma 4.12, we only need to prove the backward direction.

Suppose that $\mathrm{supp}(\Lambda) \cap S$ is nonempty for every finite sink component S of M. Since M is countable, we may enumerate the vertices of M as $v_0, v_1, v_2, \ldots$. For each nonnegative integer n, let X_n denote the set $\{v_0, v_1, \ldots, v_n\}$ when $n + 1 \leq |\mathrm{V}(M)|$ and let $X_n = \mathrm{V}(M)$ otherwise, let $\Gamma_n = \mathbb{K}^{\mathrm{V}(M),X_n}$ and let $\mathscr{S}_n$ be the linear map from Γ_n to itself so that $\mathscr{S}_n(h) = \mathbf{1}_{X_n}\, \mathscr{S}_{M,\Lambda}(h)$ for all $h \in \Gamma_n$. For any $n \in \mathbb{N}_0$, let us show that $\mathscr{S}_n$ is a surjective map on Γ_n. As $\dim \Gamma_n = n + 1 < \infty$, our task is to verify that $\mathscr{S}_n$ is injective. Take $h \in \mathrm{Ker}\, \mathscr{S}_n$. Suppose $\max_{v\in\mathrm{V}(M)} |h(v)| = |h(v_i)| = B$ for some $i \in \{0, \ldots, n\}$. We intend to show that $B = 0$. By Lemma 4.6, we have $h(w) = h(v_i)$ for every $w \in v_i{\uparrow_M}$. If $v_i{\uparrow_M}$ contains a vertex x outside of X_n, then we have $B = h(x) = 0$. We thus turn to the case that $v_i{\uparrow_M} \subseteq X_n$. Since X_n is finite, we find that $v_i{\uparrow_M}$ contains a finite sink component of M, say S. By assumption, there exists $w \in \mathrm{supp}(\Lambda) \cap S$. It follows $0 = \Lambda(w)h(w) + \sum_{v\in \mathrm{N}_M^+(w)} M(w,v)\big(h(w) - h(v)\big) = \Lambda(w)B$, yielding that $B = 0$, as wanted.

For every $g \in \mathbb{K}^{\mathrm{V}(M)}$, we want to find $f \in \mathbb{K}^{\mathrm{V}(M)}$ such that $g = \mathscr{S}_{M,\Lambda}\, f$. For each $n \in \mathbb{N}_0$, we set $H_n = \{\mathbf{1}_{X_n} h : (\mathscr{S}_{M,\Lambda}\, h)|_{X_n} = g|_{X_n}, h \in \mathbb{K}^{\mathrm{V}(M)}\}$. It is nonempty since $\mathscr{S}_n^{-1}(\mathbf{1}_{X_n} g) \in H_n$. Note that for every $n \geq m \geq 0$ there is an affine map $u_{n,m}$ from the affine space H_n to H_m given by $u_{n,m}(h) = \mathbf{1}_{X_m} h$ for all $h \in H_n$. Observe that we have a descending chain of finite-dimensional affine subspaces of $\mathbb{K}^{\mathrm{V}(M)}$:

$$H_m = \mathrm{Im}\, u_{m,m} \supseteq \mathrm{Im}\, u_{m+1,m} \supseteq \mathrm{Im}\, u_{m+2,m} \supseteq \cdots$$

This sequence must stabilize after finitely many steps, namely there exists $m' \geq m$ such that $\operatorname{Im} u_{m',m} = \operatorname{Im} u_{m'',m}$ for all $m'' \geq m'$. We write $\hat{H}_m = \operatorname{Im} u_{m',m}$ for this nonempty affine subspace of H_m. We can verify that $u_{n+1,n}$ maps $\hat{H}_{n+1}$ onto $\hat{H}_n$ for all $n \in \mathbb{N}_0$. It then follows that we can take $(h_n)_{n\in\mathbb{N}_0} \in \prod_{n\in\mathbb{N}_0} \hat{H}_n$ such that $h_n = u_{n+1,n}(h_{n+1})$. The required function f can now be taken as the one satisfying $f|_{X_n} = h_n$ for all $n \in \mathbb{N}_0$. □

Remark 4.14. Theorem 4.13 is not a special case of [33, Theorem 1] as the latter requires the digraph to be both out-finite and in-finite. For example, Figure 4 shows a strongly connected FON digraph M for which $M^\top$ is not FON. For this digraph, Theorem 4.13 is applicable but [33, Theorem 1] is not.

Remark 4.15. Let M be the infinite directed path described in Example 4.1. Then M is a countable weakly connected digraph without finite sink component, and it is BOD and hence FOD. For any $g_1 \in \mathbb{R}^{\mathrm{V}(M)}$ with $|\operatorname{supp}(g_1)| = 1$, there is no $h \in \ell^1(\mathrm{V}(M))$ such that $\mathscr{L}_M\, h = g_1$. For $g_2 := \mathbf{1}_{\mathrm{V}(M)} \in \mathbb{R}^{\mathrm{V}(M)}$, there is no $h \in \ell^\infty(\mathrm{V}(M))$ such that $\mathscr{L}_M\, h = g_2$. These show that the analogues of Theorem 4.13 with FON replaced by FOD or BOD do not hold. It also tells us that we cannot change FON to be either FOD or BOD in Theorem 4.4.

For a linear map, or for a map and its adjoint map, the relationship between injectivity and surjectivity is of lots of interest [14, 34]. Theorem 4.13 is about surjectivity. Let us also include a simple observation on injectivity. For each set V, let $\mathbb{K}[V] = \mathbb{K}^V_{\text{fin}}$ denote the linear space spanned by V, namely the set of functions on V with a finite support. Note that $\dim \mathbb{K}^V > \dim \mathbb{K}[V]$ if and only if V is infinite.

Theorem 4.16. *Let M be an infinite FOD digraph. Let $\Lambda \in \mathbb{R}^{\mathrm{V}(M)}_{\geq 0}$. If $S \cap \operatorname{supp}(\Lambda) \neq \emptyset$ for every finite sink component S of M, then $\operatorname{Ker} \mathscr{S}_{M,\Lambda} \cap \ell^p(\mathrm{V}(M)) = \{\mathbf{0}\}$ for every $0 < p < \infty$ and $\operatorname{Ker} \mathscr{S}_{M,\Lambda} \cap \mathbb{K}^{\mathrm{V}(M)}_{\text{fin}} = \{\mathbf{0}\}$.*

Proof. Let $\mathbf{0} \neq g \in \operatorname{Ker} \mathscr{S}_{M,\Lambda}$. There are two cases to consider.

Suppose the maximum of $|g|$ over $\mathrm{V}(M)$ can be achieved at some vertex v. Observation 4.6 then ensures $g(w) = g(v) \neq 0$ for every $w \in v{\uparrow}_M$. By Lemma 4.7, the harmonic function g must vanish on each finite sink component of M. Therefore, $v{\uparrow}_M$ contains infinitely many vertices and $|\operatorname{supp}(g)| = \infty$. It also says that the summation $\sum_{w\in v\uparrow} |g(w)|^p$ diverges for every $p > 0$.

Suppose the maximum of $|g|$ over $\mathrm{V}(M)$ cannot be achieved anywhere. This means that there exists a sequence of vertices $v_1, v_2, \ldots$ such that $|g(v_1)| < |g(v_2)| < \cdots$. Henceforth, $|\operatorname{supp}(g)| = \infty$, and the summation $\sum_{i=1}^\infty |g(v_i)|^p$ diverges for every $p > 0$.

We now conclude that $\operatorname{Ker} \mathscr{S}_{M,\Lambda} \cap \ell^p(\mathrm{V}(M)) = \{\mathbf{0}\}$ and $\operatorname{Ker} \mathscr{S}_{M,\Lambda} \cap \mathbb{K}^{\mathrm{V}(M)}_{\text{fin}} = \{\mathbf{0}\}$, as wanted. □

Proof of Theorem 4.4. Combine Theorems 4.8 and 4.13. □

Question 4.17. There is a countability assumption in the statements of Theorems 4.4, 4.8, 4.10 and 4.13. Can this be relaxed?

5 Final remarks

Starting from the conjectures of Ostrander, we have tried to link the Alexandrov topology of a countable digraph and the support of nonnegative harmonic functions of a Schrödinger operator on that digraph. It may be interesting to go forward to the measurable framework [5, 6, 7, 19, 38], like the existing theory on Dirichlet forms, graphons, Borel equivalence relations, etc. To get stronger results, one may need to focus on some natural and important situations, say models built on Bratteli diagrams. In some sense our work in this paper is based on the traditional homogeneous Markov chain theory. There is a beautiful decomposition-separation Theorem for finite nonhomogeneous Markov chains [49]. It looks interesting if we can also adapt that research to the study of countable weighted digraphs. In the more algebraic direction, one can consider harmonic functions with values in a field of positive characteristic [60]. We conclude the paper with two simple examples about harmonic functions of finite Laplacians and invite the readers to see if it is possible to find a generalization to some infinite settings.

It is well-known that Laplacian is related with energy minimization [11, 19]. The following result of Harper provides one such example.

Example 5.1 (Minimum mean-square error [23, 26])**.** The n-cube H_n has vertex set $\{0,1\}^n$ and two vertices are adjacent if and only if their Hamming distance is one, i.e., they differ exactly in one coordinate. How to design a bijection f from $\mathrm{V}(M)$ to $[2^n]$ so that $\sum_{uv\in \mathrm{E}(H_n)}(g(u)-g(v))^2$ attains the minimum value? For each $i\in[n]$, denote by F_i the function with $F_i(a_1\cdots a_n)=a_i$ for all $a_1\cdots a_n\in\{0,1\}^n=\mathrm{V}(H_n)$. We consider the canonical bijection $g=f+1$ where the function f is given by $f=\sum_{t=1}^n 2^{t-1}F_t$. To see that this function g really has minimum energy, we note that $\sum_{uv\in \mathrm{E}(H_n)}(g(u)-g(v))^2=\sum_{uv\in \mathrm{E}(H_n)}(f(u)-f(v))^2=\langle f,\mathscr{L}_{H_n}f\rangle$.The minimum eigenvalue of $\mathscr{L}_{H_n}$ is 0 and the second smallest eigenvalue of $\mathscr{L}_{H_n}$ is 2. The eigenspace of 0 is the space of constant functions and the eigenspace of 2 is spanned by those functions F_i for $i\in[n]$.

In Section 3, we let a matrix act both from right and from left on some vectors, namely consider an operator and its adjoint. This trick sometimes connects deterministic side and stochastic side, as the next example will show. Note that if we take a digraph M to be the probability transition matrix of a Markov chain, its Laplacian is simply $I-M$ and so the invariant measure lies in the left null space of $\mathscr{L}_M$.

Example 5.2. Let M be an $n\times n$ row stochastic matrix. For each $i\in[n]$, let M_i be the matrix obtained from the identity matrix of order n by replacing its i-th row with the i-th row of M. Assume that the set of sink vertices of M is S and that every vertex in M has a path leading into S. Note that M_i is the identity matrix if and only if $i\in S$. Let $f\in[n]^{\mathbb{N}_0}$ such that $f^{-1}(i)$ is an infinite set for all $i\in[n]$. When multiplying these matrices M_i on column vectors, we are modelling the process of opinion dynamics. If we apply $M_{f(t)}$ at time t, the limiting opinion profile is determined in [58, Theorem 1.1]. Basically, this is equivalent to determining the limit of finite products $M_{f(0)}M_{f(1)}\cdots M_{f(t)}$. However, if we apply $M_{f(0)}M_{f(1)}\cdots M_{f(t)}$ on the right of row vectors for all t, we see that it is simply iteratively applying the matrix M on row spaces and so we know its limit [58, Theorem 3.3] immediately from the theory of absorbing Markov chains.

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Minimum supports of eigenfunctions of graphs: a survey*

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Abstract

In this work we present a survey of results on the problem of finding the minimum cardinality of the support of eigenfunctions of graphs.

Keywords: Eigenfunction, eigenfunctions of graphs, eigenspace, minimum support, trade, bitrade, 1*-perfect bitrade, weight distribution bound.*

Math. Subj. Class.: 05C50, 05E30, 05B30, 15A18

1 Introduction

The eigenvalues of a graph are closely related to its structural properties and invariants (see the monographs [23, 32, 33]). Eigenfunctions (equivalently, eigenvectors) of graphs, in contrast to their eigenvalues, have received only sporadic attention of researchers. In particular, basic properties of eigenfunctions of graphs can be found in the work of Merris [68]. Among the most famous results we can recall the theory around Perron-Frobenius vector [7, 42, 74] with its applications to a variety of problems including ranking, population growth models, Markov chains behavior and many other [52, 65, 73, 82]; and the results about Fiedler vector [29, 34, 38] and its connection to the problems of spectral graph partitioning and clustering [72, 79], graph coloring [3], graph drawing [59] and other (for example, [83, 84]). In addition, it is worth noting a series of works [16, 17, 18, 30, 35, 36, 41, 80, 95] devoted to various discrete versions of Courant's nodal domain theorem. We refer the reader to [19], [31, Chapter 9] and [81] for more details about eigenfunctions of graphs.

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In this work we consider undirected graphs without loops and multiple edges. The eigenvalues of a graph are the eigenvalues of its adjacency matrix. Let $G = (V, E)$ be a graph with vertex set $V = \{v_1, \ldots, v_n\}$ and let λ be an eigenvalue of G. The set of neighbors of a vertex x is denoted by $N(x)$. A function $f : V \longrightarrow \mathbb{R}$ is called a λ-*eigenfunction* of G if $f \not\equiv 0$ and the equality

$$\lambda \cdot f(x) = \sum_{y \in N(x)} f(y) \tag{1.1}$$

holds for any vertex $x \in V$. Note that if f is a λ-eigenfunction of G, then $A\overrightarrow{f} = \lambda\overrightarrow{f}$, where A is the adjacency matrix of G and $\overrightarrow{f} = (f(v_1), \ldots, f(v_n))^T$, i.e. $\overrightarrow{f}$ is an eigenvector of the matrix A with eigenvalue λ. The set of functions $f : V \longrightarrow \mathbb{R}$ satisfying (1.1) for any vertex $x \in V$ is called a λ-*eigenspace* of G. Denote by $U_\lambda(G)$ the λ-eigenspace of G. The *support* of a function $f : V \longrightarrow \mathbb{R}$ is the set $S(f) = \{x \in V \mid f(x) \neq 0\}$. A λ-eigenfunction of G is called *optimal* if it has the minimum cardinality of the support among all λ-eigenfunctions of G. In this work we focus on the following extremal problem for eigenfunctions of graphs.

Problem 1.1 (the MS-problem)**.** Let G be a graph and let λ be an eigenvalue of G. Find the minimum cardinality of the support of a λ-eigenfunction of G.

In what follows, in this work we will use the abbreviation the MS-problem instead of Problem 1.1. Now we discuss the deep connection between the MS-problem and the intersection problem of two combinatorial objects and the problem of finding the minimum size of trades.

Many combinatorial objects (equitable partitions, completely regular codes, Steiner systems $S(k-1, k, n)$, 1-perfect codes, etc.) can be defined as eigenfunctions of graphs with some discrete restrictions. The study of such objects often leads to the problem of finding the minimum possible difference between two objects from the same class (for example, see [37, 40, 48, 76, 77]). Since the symmetric difference of such two objects is also an eigenfunction of the corresponding graph, this problem is directly related to the MS-problem.

Trades of different types are used for constructing and studying the structure of different combinatorial objects (combinatorial t-designs, codes, Latin squares, etc.). Trades are also studied independently as some natural generalization of objects of the corresponding type (trades can exist even if the corresponding complete objects do not exist). Roughly speaking, trades reflect possible differences between two combinatorial objects from the same class: if C' and C'' are two combinatorial objects with the same parameters, then the pair $(C' \setminus C'', C'' \setminus C')$ is a trade (for more information on trades see [15, 24, 45, 64]). Many types of trades ($T(k-1, k, v)$ Steiner trades, q-ary $T_q(k-1, k, v)$ Steiner trades, 1-perfect trades, extended 1-perfect trades, latin trades, etc.) can be represented as eigenfunctions of the corresponding graphs with some additional discrete restrictions (for example, see [63, Section 2.4]). So, for such trades the problem of finding the minimum size can be reduced to the MS-problem for the corresponding graphs (see, for example, [64, 92, 98]).

In particular, the MS-problem has appeared as a natural generalization of the following results.

- Let C_1 and C_2 be two distinct binary perfect codes of length $n = 2^m - 1$. In [37] Etzion and Vardy proved that the maximum possible cardinality of their intersection

$C_1 \cap C_2$ is $2^{n-m} - 2^{\frac{n-1}{2}}$. Equivalently, they found the minimum possible cardinality of their symmetric difference $C_1 \triangle C_2$. This result can be proved by applying the so-called weight distribution bound for the Hamming graph $H(n, 2)$ and its eigenvalue -1 (see Subsection 2.1 and Section 4).

- In [48] Hwang proved that the minimum size of a $T(t, k, v)$ trade is 2^{t+1} and obtained a characterization of $T(t, k, v)$ trades of size 2^{t+1}. In particular, the minimum size of a $T(t, k, v)$ Steiner trade was found in [48]. For $t = k - 1$ this result can be proved by applying the weight distribution bound for the Johnson graph $J(v, k)$ and its eigenvalue $-k$ (see Subsection 2.2 and Section 4). It is interesting that Frankl and Pach [40] also found the minimum size of a $T(t, k, v)$ trade. They formulated their results in terms of null t-designs. In Section 8 we will meet null designs again during our discussion about optimal eigenfunctions of the Grassmann graph.

The MS-problem was first formulated by Krotov and Vorob'ev [98] in 2014 (they considered the MS-problem for the Hamming graph). During the last six years, the MS-problem has been actively studied for various families of distance-regular graphs [8, 44, 62, 64, 88, 89, 91, 92, 93, 98, 96] and Cayley graphs on the symmetric group [51]. In particular, the MS-problem is completely solved for all eigenvalues of the Hamming graph [92, 93] and asymptotically solved for all eigenvalues of the Johnson graph [96]. Note that for eigenfunctions of distance-regular graphs a lower bound for its support cardinality is known. This bound is called the weight distribution bound and we will discuss it in details in Section 4. In this work we give a survey of results on the MS-problem. We also discuss constructions of optimal eigenfunctions and the main ideas of the proofs of the results.

Now we would like to consider the following problem.

Problem 1.2. Let $G = (V, E)$ be a graph and let λ be an eigenvalue of G. Find

$$\min_{f \in U_\lambda(G), f \not\equiv 0} |\{x \in V \mid f(x) \geq 0\}|.$$

Note, that the statements of the MS-problem and Problem 1.2 are similar. An analogue of Problem 1.2 for association schemes was first formulated in 1984 by Bier [10]. Later, Bier and Delsarte [13] and Bier [11, 12] studied the same problem for eigenvectors belonging to the direct sum of several eigenspaces of an association scheme. Bier and Manickam [14], Manickam and Miklós [66] and Manickam and Singhi [67] initiated the study of Problem 1.2 for the second largest eigenvalue of Johnson and Grassmann graphs. In particular, the following two conjectures were formulated in 1988.

Conjecture 1.3 (Manickam, Miklós and Singhi [66, 67]). *Let $x_1, \dots, x_n$ be real numbers such that $x_1 + \dots + x_n = 0$. If $n \geq 4k$, then there are at least $\binom{n-1}{k-1}$ k-element subsets of the set $\{x_1, \dots, x_n\}$ with nonnegative sum.*

The second conjecture is an analogue of Conjecture 1.3 for vector spaces. Let V be an n-dimensional vector space over a finite field $\mathbb{F}_q$. Let $\begin{bmatrix} V \\ k \end{bmatrix}_q$ denote the family of all k-dimensional subspaces of V and let $\begin{bmatrix} n \\ k \end{bmatrix}_q$ denote the q-Gaussian binomial coefficient. For each 1-dimensional subspace $v \in \begin{bmatrix} V \\ 1 \end{bmatrix}_q$, assign a real-valued weight $f(v) \in \mathbb{R}$ so that the sum of all weights is zero. For a general subspace $S \subset V$, define its weight $f(S)$ to be the sum of the weights of all the 1-dimensional subspaces it contains.

Conjecture 1.4 (Manickam and Singhi [67]). *Let V be an n-dimensional vector space over $\mathbb{F}_q$ and let $f : {V \brack 1}_q \to \mathbb{R}$ be a weighting of the 1-dimensional subspaces such that $\sum_{v\in{V \brack 1}_q} f(v) = 0$. If $n \geq 4k$, then there are at least ${n-1 \brack k-1}_q$ k-dimensional subspaces with nonnegative weight.*

Conjecture 1.3 is still open. However, there are several relatively recent works [2, 28, 39, 75] with polynomial bounds. In particular, Alon, Huang and Sudakov [2] verified Conjecture 1.3 for $n \geq 33k^2$. A linear bound $n \geq 10^{46}k$ was obtained by Pokrovskiy [75]. In 2014 Chowdhury, Sarkis and Shahriari [28] and Huang and Sudakov [47] independently showed that Conjecture 1.4 holds for $n \geq 3k$. Using the technique of the work [28], Ihringer [49] proved that Conjecture 1.4 is true for $n \geq 2k$ and large q. Some new results on Problem 1.2 for the third largest eigenvalue of the Johnson graph can be found in [71]. It seems very intriguing to establish the interconnection between Problem 1.2 and the MS-problem.

The paper is organized as follows. In Section 2, we give two examples of combinatorial problems that are closely related to the MS-problem. In Section 3, we introduce basic definitions and notations. In Section 4, we discuss what the weight distribution bound is and how it can be calculated from the intersection arrays of the distance-regular graphs. We complete this section with several intuitive examples and some results for the special cases when the bound is achieved. In Sections 5-11, we give a survey of results on the MS-problem for the Hamming graph, the Doob graph, the Johnson graph, the Grassmann graph, the bilinear forms graph, the Paley graph and the Star graph respectively. In Section 12, we present some observations on optimal eigenfunctions of graphs. In Section 13, we formulate several open problems.

2 Eigenfunctions in combinatorial configurations and the MS-problem

In this section, we recall that equitable 2-partitions, 1-perfect codes and $T(k-1,k,v)$ Steiner trades can be defined as eigenfunctions of graphs with some discrete restrictions. We also discuss the connections of the MS-problem with the intersection problem of two 1-perfect codes of a given graph and the problem of finding the minimum size of Steiner trades.

2.1 Equitable partitions and 1-perfect codes

Let $G = (V, E)$ be a graph. An ordered r-partition $(C_1, \ldots, C_r)$ of V is called *equitable* if for any $i, j \in \{1, \ldots, r\}$ there is $S_{i,j}$ such that any vertex of C_i has exactly $S_{i,j}$ neighbors in C_j. The matrix $S = (S_{i,j})_{i,j\in\{1,\ldots,r\}}$ is called the *quotient matrix* of the equitable partition. A set $C \subseteq V$ is called a 1-*perfect code* in G if every ball of radius 1 contains one vertex from C. For more information on equitable partitions and perfect codes we refer the reader to [9], [43, Chapter 5] and [1, 46, 86, 87].

Let G be a k-regular graph and let (C_1, C_2) be an equitable 2-partition of G with the quotient matrix

$$S = \begin{pmatrix} a & b \\ c & d \end{pmatrix}.$$

The eigenvalues of S are k and $a - c$. We define the function $f_{(C_1,C_2)}$ on the vertices of G

by the following rule:

$$f_{(C_1,C_2)}(x) = \begin{cases} b, & \text{if } x \in C_1; \\ -c, & \text{if } x \in C_2. \end{cases}$$

One can verify that $f_{(C_1,C_2)}$ is an $(a-c)$-eigenfunction of G. So, any equitable 2-partition can be represented as an eigenfunction of the corresponding graph. Suppose that C is a 1-perfect code in G. Then the partition $(C, \overline{C})$ is equitable with the quotient matrix

$$\begin{pmatrix} 0 & k \\ 1 & k-1 \end{pmatrix}.$$

Therefore, the function $f_{(C,\overline{C})}$ is a (-1)-eigenfunction of G. So, if C_1 and C_2 are 1-perfect codes in G, then the function $f = f_{(C_1,\overline{C_1})} - f_{(C_2,\overline{C_2})}$ is also a (-1)-eigenfunction of G. Moreover, we have the equality

$$|S(f)| = |C_1 \triangle C_2|.$$

Thus, the problem of finding the minimum cardinality of the symmetric difference of two distinct 1-perfect codes of a regular graph can be reduced to the MS-problem for this graph and eigenvalue -1.

2.2 $T(k-1,k,v)$ Steiner trades

Let v, k, t be positive integers such that $v > k > t$ and let X be a set of size v. A pair (T_0, T_1) of disjoint collections of k-subsets (blocks) of X is called a $T(t,k,v)$ *trade* if every t-subset of X is included in the same number of blocks of T_0 and T_1. The *size* of a $T(t,k,v)$ trade (T_0,T_1) is $|T_0| + |T_1|$. A $T(t,k,v)$ trade is called *Steiner* if every t-subset of X is included in at most one block of T_0 (T_1). For further details on $T(t,k,v)$ trades we refer the reader to [15, 45, 55].

Suppose that (T_0,T_1) is a $T(k-1,k,v)$ Steiner trade. The *Johnson graph* $J(v,k)$ can be defined as follows. The vertices of $J(v,k)$ are k-subsets of X, and two vertices are adjacent if they have exactly $k-1$ common elements. We define the function $f_{(T_0,T_1)}$ on the vertices of $J(v,k)$ by the following rule:

$$f_{(T_0,T_1)}(x) = \begin{cases} 1, & \text{if } x \in T_0; \\ -1, & \text{if } x \in T_1; \\ 0, & \text{otherwise.} \end{cases}$$

For a $(k-1)$-subset A of X denote by $C(A)$ the set of vertices of $J(v,k)$ containing the set A (these vertices form a clique of size $v-k+1$ in $J(v,k)$). We note that $C(A)$ either contains one element from T_0 and one element from T_1 or does not contain elements from $T_0 \cup T_1$. Using this fact, one can easily check that $f_{(T_0,T_1)}$ is a $(-k)$-eigenfunction of $J(v,k)$. Moreover, we have the equality

$$|S(f_{(T_0,T_1)})| = |T_0| + |T_1|.$$

Thus, the problem of finding the minimum size of $T(k-1,k,v)$ Steiner trades can be reduced to the MS-problem for the Johnson graph $J(v,k)$ and its eigenvalue $-k$.

3 Basic definitions

Recall that a distance $d_G(v, u) = d(u, v)$ between two vertices v and u in a graph $G = (V, E)$ is the length of the shortest path that connects them. The largest distance between any pairs of vertices is called the diameter D. A connected graph $G = (V, E)$ is called distance-regular if it is regular of degree k and for any two vertices $v, u \in V$ at distance $i = d(v, u)$ there are precisely c_i neighbors of u which are at distance $i-1$ from v and precisely b_i neighbors of u which are at distance $i+1$ from v; where c_i and b_i do not depend on the choice of vertices u and v but depend only on $d(u, v)$. Numbers $b_i, c_i, a_i = k - b_i - c_i$ are called the intersection numbers and a set $\{b_0, b_1, \ldots, b_{D-1}; c_1, \ldots, c_D\}$ is called an intersection array of a distance-regular graph G. For more details about distance-regular graphs, the reader is referred to a classical monograph [22] and a recent survey [94].

Let $G_1 = (V_1, E_1)$ and $G_2 = (V_2, E_2)$ be simple graphs. The *Cartesian product* $G_1 \square G_2$ of graphs G_1 and G_2 is defined as follows. The vertex set of $G_1 \square G_2$ is $V_1 \times V_2$; and any two vertices (x_1, y_1) and (x_2, y_2) are adjacent if and only if either $x_1 = x_2$ and y_1 is adjacent to y_2 in G_2, or $y_1 = y_2$ and x_1 is adjacent to x_2 in G_1.

Suppose $G_1 = (V_1, E_1)$ and $G_2 = (V_2, E_2)$ are two graphs. Let $f_1 : V_1 \longrightarrow \mathbb{R}$ and $f_2 : V_2 \longrightarrow \mathbb{R}$. Denote $G = G_1 \square G_2$. We define the *tensor product* $f_1 \cdot f_2$ on the vertices of G by the following rule:

$$(f_1 \cdot f_2)(x, y) = f_1(x) f_2(y)$$

for $(x, y) \in V(G) = V_1 \times V_2$. We will use the tensor product of functions for constructing optimal eigenfunctions of the Hamming and Doob graphs in Subsection 5.1 and Section 6.

Let $\mathrm{Sym(X)}$ denote the symmetric group on a finite set X and let $\mathrm{Sym_n}$ denote the symmetric group on the set $\{1, \ldots, n\}$.

Let $\Sigma_q = \{0, 1, \ldots, q-1\}$. Let $f(x_1, \ldots, x_n)$ be a function defined on the set Σ_q^n, let $\pi \in \mathrm{Sym_n}$ and let $\sigma_1, \ldots, \sigma_n \in \mathrm{Sym(\Sigma_q)}$. We define the functions f_π and $f_{\pi, \sigma_1, \ldots, \sigma_n}$ as follows:

$$f_\pi(x_1, \ldots, x_n) = f(x_{\pi(1)}, \ldots, x_{\pi(n)})$$

and

$$f_{\pi, \sigma_1, \ldots, \sigma_n}(x_1, \ldots, x_n) = f(\sigma_1(x_{\pi(1)}), \ldots, \sigma_n(x_{\pi(n)})).$$

We will use the functions f_π and $f_{\pi, \sigma_1, \ldots, \sigma_n}$ in Subsections 5.1 and 5.2.

Let $G = (V, E)$ be a graph. A set $C \subseteq V$ is called a *completely regular code* in G if the partition $(C^{(0)}, \ldots, C^{(\rho)})$ is equitable, where $C^{(d)}$ is the set of vertices at distance d from C and ρ (*the covering radius* of C) is the maximum d for which $C^{(d)}$ is nonempty. In other words, a subset of V is a completely regular code in G if the distance partition with respect to the subset is equitable. For more information on completely regular codes see [21], [43, Chapter 11.7] and [57, 58]. We will use completely regular codes in Section 12.

4 The weight distribution bound

In this section we recall what the weight distribution bound is and how it can be used as a lower bound for the MS-problem in case of distance-regular graphs. The weight distribution bound is well known and has appeared in several papers under different disguise (for more details see [61, 64]). In order for this survey to be self-contained we would like to provide the full proof and equip the reader with several intuitive examples. We also highlight the connections with related theoretical frameworks.

In Subsection 4.1, we give a detailed proof of the weight distribution bound and discuss related results. In Subsection 4.2, we provide several intuitive examples to illustrate how the weight distribution bound works. In Subsection 4.3, we give a survey of results on the existence problem of eigenfunctions of distance-regular graphs meeting the weight distribution bound.

4.1 The proof of the weight distribution bound

In this subsection we discuss the proof of the weight distribution bound and related results.

Let A be the adjacency matrix of some distance-regular graph $G = (V, E)$. Now consider the distance-i graph $G_i = (V, E_i)$ defined as follows: two vertices x and y are adjacent in G_i if and only if they are at distance i in G. In other words, $\{x, y\} \in E_i \iff d_G(x, y) = i$. By A_i we denote the adjacency matrix of G_i. For a vertex x of G and $0 \le i \le D$ denote $N_i(x) = \{y \in V \mid d_G(y, x) = i\}$.

Considering the combinatorial definition of distance regularity from the matrix point of view, we obtain the following recurrence (see, for example, equation (1) in [94]):

$$A_i A = a_i A_i + b_{i-1} A_{i-1} + c_{i+1} A_{i+1}, \tag{4.1}$$

for $i = 0, 1, \dots, D$ where $b_{-1}A_{-1} = c_{D+1}A_{D+1} = 0$.

From the above we can show that there exist polynomials P_i of degree i such that:

$$A_i = P_i(A), \quad i = 0, 1, \dots, D.$$

It is well known that in case of Hamming graphs these polynomials are actually Kravchuk polynomials (up to some linear change of variables) and those are Eberlein polynomials in case of Johnson graphs.

But how can we make use of it in finding the lower bound for our MS-problem? Suppose f is a λ-eigenfunction of our graph G. Since $A^k \overrightarrow{f} = \lambda^k \overrightarrow{f}$, we get the following equations:

$$A_i \overrightarrow{f} = P_i(A) \overrightarrow{f} = P_i(\lambda) \overrightarrow{f}.$$

In other words, f is a $P_i(\lambda)$-eigenfunction of G_i. As an immediate consequence we obtain:

$$P_i(\lambda) \cdot f(x) = \sum_{y \in N_i(x)} f(y). \tag{4.2}$$

In other words, in distance-regular graphs the sum of the eigenfunction values on the vertices at distance i from a fixed vertex x depends only on $f(x)$ and the corresponding eigenvalue. Without lost of generality we can consider $f(x) = 1$. The array $[1, P_1(\lambda), \dots, P_D(\lambda)]$ is called the weight distribution of a λ-eigenfunction.

Thus, from (4.1) we can write the following recurrence:

$$P_0(\lambda) = 1,$$
$$P_1(\lambda) = \lambda,$$
$$P_i(\lambda) = \frac{\lambda P_{i-1}(\lambda) - b_{i-2} P_{i-2}(\lambda) - a_{i-1} P_{i-1}(\lambda)}{c_i}, \text{ where } i = 2, \dots, D.$$

Now we are just one step away from obtaining the lower bound we are looking for. Let z be a vertex of G such that $|f(z)| = \max_{y \in V} |f(y)|$. Let us prove the inequality

$$|S(f) \cap N_i(z)| \geq |P_i(\lambda)| \tag{4.3}$$

for any $1 \leq i \leq D$. Using (4.2), we obtain

$$\begin{aligned} |P_i(\lambda) \cdot f(z)| = |\sum_{y \in N_i(z)} f(y)| = |\sum_{y \in S(f) \cap N_i(z)} f(y)| \leq \sum_{y \in S(f) \cap N_i(z)} |f(y)| \leq \\ \leq |S(f) \cap N_i(z)| \cdot |f(z)|. \end{aligned} \tag{4.4}$$

Then we have

$$|S(f)| = \sum_{i=0}^{D} |S(f) \cap N_i(z)| \geq \sum_{i=0}^{D} |P_i(\lambda)|.$$

So, we prove the next lemma.

Lemma 4.1 ([64, Corollary 1]). *Let f be a λ-eigenfunction for a distance-regular graph G of diameter D, then the following bound takes place:*

$$|S(f)| \geq \sum_{i=0}^{D} |P_i(\lambda)|.$$

In case of irrational eigenvalues this bound can be refined as follows:

Lemma 4.2. *Let f be a λ-eigenfunction for a distance-regular graph G of diameter D, then the following bound takes place:*

$$|S(f)| \geq \sum_{i=0}^{D} \lceil |P_i(\lambda)| \rceil.$$

In addition, eigenfunctions of distance-regular graphs meeting the weight distribution bound have the following interesting properties.

Lemma 4.3. *Let f be a λ-eigenfunction of a distance-regular graph G and let f meet the weight distribution bound. Then the following statements hold:*

1. *There is a real positive number c such that $f(x) \in \{-c, 0, c\}$ for any vertex x of G.*
2. *For any vertex $x \in S(f)$ and any $1 \leq i \leq D$ the function f is either non-negative or non-positive on the set $N_i(x)$.*

Proof. 1. Let us analyze the proof of Lemma 4.1 more carefully. Since f meets the weight distribution bound, we have the equalities in (4.3) and (4.4) for any $1 \leq i \leq D$. Therefore $|f(y)| = |f(z)|$ for any $y \in S(f) \cap N_i(z)$. So, we have $|f(y)| = |f(z)|$ for any vertex $y \in S(f)$ and we can take $c = |f(z)|$.

2. Let us consider a vertex $x \in S(f)$ and $i \in \{1, \ldots, D\}$. By the first case of this lemma we obtain $|f(x)| = \max_{y \in V} |f(y)|$. So, the inequality (4.4) holds for $z = x$. Moreover, we have equality in (4.4) for $z = x$. Consequently, all vertices from $S(f) \cap N_i(x)$ take either positive values or negative values. □

Lemma 4.4. *Let f be a λ-eigenfunction of a distance-regular graph G, where $\lambda < 0$, and let f meet the weight distribution bound. If x and y are two distinct vertices from $S(f)$ and x and y are adjacent in G, then $f(x)f(y) < 0$.*

Proof. Let x be a vertex from $S(f)$. Without loss of generality, we can assume that $f(x) > 0$. Using Lemma 4.3 and the definition of an eigenfuction, we see that all vertices from the set $S(f) \cap N_1(x)$ take negative values. So, x does not have neighbors with positive values. □

4.2 Examples

In this subsection, we would like to illustrate Lemmas 4.1 and 4.2 on some well-known graphs (see [88] for details). We start with the Petersen graph. The Petersen graph is a cubical distance-regular graph on 10 vertices. Its intersection array is $\{3, 2; 1, 1\}$ and its eigenvalues are $\{-2^{(4)}, 1^{(5)}, 3^{(1)}\}$. Calculating the weight distribution we obtain $[1, \lambda, \lambda^2 - 3]$.

- For $\lambda = 1$ it gives us the lower bound 4. An optimal 1-eigenfunction achieves this bound. A subgraph induced on non-zero vertices can be described as two non-incident edges. An example is presented below (Figure 1).

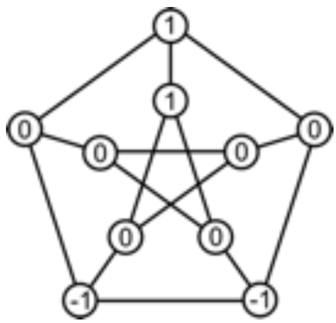

Figure 1: Optimal 1-eigenfunction of the Petersen graph.

- For $\lambda = -2$ the lower bound is the same. But this case is different because this bound cannot be achieved. Optimal (-2)-eigenfunction has a support of cardinality 6 and the corresponding induced subgraph is either a cycle on six vertices, or H-graph. See Figure 2 and Figure 3.

As a quick illustration of bound refinement, let us consider the Heawood graph, a distance-regular graph on 14 vertices. Its intersection array is $\{3, 2, 2; 1, 1, 3\}$ and its spectrum is $\{\pm 3^{(1)}, \pm\sqrt{2}^{(6)}\}$. The weight distribution is $[1, \lambda, \lambda^2 - 3, \frac{1}{3}(\lambda^3 - 5\lambda)]$. Thus for $\lambda = \pm\sqrt{2}$ the exact weight distribution bound is $2 + 2\sqrt{2}$, while the refined bound is 6. Figure 4 presents an example of an optimal $\sqrt{2}$-eigenfunction.

More examples can be found in [88], where the MS-problem is solved together with a characterisation of such functions for 10 out of 13 cubical distance-regular graphs for all their eigenvalues.

Thus for any distance-regular graph a lower bound on the cardinality of a λ-eigenfunction support can be calculated directly from the intersection array of a graph with respect to the corresponding eigenvalue λ. However this bound is not necessary feasible.

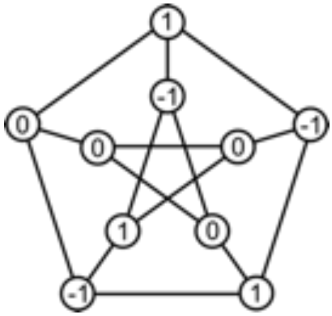

Figure 2: Optimal (-2)-eigenfunction of the Petersen graph — cycle

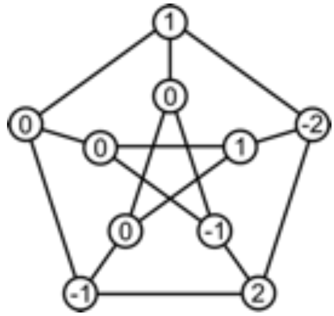

Figure 3: Optimal (-2)-eigenfunction of the Petersen graph — H-graph

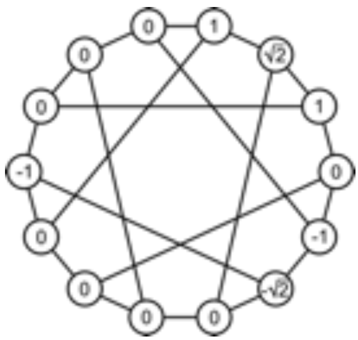

Figure 4: Optimal $\sqrt{2}$-eigenfunction of the Heawood graph.

4.3 Eigenfunctions of distance-regular graphs meeting the weight distribution bound

In this subsection we discuss results on the existence problem of eigenfunctions distance-regular graphs meeting the weight distribution bound. We also give examples of distance-regular graphs when the weight distribution bound is achieved.

Firstly, we need several definitions. Let G be a connected k-regular graph. Suppose that S is a set of $(s+1)$-cliques in G such that every edge of G is included in exactly m cliques from S. The pair (G, S) is called a (k, s, m) *pair*. A couple (T_0, T_1) of mutually disjoint nonempty sets of vertices is called a *clique bitrade* if every clique from S either intersects with each of T_0 and T_1 in exactly one vertex or does not intersect with both of them. A (k, s, m) pair (G, S) is called a *Delsarte pair* if the graph G is distance-regular and S consists of Delsarte cliques. Recall that a clique in a distance-regular graph of degree k and diameter D is called a *Delsarte clique* if it consists of exactly $1 - k/\lambda_D$ vertices, where λ_D is the smallest eigenvalue of the graph. For a function $f : V \longrightarrow \mathbb{R}$ denote $S_+(f) = \{x \in V \mid f(x) > 0\}$ and $S_-(f) = \{x \in V \mid f(x) < 0\}$.

Let G be a distance-regular graph of diameter D admitting a Delsarte pair (G, S). Suppose f is a λ_D-eigenfunction of G meeting the weight distribution bound. Let us show that $(S_+(f), S_-(f))$ is a clique bitrade in G. Indeed, by Theorem 2 from [64] for every Delsarte clique C from S it holds $\sum_{x\in C} f(x) = 0$. Then Lemmas 4.3 and 4.4 imply that any clique from S either does not contain vertices from $S(f)$ or contains one vertex from $S_+(f)$ and one vertex from $S_-(f)$. Consequently, $(S_+(f), S_-(f))$ is a clique bitrade in G. Thus, we prove the following result.

Lemma 4.5. *Let G be a distance-regular graph of diameter D admitting a Delsarte pair. A function f is a λ_D-eigenfunction of G meeting the weight distribution bound if and only if $(S_+(f), S_-(f))$ is a clique bitrade in G meeting the weight distribution bound.*

Using Lemma 4.5 and Theorem 3 from [64], we see that for every distance-regular graph admitting a Delsarte pair the existence of a λ_D-eigenfunction achieving the weight distribution bound is equivalent to the existence of a regular bipartite isometric subgraph of degree $-\lambda_D$. Taking into account this observation, it was shown in [44, 64, 89] that the weight distribution bound is achieved for the smallest eigenvalue of the following graphs:

- Hamming graph;
- Johnson graph;
- Grassmann graph;
- Paley graph of square order (since this graph is self-complementary of diameter 2, this property also holds for the second non-principal eigenvalue);
- strongly regular bilinear forms graph over a prime field.

For a deeper dive into the theory of clique bitrades the interested reader is referred to Sections 2 and 3 of [64].

Finally, we note that eigenfunctions of distance-regular graphs meeting the weight distribution bound exist not only in the case of the smallest eigenvalue. For example, the weight distribution bound is achieved for:

- n-dimensional hypercube, where n is odd, and its eigenvalue -1;
- n-dimensional hypercube, where n is even, and its eigenvalue 0;
- the Hamming graph $H(2, q)$ and its eigenvalue $q - 2$.

5 Hamming graph

In this section, we give a survey of results on the MS-problem and its generalizations for the Hamming graph. The *Hamming graph* $H(n, q)$ is defined as follows. Let $\Sigma_q = \{0, 1, \ldots, q-1\}$. The vertex set of $H(n, q)$ is Σ_q^n, and two vertices are adjacent if they differ in exactly one position. This graph is a distance-regular graph. The Hamming graph $H(n, q)$ has $n+1$ distinct eigenvalues $\lambda_i(n, q) = n(q-1) - q \cdot i$, where $0 \leq i \leq n$. Denote by $U_i(n, q)$ the $\lambda_i(n, q)$-eigenspace of $H(n, q)$. The direct sum of subspaces

$$U_i(n, q) \oplus U_{i+1}(n, q) \oplus \ldots \oplus U_j(n, q)$$

for $0 \leq i \leq j \leq n$ is denoted by $U_{[i,j]}(n, q)$. We say that a function $f \in U_{[i,j]}(n, q)$, where $f \not\equiv 0$, is *optimal* in the space $U_{[i,j]}(n, q)$ if $|S(f)| \leq |S(g)|$ for any function $g \in U_{[i,j]}(n, q)$, $g \not\equiv 0$.

Firstly, we briefly discuss all results on the MS-problem for the Hamming graph. After that, we will consider the more general Problem 5.1 for functions from the space $U_{[i,j]}(n, q)$. In [62] Krotov based on the approach of work [78] proved that the minimum cardinality of the support of a $\lambda_i(n,2)$-eigenfunction of $H(n,2)$ is $\max(2^i, 2^{n-i})$. In [98] Krotov and Vorob'ev showed that the cardinality of the support of a $\lambda_i(n,q)$-eigenfunction of $H(n,q)$ is at least

$$2^i \cdot (q-2)^{n-i}$$

for $\frac{iq^2}{2n(q-1)} > 2$ and

$$q^n \cdot (\frac{1}{q-1})^{i/2} \cdot (\frac{i}{n-i})^{i/2} \cdot (1-\frac{i}{n})^{n/2}$$

for $\frac{iq^2}{2n(q-1)} \leq 2$. In [91] Valyuzhenich for $q \geq 3$ proved that the minimum cardinality of the support of a $\lambda_1(n,q)$-eigenfunction of $H(n,q)$ is $2 \cdot (q-1) \cdot q^{n-2}$ and obtained a characterization of optimal $\lambda_1(n,q)$-eigenfunctions. Later in [92, 93] the following generalization of the MS-problem for the Hamming graph was considered.

Problem 5.1. Let $n \geq 1$, $q \geq 2$ and $0 \leq i \leq j \leq n$. Find the minimum cardinality of the support of functions from the space $U_{[i,j]}(n,q)$.

In [93] Valyuzhenich and Vorob'ev found the minimum cardinality of the support of a function from the space $U_{[i,j]}(n,q)$ for arbitrary $q \geq 3$ except the case when $q = 3$ and $i + j > n$. Moreover, in [93] a characterization of functions that are optimal in the space $U_{[i,j]}(n,q)$ was obtained for $q \geq 3$, $i + j \leq n$ and $q \geq 5$, $i = j$, $i > \frac{n}{2}$. In [92] Valyuzhenich found the minimum cardinality of the support of a function from the space $U_{[i,j]}(n,q)$ for $q = 2$ and $q = 3$, $i + j > n$. Thus, Problem 5.1 is completely solved for all $n \geq 1$ and $q \geq 2$. As a consequence, the MS-problem for the Hamming graph is also solved for all eigenvalues.

In what follows, in this section we will consider in detail Problem 5.1. In Subsection 5.1, we present constructions of functions that are optimal in the space $U_{[i,j]}(n,q)$. In Subsection 5.2, we give a survey of results on Problem 5.1 and discuss the main ideas of the proof of these results. In particular, we carefully explore Lemma 5.3 which is a key tool for solving Problem 5.1. In Subsection 5.3, we focus on a connection between Problem 5.1 and the problem of finding the minimum size of 1-perfect bitrades in the Hamming graph.

5.1 Constructions of functions with the minimum cardinality of the support

In this subsection, we discuss constructions of functions that are optimal in the space $U_{[i,j]}(n,q)$. It is interesting that in all cases such functions are constructed as a tensor product of several elementary optimal functions defined on the vertices of the Hamming graph of diameter not greater than three.

Firstly, we define five sets of elementary optimal functions.

For $k, m \in \Sigma_q$ we define the function $a_{q,k,m}$ on the vertices of the Hamming graph $H(2,q)$ by the following rule:

$$a_{q,k,m}(x,y) = \begin{cases} 1, & \text{if } x = k \text{ and } y \neq m; \\ -1, & \text{if } y = m \text{ and } x \neq k; \\ 0, & \text{otherwise.} \end{cases}$$

The function $a_{3,1,1}$ is shown in Figure 5. We note that $a_{q,k,m}$ is optimal in the space $U_1(2,q)$ for any $k, m \in \Sigma_q$. Denote $A_q = \{a_{q,k,m} \mid k, m \in \Sigma_q\}$.

We define the function φ_1 on the vertices of the Hamming graph $H(2,3)$ by the following rule:

$$\varphi_1(x,y) = \begin{cases} 1, & \text{if } x = y = 0; \\ -1, & \text{if } x = 1 \text{ and } y = 2; \\ 0, & \text{otherwise.} \end{cases}$$

For $a, b \in \Sigma_3$ denote by $a \oplus b$ the sum of a and b modulo 3. We define the function φ on the vertices of the Hamming graph $H(3,3)$ by the following rule:

$$\varphi(x,y,z) = \begin{cases} \varphi_1(x,y), & \text{if } z = 0; \\ \varphi_1(x \oplus 1, y \oplus 1), & \text{if } z = 1; \\ \varphi_1(x \oplus 2, y \oplus 2), & \text{if } z = 2. \end{cases}$$

The function φ is shown in Figure 6. We note that φ is optimal in the space $U_2(3,3)$. Denote

$$B = \{\varphi_{\pi,\sigma_1,\sigma_2,\sigma_3} \mid \pi \in \mathrm{Sym}_3, \sigma_1, \sigma_2, \sigma_3 \in \mathrm{Sym}(\Sigma_3)\}.$$

For $k, m \in \Sigma_q$ and $k \neq m$ we define the function $c_{q,k,m}$ on the vertices of the Hamming graph $H(1,q)$ by the following rule:

$$c_{q,k,m}(x) = \begin{cases} 1, & \text{if } x = k; \\ -1, & \text{if } x = m; \\ 0, & \text{otherwise.} \end{cases}$$

The function $c_{4,0,1}$ is shown in Figure 7. We note that $c_{q,k,m}$ is optimal in the space $U_1(1,q)$ for any $k, m \in \Sigma_q$ and $k \neq m$. Denote $C_q = \{c_{q,k,m} \mid k, m \in \Sigma_q, k \neq m\}$.

For $k \in \Sigma_q$ we define the function $d_{q,k}$ on the vertices of the Hamming graph $H(1,q)$ by the following rule:

$$d_{q,k}(x) = \begin{cases} 1, & \text{if } x = k; \\ 0, & \text{otherwise.} \end{cases}$$

The function $d_{4,0}$ is shown in Figure 7. We note that $d_{q,k}$ is optimal in the space $U_{[0,1]}(1,q)$ for any $k \in \Sigma_q$. Denote $D_q = \{d_{q,k} \mid k \in \Sigma_q\}$.

Let $e_q : \Sigma_q \longrightarrow \mathbb{R}$ and $e_q \equiv 1$. The function e_4 is shown in Figure 7. We note that e_q is optimal in the space $U_0(1,q)$. Denote $E_q = \{e_q\}$.

Now, we define four classes of functions that are optimal in the space $U_{[i,j]}(n,q)$ for the corresponding cases.

Let $i + j \leq n$. We say that a function f defined on the vertices of $H(n,q)$ belongs to the class $\mathcal{F}_1(n,q,i,j)$ if

$$f = c \cdot \prod_{k=1}^{i} g_k \cdot \prod_{k=1}^{n-i-j} h_k \cdot \prod_{k=1}^{j-i} v_k,$$

where c is a real non-zero constant, $g_k \in A_q$ for $k \in [1,i]$, $h_k \in E_q$ for $k \in [1, n-i-j]$ and $v_k \in D_q$ for $k \in [1, j-i]$.

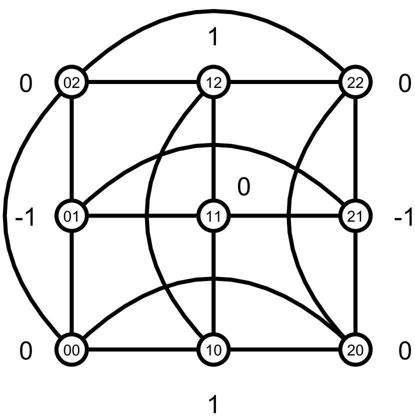

Figure 5: Function $a_{3,1,1}$ in $H(2,3)$.

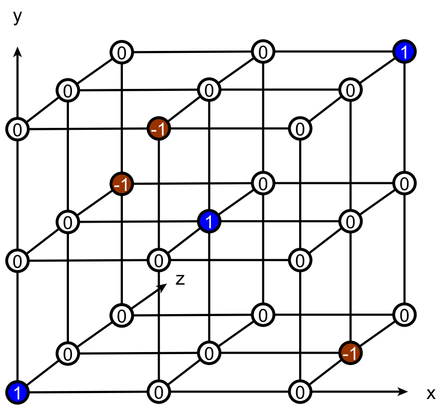

Figure 6: Function $\varphi(x, y, z)$ in $H(3,3)$.

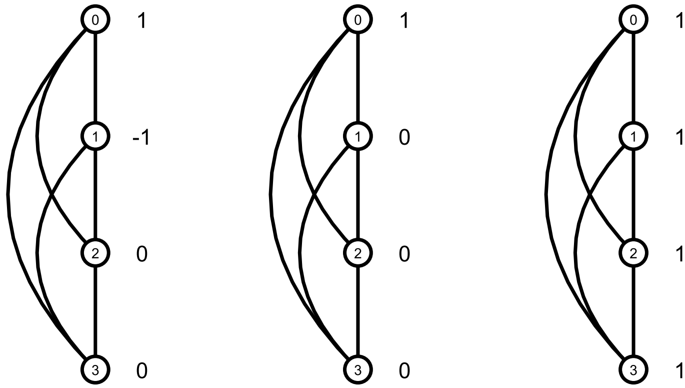

Figure 7: Functions $c_{4,0,1}$, $d_{4,0}$ and e_4 in $H(1,4)$.

Let $i+j>n$. We say that a function f defined on the vertices of $H(n,q)$ belongs to the class $\mathcal{F}_2(n,q,i,j)$ if

$$f = c \cdot \prod_{k=1}^{n-j} g_k \cdot \prod_{k=1}^{i+j-n} h_k \cdot \prod_{k=1}^{j-i} v_k,$$

where c is a real non-zero constant, $g_k \in A_q$ for $k \in [1, n-j]$, $h_k \in C_q$ for $k \in [1, i+j-n]$ and $v_k \in D_q$ for $k \in [1, j-i]$.

Let $\frac{i}{2}+j \le n$ and $i+j>n$. We say that a function f defined on the vertices of $H(n,3)$ belongs to the class $\mathcal{F}_3(n,i,j)$ if

$$f = c \cdot \prod_{k=1}^{2n-i-2j} g_k \cdot \prod_{k=1}^{i+j-n} h_k \cdot \prod_{k=1}^{j-i} v_k,$$

where c is a real non-zero constant, $g_k \in A_3$ for $k \in [1, 2n-i-2j]$, $h_k \in B$ for $k \in [1, i+j-n]$ and $v_k \in D_3$ for $k \in [1, j-i]$.

Let $\frac{i}{2}+j>n$. We say that a function f defined on the vertices of $H(n,3)$ belongs to the class $\mathcal{F}_4(n,i,j)$ if

$$f = c \cdot \prod_{k=1}^{n-j} g_k \cdot \prod_{k=1}^{i+2j-2n} h_k \cdot \prod_{k=1}^{j-i} v_k,$$

where c is a real non-zero constant, $g_k \in B$ for $k \in [1, n-j]$, $h_k \in C_3$ for $k \in [1, i+2j-2n]$ and $v_k \in D_3$ for $k \in [1, j-i]$.

We note that functions from $\mathcal{F}_1(n,q,i,j)$ and $\mathcal{F}_2(n,q,i,j)$ are optimal in the space $U_{[i,j]}(n,q)$ for $q \ge 2$, $i+j \le n$ and $q \ge 2$ ($q \ne 3$), $i+j>n$ respectively. We also note that functions from $\mathcal{F}_3(n,i,j)$ and $\mathcal{F}_4(n,i,j)$ are optimal in the space $U_{[i,j]}(n,3)$ for $\frac{i}{2}+j \le n$, $i+j>n$ and $\frac{i}{2}+j>n$ respectively.

5.2 Problem 5.1

In this subsection, we discuss Problem 5.1. The following theorem is a combination of the results proved in [92, 93] (see [93, Theorems 1 and 3] and [92, Theorems 3-6]).

Theorem 5.2. 1. *Let $f \in U_{[i,j]}(n,q)$, where $q \geq 2$, $i+j \leq n$ and $f \not\equiv 0$. Then*

$$|S(f)| \geq 2^i \cdot (q-1)^i \cdot q^{n-i-j}$$

and this bound is sharp. Moreover, for $q \geq 3$ the equality $|S(f)| = 2^i \cdot (q-1)^i \cdot q^{n-i-j}$ holds if and only if $f_\pi \in \mathcal{F}_1(n,q,i,j)$ for some permutation $\pi \in \mathrm{Sym_n}$.

2. *Let $f \in U_{[i,j]}(n,q)$, where $q \geq 2$, $q \neq 3$, $i+j > n$ and $f \not\equiv 0$. Then*

$$|S(f)| \geq 2^i \cdot (q-1)^{n-j}$$

and this bound is sharp. Moreover, for $i = j$ and $q \geq 5$ the equality $|S(f)| = 2^i \cdot (q-1)^{n-i}$ holds if and only if $f_\pi \in \mathcal{F}_2(n,q,i,i)$ for some permutation $\pi \in \mathrm{Sym_n}$.

3. *Let $f \in U_{[i,j]}(n,3)$, where $\frac{i}{2}+j \leq n$, $i+j > n$ and $f \not\equiv 0$. Then*

$$|S(f)| \geq 2^{3(n-j)-i} \cdot 3^{i+j-n}$$

and this bound is sharp.

4. *Let $f \in U_{[i,j]}(n,3)$, where $\frac{i}{2}+j > n$ and $f \not\equiv 0$. Then*

$$|S(f)| \geq 2^{i+j-n} \cdot 3^{n-j}$$

and this bound is sharp.

Now, we discuss the main ideas of the proof of Theorem 5.2.

Let f be a real-valued function defined on the vertices of the Hamming graph $H(n,q)$ and let $k \in \Sigma_q$, $r \in \{1,\dots,n\}$. We define a function f_k^r on the vertices of $H(n-1,q)$ as follows: for any vertex $y = (y_1,\dots,y_{r-1},y_{r+1},\dots,y_n)$ of $H(n-1,q)$

$$f_k^r(y) = f(y_1,\dots,y_{r-1},k,y_{r+1},\dots,y_n).$$

One of the important points in the proof of Theorem 5.2 is the following.

Lemma 5.3 ([93, Lemma 4])**.** *Let $f \in U_{[i,j]}(n,q)$ and $r \in \{1,2,\dots,n\}$. Then the following statements are true:*

1. *$f_k^r - f_m^r \in U_{[i-1,j-1]}(n-1,q)$ for $k,m \in \Sigma_q$.*
2. *$\sum_{k=0}^{q-1} f_k^r \in U_{[i,j]}(n-1,q)$.*
3. *$f_k^r \in U_{[i-1,j]}(n-1,q)$ for $k \in \Sigma_q$.*

Lemma 5.3 is a very useful tool for studying of eigenfunctions of the Hamming graph. It shows the connection between eigenspaces of the Hamming graphs $H(n,q)$ and $H(n-1,q)$. In particular, this lemma allows to apply induction on n, i and j (we can use the induction assumption for the functions $f_k^r - f_m^r$, $\sum_{k=0}^{q-1} f_k^r$ and f_k^r). Moreover, we suppose that Lemma 5.3 can be useful not only for the MS-problem but also for other problems. For example, recently in [69] Mogilnykh and Valyuzhenich used Lemma 5.3 for investigation of equitable 2-partitions of the Hamming graph with the eigenvalue $\lambda_2(n,q)$. One interesting generalization of Lemma 5.3 for the products of graphs can be found in [90, Theorem 3.11].

5.3 Minimum 1-perfect bitrades in the Hamming graph

In this subsection, we discuss one interesting application of Theorem 5.2 for the problem of finding the minimum size of 1-perfect bitrades in the Hamming graph.

Let us recall some definitions. Let $G = (V, E)$ be a graph. For a vertex $x \in V$ denote $B(x) = N(x) \cup \{x\}$. Let T_0 and T_1 be two disjoint nonempty subsets of V. The ordered pair (T_0, T_1) is called a 1-*perfect bitrade* in G if for any vertex $x \in V$ the set $B(x)$ either contains one element from T_0 and one element from T_1 or does not contain elements from $T_0 \cup T_1$. The *size* of a 1-perfect bitrade (T_0, T_1) is $|T_0| + |T_1|$.

Example 5.4. Let $T_0 = \{000, 111\}$ and $T_1 = \{001, 110\}$. Then (T_0, T_1) is a 1-perfect bitrade of size 4 in $H(3, 2)$ (see Figure 8).

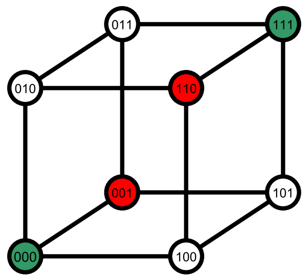

Figure 8: 1-perfect bitrade in $H(3, 2)$.

Example 5.5. Let $G = (V, E)$ be a graph. Suppose C_1 and C_2 be two distinct 1-perfect codes in G. Then $(C_1 \setminus C_2, C_2 \setminus C_1)$ is a 1-perfect bitrade in G.

Let (T_0, T_1) be a 1-perfect bitrade in a graph $G = (V, E)$. We define the function $f_{(T_0,T_1)} : V \longrightarrow \{-1, 0, 1\}$ by the following rule:

$$f_{(T_0,T_1)}(x) = \begin{cases} 1, & \text{if } x \in T_0; \\ -1, & \text{if } x \in T_1; \\ 0, & \text{otherwise.} \end{cases}$$

In what follows, in this subsection we will consider the following problem.

Problem 5.6. Let $n \geq 3$ and $q \geq 2$. Find the minimum size of a 1-perfect bitrade in $H(n, q)$.

For $q = 2$ Problem 5.6 was essentially solved by Etzion and Vardy [37] and Solov'eva [85] (the results were formulated for more special cases of 1-perfect bitrades embedded into perfect binary codes, but both proofs work in the general case). In [70] Mogilnykh and Solov'eva for arbitrary $q \geq 2$ proved that the minimum size of a 1-perfect bitrade in $H(q + 1, q)$ is $2 \cdot q!$.

Now, using Theorem 5.2, we give a short solution of Problem 5.6 for $q = 3$ and $q = 4$. Firstly, we need the following result.

Lemma 5.7 ([92, Lemma 6]). *Let (T_0, T_1) be a 1-perfect bitrade in a graph G. Then $f_{(T_0,T_1)}$ is a (-1)-eigenfunction of G.*

Lemma 5.7 implies that we can consider Problem 5.6 only for $n = qm + 1$, where $m \geq 1$ (because -1 is an eigenvalue of $H(n, q)$).

Suppose that (T_0, T_1) is a 1-perfect bitrade in $H(qm + 1, q)$. By Lemma 5.7 we have that $f_{(T_0,T_1)}$ is a (-1)-eigenfunction of $H(qm+1, q)$. We note that $-1 = \lambda_{(q-1)m+1}(qm+1, q)$. Applying Theorem 5.2 for $n = qm + 1$ and $i = j = (q - 1)m + 1$, we obtain that

$$|S(f_{(T_0,T_1)})| \geq 2^{(q-1)m+1} \cdot (q-1)^m$$

for $q \geq 4$ and

$$|S(f_{(T_0,T_1)})| \geq 2^{m+1} \cdot 3^m$$

for $q = 3$. Consequently, we have

$$|T_0| + |T_1| = |S(f_{(T_0,T_1)})| \geq 2^{(q-1)m+1} \cdot (q-1)^m \tag{5.1}$$

for $q \geq 4$ and

$$|T_0| + |T_1| = |S(f_{(T_0,T_1)})| \geq 2^{m+1} \cdot 3^m \tag{5.2}$$

for $q = 3$. On the other hand, in [70] Mogilnykh and Solov'eva for arbitrary $q \geq 2$ showed the existence of 1-perfect bitrades in $H(qm+1, q)$ of size $2 \cdot (q!)^m$. Thus, the bounds (5.1) and (5.2) are sharp for $q = 4$ and $q = 3$ respectively, and we obtain a solution of Problem 5.6 for $q \in \{3, 4\}$. Finally, we note that Theorem 5.2 implies that for $q \geq 5$ optimal (-1)-eigenfunctions of the Hamming graph $H(qm + 1, q)$ do not correspond to its 1-perfect bitrades (in this case we have a characterization of all optimal (-1)-eigenfunctions). So, this approach does not work for $q \geq 5$.

6 Doob graph

In this section, we give a survey of results on the MS-problem for the Doob graph. The *Shrikhande graph* Sh is the Cayley graph on the group $\mathbb{Z}_4^2$ with the generating set S, where $S = \{\pm(0, 1), \pm(1, 0), \pm(1, 1)\}$.

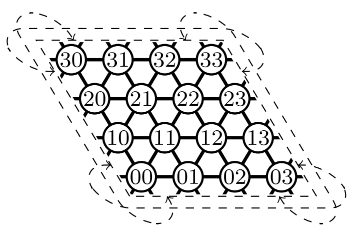

Figure 9: The Shrikhande graph.

The *Doob graph* $D(m, n)$, where $m > 0$, is the Cartesian product of m copies of the Shrikhande graph and n copies of the complete graph K_4. In other words, we have $D(m, n) = \mathrm{Sh}^m \square K_4^n$. This graph is a distance-regular graph with the same parameters as the Hamming graph $H(2m+n, 4)$. The Doob graph $D(m, n)$ has $2m+n+1$ distinct eigenvalues $\lambda_i(m, n) = 6m + 3n - 4i$, where $0 \leq i \leq 2m + n$. In [8] Bespalov proved that the minimum cardinality of the support of a $\lambda_1(m,n)$-eigenfunction of $D(m,n)$ is $6\cdot 4^{2m+n-2}$ and obtained a characterization of optimal $\lambda_1(m,n)$-eigenfunctions. He also showed that the minimum cardinality of the support of a $\lambda_{2m+n}(m,n)$-eigenfunction of $D(m,n)$ is 2^{2m+n} and obtained a characterization of optimal $\lambda_{2m+n}(m,n)$-eigenfunctions. In what follows, in this section we will consider the results obtained in [8].

Now, we discuss constructions of optimal $\lambda_1(m,n)$-eigenfunctions and $\lambda_{2m+n}(m,n)$-eigenfunctions. It is interesting that as in the case of the Hamming graph such functions are constructed as a tensor product of several elementary optimal eigenfunctions. Firstly, we define two sets of elementary optimal eigenfunctions.

For $a \in \mathbb{Z}_4^2$ we define the function p_a on the vertices of the Shrikhande graph by the following rule:

$$p_a(x) = \begin{cases} 1, & \text{if } x \in \{a+(3,1), a+(3,2), a+(2,1)\}; \\ -1, & \text{if } x \in \{a+(2,3), a+(1,2), a+(1,3)\}; \\ 0, & \text{otherwise.} \end{cases}$$

We note that the support of p_a consists of two disjoint copies of the complete graph K_3. The function $p_{(0,3)}$ is shown in Figure 10. Denote $P = \{p_a \mid a \in \mathbb{Z}_4^2\}$.

For $a \in \mathbb{Z}_4^2$ and $b \in \{(0,1),(1,0),(1,1)\}$ we define the function $r_{a,b}$ on the vertices of the Shrikhande graph by the following rule:

$$r_{a,b}(x) = \begin{cases} 1, & \text{if } x \in \{a, a+2b\}; \\ -1, & \text{if } x \in \{a+b, a+3b\}; \\ 0, & \text{otherwise.} \end{cases}$$

We note that the vertices from the support of $r_{a,b}$ form a cycle of length 4. The function $r_{(0,0),(0,1)}$ is shown in Figure 10. Denote $R = \{r_{a,b} \mid a \in \mathbb{Z}_4^2, b \in \{(0,1),(1,0),(1,1)\}\}$. We will also use the sets of functions A_4 and C_4 defined in Section 5.

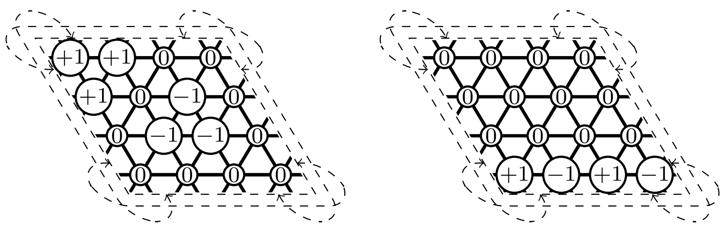

Figure 10: Functions $p_{(0,3)}$ and $r_{(0,0),(0,1)}$.

For $m > 0$ denote by $I^{m,n}$ the function that is defined on the vertices of $D(m,n)$ and is identically equal to 1. For $n \geq 1$ denote by I^n the function that is defined on the vertices of $H(n,4)$ and is identically equal to 1.

Now, we define two classes of optimal $\lambda_1(m,n)$-eigenfunctions and one class of optimal $\lambda_{2m+n}(m,n)$-eigenfunctions.

We say that a function f defined on the vertices of $D(m,n)$ belongs to the class $\mathcal{G}_1(m,n)$ if $f = c\cdot g_1 \ldots g_m \cdot I^n$, where c is a real non-zero constant, $g_i \in P$ for some $i \in \{1,\ldots,m\}$ and $g_j = I^{1,0}$ for any $j \in \{1,\ldots,m\} \setminus i$.

Let $n \geq 2$. We say that a function f defined on the vertices of $D(m,n)$ belongs to the class $\mathcal{G}_2(m,n)$ if $f = c \cdot I^{m,0} \cdot h_1 \ldots h_{n-1}$, where c is a real non-zero constant, $h_i \in A_4$ for some $i \in \{1,\ldots,n-1\}$ and $h_j = I^1$ for any $j \in \{1,\ldots,n-1\} \setminus i$.

We say that a function f defined on the vertices of $D(m,n)$ belongs to the class $\mathcal{G}_3(m,n)$ if $f = c \cdot g_1 \ldots g_m \cdot h_1 \ldots h_n$, where c is a real non-zero constant, $g_i \in R$ for any $i \in \{1,\ldots,m\}$ and $h_j \in C_4$ for any $j \in \{1,\ldots,n\}$.

The main results proved in [8] are the following.

Theorem 6.1 ([8, Theorem 1])**.** *Let f be a $\lambda_1(m,n)$-eigenfunction of $D(m,n)$, where $m > 0$. Then $|S(f)| \geq 6 \cdot 4^{2m+n-2}$. Moreover, if $|S(f)| = 6 \cdot 4^{2m+n-2}$, then the following statements hold:*

1. *If $n \geq 2$, then $f \in \mathcal{G}_1(m,n)$ or $f \in \mathcal{G}_2(m,n)$.*
2. *If $n \in \{0,1\}$, then $f \in \mathcal{G}_1(m,n)$.*

Theorem 6.2 ([8, Theorem 2])**.** *Let f be a $\lambda_{2m+n}(m,n)$-eigenfunction of $D(m,n)$, where $m > 0$. Then $|S(f)| \geq 2^{2m+n}$. Moreover, if $|S(f)| = 2^{2m+n}$, then $f \in \mathcal{G}_3(m,n)$.*

Remark 6.3. We note that the bound proved in Theorem 6.2 can also be obtained by applying the weight distribution bound for the smallest eigenvalue of the Doob graph.

7 Johnson graph

In this section, we give a survey of results on the MS-problem for the Johnson graph. The *Johnson graph* $J(n,\omega)$ is defined as follows. The vertices of $J(n,\omega)$ are the binary vectors of length n with ω ones; and two vertices are adjacent if they have exactly $\omega - 1$ common ones. The Johnson graph $J(n,\omega)$ has $\omega + 1$ distinct eigenvalues $\lambda_i(n,\omega) = (\omega - i)(n - \omega - i) - i$, where $0 \leq i \leq \omega$. In [96] Vorob'ev et al. showed that for a fixed ω and sufficiently large n the minimum cardinality of the support of a $\lambda_i(n,\omega)$-eigenfunction of $J(n,\omega)$ is $2^i \cdot \binom{n-2i}{\omega-i}$ and obtained a characterization of optimal $\lambda_i(n,\omega)$-eigenfunctions. Thus, the MS-problem for the Johnson graph is asymptotically solved for all eigenvalues.

Now we discuss the main results obtained in [96]. Firstly, we define the function $f^{i,\omega,n}$ on the vertices of the Johnson graph $J(n,\omega)$ by the following rule:

$$f^{i,\omega,n}(x_1,\ldots,x_n) = \begin{cases} 1, & \text{if } x_{2k-1} + x_{2k} = 1 \text{ for any } 1 \leq k \leq i \\ & \quad \text{and } x_1 + x_3 + \ldots + x_{2i-1} \text{ is even;} \\ -1, & \text{if } x_{2k-1} + x_{2k} = 1 \text{ for any } 1 \leq k \leq i \\ & \quad \text{and } x_1 + x_3 + \ldots + x_{2i-1} \text{ is odd;} \\ 0, & \text{otherwise.} \end{cases}$$

So, the support of $f^{i,\omega,n}$ consists of binary vectors $(x_1,\ldots,x_n)$ of weight ω such that the product $(x_1 - x_2) \cdot \ldots \cdot (x_{2i-1} - x_{2i})$ is not equal to zero. In [96, Proposition 1] it was shown that $f^{i,\omega,n}$ is a $\lambda_i(n,\omega)$-eigenfunction of $J(n,\omega)$ and $|S(f^{i,\omega,n})| = 2^i \cdot \binom{n-2i}{\omega-i}$. The main result proved in [96] is the following.

Theorem 7.1 ([96, Theorem 4])**.** *Let i and ω be positive integers, $\omega \geq i$. There is $n_0(i,\omega)$ such that for all $n \geq n_0(i,\omega)$ and any $\lambda_i(n,\omega)$-eigenfunction f of $J(n,\omega)$ the following holds:*

$$|S(f)| \geq 2^i \cdot \binom{n-2i}{\omega-i}, \tag{7.1}$$

and any function that attains the bound (7.1) is equivalent to $f^{i,\omega,n}$ up to a permutation of coordinate positions and the multiplication by a scalar.

Remark 7.2. We note that the bound (7.1) for $i = \omega$ and arbitrary n can also be obtained by applying the weight distribution bound for the smallest eigenvalue of the Johnson graph.

Now, we discuss the main ideas of the proof of Theorem 7.1.

Let f be a real-valued function defined on the vertices of the Johnson graph $J(n, \omega)$ and let $j_1, j_2 \in \{1, 2, \dots, n\}$, $j_1 < j_2$. We define a function f_{j_1,j_2} on the vertices of $J(n - 2, \omega - 1)$ as follows: for any vertex $y = (y_1, y_2, \dots, y_{j_1-1}, y_{j_1+1}, \dots, y_{j_2-1}, y_{j_2+1}, \dots, y_n)$ of $J(n - 2, \omega - 1)$

$$f_{j_1,j_2}(y) = f(y_1, y_2, \dots, y_{j_1-1}, 1, y_{j_1+1}, \dots, y_{j_2-1}, 0, y_{j_2+1}, \dots, y_n) - \\ - f(y_1, y_2, \dots, y_{j_1-1}, 0, y_{j_1+1}, \dots, y_{j_2-1}, 1, y_{j_2+1}, \dots, y_n).$$

One of the important ingredients in the proof of Theorem 7.1 is the following.

Lemma 7.3 ([96, Lemma 1]). *Let f be a $\lambda_i(n, \omega)$-eigenfunction of $J(n, \omega)$, where $j_1, j_2 \in \{1, 2, \dots, n\}$ and $j_1 < j_2$. Then f_{j_1,j_2} is a $\lambda_{i-1}(n - 2, \omega - 1)$-eigenfunction of $J(n - 2, \omega - 1)$ or the all-zero function.*

Lemma 7.3 is a very useful tool for studying of eigenfunctions of the Johnson graph. In particular, this lemma allows to apply induction on n, ω and i (we can use the induction assumption for the function f_{j_1,j_2}). Moreover, we suppose that Lemma 7.3 can be useful not only for the MS-problem but also for other problems. For example, recently in [97] Vorob'ev applied Lemma 7.3 for characterization of equitable 2-partitions of the Johnson graph with the eigenvalue $\lambda_2(n, \omega)$. Finally, we note that Lemma 7.3 is an analogue of Lemma 5.3 (see Subsection 5.2).

Let $v = (v_1, \dots, v_n)$ be a real non-zero vector such that $v_1 + \dots + v_n = 0$. We define the function f^v on the vertices of the Johnson graph $J(n, \omega)$ by the following rule:

$$f^v(x_1, \dots, x_n) = \sum_{1 \le i \le n \,:\, x_i = 1} v_i.$$

For $k \in \{1, \dots, n - 1\}$ denote

$$v^k = (\underbrace{1, \dots, 1}_{k}, \underbrace{\frac{-k}{n-k}, \dots, \frac{-k}{n-k}}_{n-k}).$$

In [71] Mogilnykh et al. proved the following improvement of Theorem 7.1 for $\lambda_1(n, \omega)$-eigenfunctions of $J(n, \omega)$.

Theorem 7.4 ([71, Theorem 1]). *Let f be an optimal $\lambda_1(n, \omega)$-eigenfunction of $J(n, \omega)$, where $n \ge 2\omega$ and $\omega \ge 2$. Then f is $f^{1,\omega,n}$ or f^{v^k} for some $k \in \{2, \dots, n - 2\}$ such that $\frac{k\omega}{n} \in \mathbb{N}$ up to a permutation of coordinate positions and the multiplication by a scalar.*

8 Grassmann graph

In this section, we give a survey of results on the MS-problem for the Grassmann graph. The Grassmann graph $J_q(N, m)$ is a distance-regular graph with the vertex set consisting of all m-dimensional subspaces of a vector space of dimension N over a finite field $\mathbb{F}_q$. Two vertices are adjacent whenever the corresponding subspaces intersect in a $(m-1)$-dimensional subspace.

The MS-problem for the minimum eigenvalue of the Grassmann graph was studied in [64]. But it is interesting that this problem can be tracked earlier to the works [26, 27, 50] where it was considered in terms of finding the minimum null t-designs of the lattices of subspaces over a finite field. In [50] G. D. James made a conjecture about the minimum support size of non-zero null t-designs of the lattices of subspaces over a finite field. S. Cho confirms the conjecture in [27] and in [26] characterizes all the null t-designs with minimum supports in terms of maximal isotropic spaces of some bilinear form.

Coming back to the Grassmann graph, we obtain the following theorem that gives us the characterization of optimal λ_D-eigenfunctions for the Grassmann graph (compare with Theorems 1,2 from [26] and Theorem 5 from [64]). For more details about null t-designs and totally isotropic spaces the reader is referred to [26] and Chapter 18 of [50].

Theorem 8.1. *Suppose f is an optimal λ_D-eigenfunction of the Grassmann graph $J_q(N,m)$, where $N \geq 2m$ and λ_D is its minimum eigenvalue. Then the cardinality of its support is $\sum\limits_{i=0}^{D} \begin{bmatrix} m \\ i \end{bmatrix}_q \cdot q^{i(i-1)/2}$ which is also equal to the value of the weight distribution bound and the non-zeros of the function f correspond to the maximal totally isotropic subspaces of a $2m$-dimensional space, equipped with a bilinear form B with a Gram matrix $\begin{pmatrix} \mathbf{0} & E_m \\ E_m & \mathbf{0} \end{pmatrix}$ up to the equivalence (or, equivalently, with respect to a non-degenerate quadratic form Q).*

Thus for the minimum eigenvalue of the Grassmann graph $J_q(N,m)$ the MS-problem is solved and the weight distribution bound is achieved.

9 Bilinear forms graph

In this section, we give a survey of results on the MS-problem for bilinear forms graph. More details can be found [89]. The bilinear forms graph $\mathrm{Bil}_q(n,m)$ is a distance-regular graph with the vertex set V consisting of all $n \times m$ matrices over a finite field $\mathbb{F}_q$ and two vertices being adjacent when their matrix difference has a rank 1. For the sake of convenience, we will further suppose that $m \leq n$. Thus the diameter D of the bilinear forms graph $\mathrm{Bil}_q(n,m)$ is equal to m.

Here as well as in the previous section we consider the MS-problem only for the case of minimum eigenvalue λ_D. In this case we have the following lower bound for the minimum support cardinality:

$$\sum_{i=0}^{m} \begin{bmatrix} m \\ i \end{bmatrix}_q \cdot q^{i(i-1)/2}$$

It is interesting that the weight distribution for bilinear forms graph coincides with that of the Grassmann graph. Later we will see the importance of this connection.

The key idea here is that bilinear forms graph belongs to a family of so-called Delsarte cliques graphs (for more details about Delsarte cliques graphs, the reader is referred to [6]). This property leads to the following observations:

- Theorem 2 from [64] implies that for a Delsarte cliques graph G a function f is a λ_D-eigenfunction of G if and only if for every Delsarte clique C it holds $\sum\limits_{v \in C} f(v) = 0$.

- Theorem 3 from [64] tells us that for a Delsarte clique graph G in case of $D = 2$ if the weight distribution bound is achieved then non-zeros of optimal λ_D-eigenfunction induce a complete bipartite graph. Note that for bilinear forms graph $\mathrm{Bil}_q(2, 2)$ we have $\lambda_D = -q-1$, thus non-zeros of optimal λ_D-eigenfunction achieving the weight distribution bound induce a complete bipartite graph $K_{q+1,q+1}$ if such a function exists.

It appears that in case of strongly regular bilinear forms graphs $\mathrm{Bil}_p(2,\ 2)$ (those with $D = 2$) the weight distribution bound can be achieved. An explicit construction of an optimal λ_D-eigenfunction can be found in [89]. Below are the statements that summarize this construction, but first let us introduce additional notation. Suppose a_1 is a generating element of the multiplicative group $\mathbb{F}_p^*$. Denote

$$a_0 = 0, \quad a_2 = a_1^2, \quad \ldots, \quad a_{p-2} = a_1^{p-2}, \quad a_{p-1} = a_1^{p-1} = 1$$
$$e_* = [0, 1], \quad e_0 = [1, 0], \quad e_1 = [1, a_1], \quad \ldots, \quad e_{p-1} = [1, a_{p-1}]$$

Theorem 9.1 ([89, Theorem 3]). *Let $\mathrm{Bil}_p(2, 2)$ be a bilinear forms graph over a prime field $\mathbb{F}_p$. For any $\nu \in \mathbb{F}_p$, such that $\nu \neq -\xi^2$ for all $\xi \in \mathbb{F}_p$, and $b_i = \frac{1}{a_i^2\nu+1}$ the independent set*

$$\mathcal{N} = \left\{ \begin{bmatrix} 0 \\ 1 \end{bmatrix} e_*,\ b_0 \begin{bmatrix} 1 \\ a_0\nu \end{bmatrix} e_0,\ \ldots,\ b_{p-1} \begin{bmatrix} 1 \\ a_{p-1}\nu \end{bmatrix} e_{p-1} \right\}$$

together with

$$\mathcal{P} = \left\{ \begin{bmatrix} 0 \\ 0 \end{bmatrix} e_*;\ b_0 \begin{bmatrix} 1 \\ a_0\nu \end{bmatrix} e_0 + b_0 \begin{bmatrix} -a_0 \\ 1 \end{bmatrix} e_*;\ \ldots;\ b_{p-1} \begin{bmatrix} 1 \\ a_{p-1}\nu \end{bmatrix} e_0 + b_{p-1} \begin{bmatrix} -a_{p-1} \\ 1 \end{bmatrix} e_* \right\}$$

form non-zeros of λ_D-eigenfunction f as two parts of a complete bipartite graph $K_{p+1,\,p+1}$ and

$$f(v) = \begin{cases} c, & \text{for } v \in \mathcal{P}, \\ -c, & \text{for } v \in \mathcal{N}, \\ 0, & \text{else} \end{cases}$$

for some constant $c \neq 0$.

Let us illustrate this theorem with some small example. Consider a bilinear forms graph $\mathrm{Bil}_3(2, 2)$. Using the construction above we obtain the following sets:

$$\mathcal{N} = \left\{ \begin{bmatrix} 0 & 0 \\ 0 & 1 \end{bmatrix}, \begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix}, \begin{bmatrix} 2 & 1 \\ 1 & 2 \end{bmatrix}, \begin{bmatrix} 2 & 2 \\ 2 & 2 \end{bmatrix} \right\},$$
$$\mathcal{P} = \left\{ \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}, \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}, \begin{bmatrix} 2 & 2 \\ 1 & 2 \end{bmatrix}, \begin{bmatrix} 2 & 1 \\ 2 & 2 \end{bmatrix} \right\}.$$

Here under the notation above $a_0 = 0$, $a_1 = 2$, $a_2 = 1$, $e_* = [0, 1]$, $e_0 = [1, 0]$, $e_1 = [1, 2]$, $e_2 = [1, 1]$, $\nu = 1$, $b_0 = 1$, $b_1 = 2$, $b_2 = 2$.

Thus we proved that there exists a family of optimal λ_D-eigenfunctions of the bilinear forms graph $\mathrm{Bil}_p(2,\ 2)$ over a prime field $\mathbb{F}_p$ that achieve the lower bound. However the construction described above does not provide the full characterization of all optimal λ_D-eigenfunctions.

What happens if we look at bilinear forms graphs of larger diameter? It appears that the weight distribution bound cannot be achieved. And for proving this the connection between bilinear graphs and the Grasssmann graphs comes in handy. The bilinear forms graph $\mathrm{Bil}_q(n,m)$ with $m \le n$ can be considered as a subgraph of the Grassman graph $J_q(n+m,m)$ as follows: given a fixed subspace W of dimension n, all m-spaces U such that $U \cap W = 0$ are the vertices of $\mathrm{Bil}_q(n,m)$. This embedding leads to the following result about the Delsarte cliques of these graphs (see Lemma 8 from [89]):

Lemma 9.2. *Delsarte cliques of bilinear forms graph $\mathrm{Bil}_q(n,m)$ are embedded in Delsarte cliques of a Grassmann graph $J_q(n+m,m)$ in the sense that for any Delsarte cliques C and $\widehat{C}$ of a bilinear forms graph and the Grassmann graph correspondingly, either $C \subset \widehat{C}$ or $C \cap \widehat{C} = \emptyset$.*

Since for any λ_D-eigenfunction the sum of its values over a Delsarte clique is zero, from the previous Lemma we immediately obtain the following Corollary which simply tells us that we can extend eigenfunctions of bilinear forms graph to those of the Grassmann graph:

Corollary 9.3. *Suppose f is a λ_D-eigenfunction of a bilinear forms graph $\mathrm{Bil}_q(n,m)$. Then $\widehat{f}$ is an eigenfunction of the Grassmann graph $J_q(n+m,m)$, where*

$$\widehat{f}(\overline{M}) = \begin{cases} f(M), & \text{if } M \in V(\mathrm{Bil}_q(n,m)) \\ 0, & \text{else} \end{cases}$$

This corollary is crucial for the final result:

Theorem 9.4 ([89, Theorem 7])**.** *Let $\mathrm{Bil}_q(n,m)$ be a bilinear forms graph of diameter $D \ge 3$. Then the minimum support of an eigenfunction corresponding to the minimum eigenvalue does not achieve the weight distribution bound.*

The main idea behind the proof of this theorem can be described as follows. Suppose the opposite holds and f is an optimal λ_D-eigenfunction that achieves the weight distribution bound. Under the notation of Corollary 9.3, $\widehat{f}$ is an optimal λ_D-eigenfunction of the Grassmann graph $J_q(n+m, m)$. According to the Theorem 8.1 characterizing optimal eigenfunctions of the Grassmann graphs, the non-zeros of $\widehat{f}$ correspond to the maximal totally isotropic spaces of a non-degenerate quadratic form Q. Now we recall the graphs embedding construction: there exists a subspace W of dimension n that trivially intersects with all the maximal totally isotropic subspaces. A well-known corollary from the Chevalley theorem states that any non-degenerate quadratic form is isotropic on a vector space of dimension not less that 3 over the finite field $\mathbb{F}_q$ (here the diameter of a graph plays its role). Thus there exists a non-zero vector $w \in W$ such that $Q(w) = 0$, therefore $<w>$ is a 1-dimensional totally isotropic space and, hence, is contained in a maximal totally isotropic subspace. This contradicts the trivial intersection of W with all the maximal totally isotropic subspaces.

According to this theorem optimal λ_D-eigenfunctions of $\mathrm{Bil}_q(n, m)$ do not satisfy the weight distribution bound. This lead to an open the MS-problem for bilinear forms graphs of diameter $D \ge 3$.

10 Paley graph

In this section, we give a survey of results on the MS-problem for the Paley graph. Let q be an odd prime power, where $q \equiv 1(4)$. The Paley graph $P(q)$ is the Cayley graph on the additive group $\mathbb{F}_q^+$ of the finite field $\mathbb{F}_q$ with the generating set of all squares in the multiplicative group $\mathbb{F}_q^*$. This graph is a strongly regular with parameters $(q, \frac{q-1}{2}, \frac{q-5}{4}, \frac{q-1}{4})$. The eigenvalues of $P(q)$ are $\lambda_0 = \frac{q-1}{2}$, $\lambda_1 = \frac{-1+\sqrt{q}}{2}$ and $\lambda_2 = \frac{-1-\sqrt{q}}{2}$. In [44] Goryainov et al. for $i \in \{1, 2\}$ proved that the minimum cardinality of the support of a λ_i-eigenfunction of $P(q^2)$, where q is an odd prime power, is $q + 1$. In what follows, in this section we will discuss the results obtained in [44].

Let q be an odd prime power and let β be a primitive element of the finite field $\mathbb{F}_{q^2}$. Denote $\omega = \beta^{q-1}$, $Q_0 = \langle \omega^2 \rangle$ and $Q_1 = \omega\langle \omega^2 \rangle$. We define the function f_β on the vertices of the Paley graph $P(q^2)$ by the following rule:

$$f_\beta(x) = \begin{cases} 1, & \text{if } x \in Q_0; \\ -1, & \text{if } x \in Q_1; \\ 0, & \text{otherwise.} \end{cases}$$

One of the main results proved in [44] is the following.

Theorem 10.1 ([44, Theorem 2]). *Let q be an odd prime power and let β be a primitive element of the finite field $\mathbb{F}_{q^2}$. Then the following statements hold:*

1. *If $q \equiv 1(4)$, then f_β is a λ_2-eigenfunction of $P(q^2)$ and $|S(f_\beta)| = q + 1$.*
2. *If $q \equiv 3(4)$, then f_β is a λ_1-eigenfunction of $P(q^2)$ and $|S(f_\beta)| = q + 1$.*

Since the Paley graph $P(q^2)$ is self-complementary, Theorem 10.1 implies that for any $i \in \{1, 2\}$ $P(q^2)$ has λ_i-eigenfunction f such that $|S(f)| = q + 1$. On the other hand, by the weight distribution bound we obtain that a λ_2-eigenfunction of $P(q^2)$ has at least $q + 1$ non-zero values. Since $P(q^2)$ is self-complementary, the same bound holds for a λ_1-eigenfunction of $P(q^2)$. Thus, the minimum cardinality of the support of a λ_i-eigenfunction of $P(q^2)$, where $i \in \{1, 2\}$, is $q + 1$.

Now we discuss one interesting connection between the sets Q_0 and Q_1 and maximal cliques of the Paley graph $P(q^2)$. The maximum possible size of a clique of $P(q^2)$ is q (all cliques of such size are Delsarte cliques). Blokhuis [20] determined all cliques and all cocliques of size q in $P(q^2)$ and showed that they are affine images of the subfield $\mathbb{F}_q$. Baker et al. [5] found maximal cliques of order $\frac{q+1}{2}$ and $\frac{q+3}{2}$ for $q \equiv 1(4)$ and $q \equiv 3(4)$ respectively, but these cliques are not the only cliques of such size. Moreover, there are no known maximal cliques whose size belongs to the gap from $\frac{q+1}{2}$ (from $\frac{q+3}{2}$, respectively) to q. Kiermaier and Kurz [56] studied maximal integral point sets in affine planes over finite fields and found maximal cliques of size $\frac{q+3}{2}$ in $P(q^2)$ for $q \equiv 3(4)$. Using the sets Q_0 and Q_1 defined above, Goryainov et al. [44] constructed new maximal cliques of size $\frac{q+1}{2}$ and $\frac{q+3}{2}$ for $q \equiv 1(4)$ and $q \equiv 3(4)$ respectively in $P(q^2)$.

Theorem 10.2 ([44, Theorem 1]). *Let q be an odd prime power and let β be a primitive element of the finite field $\mathbb{F}_{q^2}$. Then the following statements hold:*

1. *If $q \equiv 1(4)$, then Q_0 and Q_1 are maximal cocliques of size $\frac{q+1}{2}$ in the graph $P(q^2)$.*
2. *If $q \equiv 3(4)$, then $Q_0 \cup \{0\}$ and $Q_1 \cup \{0\}$ are maximal cliques of size $\frac{q+3}{2}$ in the graph $P(q^2)$.*

11 Star graph

In this section, we give a survey of results on the MS-problem for the Star graph. The *Star graph* S_n, $n \geq 3$, is the Cayley graph on the symmetric group $\mathrm{Sym_n}$ with the generating set $\{(1\, i) \mid i \in \{2, \dots, n\}\}$. This graph is not distance-regular. The spectrum of the Star graph is integral [25, 60]. For $n \geq 4$, the eigenvalues of S_n are $\pm(n-k)$, where $1 \leq k \leq n$; and the eigenvalues of S_3 are $\{-2, -1, 1, 2\}$. The multiplicities of eigenvalues of the Star graph were studied in [4, 53, 54]. In particular, explicit formulas for calculating multiplicities of eigenvalues $\pm(n-k)$, where $2 \leq k \leq 12$, were found. In [51] Kabanov et al. found the minimum cardinality of the support of an $(n-2)$-eigenfunction of S_n and obtained a characterization of optimal $(n-2)$-eigenfunctions for $n \geq 8$ and $n = 3$. In what follows, in this section we will consider the results obtained in [51].

Now, we discuss one construction of optimal $(n-2)$-eigenfunctions of the Star graph. Let $i \in \{1, \dots, n\}$ and $j, k \in \{2, \dots, n\}$, where $j \neq k$. We define the function $f_i^{j,k}$ on the vertices of the Star graph S_n by the following rule:

$$f_i^{j,k}(\pi) = \begin{cases} 1, & \text{if } \pi(j) = i; \\ -1, & \text{if } \pi(k) = i; \\ 0, & \text{otherwise.} \end{cases}$$

In [51, Lemma 2] it was shown that $f_i^{j,k}$ is an $(n-2)$-eigenfunction of S_n and $|S(f_i^{j,k})| = 2(n-1)!$. Denote

$$\mathcal{F} = \{f_i^{j,k} \mid i \in \{1, \dots, n\}, j, k \in \{2, \dots, n\}, j \neq k\}.$$

The main result proved in [51] is the following.

Theorem 11.1 ([51, Theorem 20])**.** *Let f be an $(n-2)$-eigenfunction of S_n, where $n \geq 8$ or $n = 3$. Then $|S(f)| \geq 2(n-1)!$. Moreover, $|S(f)| = 2(n-1)!$ if and only if $f = c \cdot \tilde{f}$, where c is a real non-zero constant and $\tilde{f} \in \mathcal{F}$.*

Now, we discuss the main ideas of the proof of Theorem 11.1. Firstly, we need some definitions.

Let $M = (m_{i,j})$ be a real $n \times n$ matrix. We say that M is *special* if M is non-zero and the following conditions hold:

1. $m_{i,1} = 0$ for any $i \in \{1, \dots, n\}$.
2. $m_{1,j} = 0$ for any $j \in \{1, \dots, n\}$.
3. $\sum_{j=1}^{n} m_{i,j} = 0$ for any $i \in \{1, \dots, n\}$.

For a real $n \times n$ matrix $M = (m_{i,j})$ denote

$$g_M(n) = |\{\pi \in \mathrm{Sym_n} \mid \sum_{\mathrm{i=1}}^{\mathrm{n}} \mathrm{m_{i,\pi(i)}} \neq 0\}|.$$

The key point of the proof of Theorem 11.1 is the following. For an arbitrary $(n-2)$-eigenfunction f of S_n we can construct some special $n \times n$ matrix $M(f)$ and match the permutations from $\mathrm{Sym_n}$ with diagonals of $M(f)$ in such a way that the value of f on a permutation π is the sum of elements of the corresponding diagonal of $M(f)$. In other words, we have the equality

$$|S(f)| = g_{M(f)}(n) \tag{11.1}$$

for any $(n-2)$-eigenfunction f of S_n. This observation allows us to reduce the MS-problem for the Star graph S_n and its eigenvalue $n-2$ to the following extremal problem on the set of all special $n \times n$ matrices.

Problem 11.2. Given a positive integer n, to find the minimum value of $g_M(n)$ for the class of special $n \times n$ matrices M.

In [51, Theorem 19] for $n \geq 8$ and $n = 3$ it was proved that $g_M(n) \geq 2(n-1)!$ for any special $n \times n$ matrix M. Moreover, in [51, Theorem 19] a classification of special matrices in the equality case was obtained. Using these results and the equality (11.1), we can finish the proof of Theorem 11.1.

12 Some remarks on optimal eigenfunctions of graphs

In this section, we give some observations on optimal eigenfunctions of graphs.

Recall that the MS-problem is formulated for arbitrary real-valued functions from the corresponding eigenspace. Surprisingly, in many cases optimal eigenfunctions take only three distinct values (for example, see Theorems 5.2, 6.1, 6.2, 7.1, 11.1). But, in general case it is not true. For example, there are optimal (-2)-eigenfunctions of the Petersen graph that take five distinct values (see Figure 11).

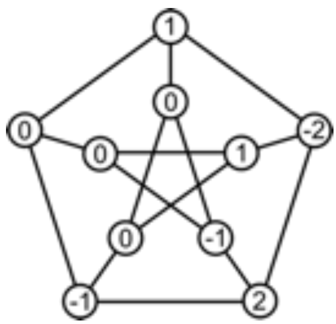

Figure 11: Optimal (-2)-eigenfunction of the Petersen graph.

There is an interesting connection between optimal eigenfunctions corresponding to the second largest eigenvalue of a given graph and completely regular codes in this graph. In particular, an arbitrary optimal $\lambda_1(n,q)$-eigenfunction ($\lambda_1(n,\omega)$-eigenfunction) of the Hamming graph $H(n,q)$ (the Johnson graph $J(n,\omega)$) is the difference of the characteristic functions of two completely regular codes of covering radius 1 (see [91, Theorem 3] and [96, Theorem 4]). The Star graph S_n does not have completely regular codes of covering radius 1 with the eigenvalue $n-2$. However, an arbitrary optimal $(n-2)$-eigenfunction of S_n is the difference of the characteristic functions of two completely regular codes of covering radius 2 (see [51, Lemma 22]).

13 Open problems

In this section, we briefly recall the main results on the MS-problem and formulate several open problems.

Recall that Problem 5.1 is completely solved for all $n \geq 1$ and $q \geq 2$. In particular, the MS-problem for the Hamming graph $H(n,q)$ is solved for all eigenvalues. Moreover, a characterization of functions that are optimal in the space $U_{[i,j]}(n,q)$ was obtained for $q \geq 3$, $i+j \leq n$ and $q \geq 5$, $i=j$, $i > \frac{n}{2}$. Taking into account these results, we formulate the following two problems for the Hamming graph.

Problem 13.1. Characterize functions that are optimal in the space $U_{[i,j]}(n,q)$ for the cases $q=2$ and $q \geq 3$, $i+j > n$ (in this problem we assume that $i < j$).

Problem 13.2. Characterize optimal $\lambda_i(n,q)$-eigenfunctions of the Hamming graph $H(n,q)$ for $q \in \{3,4\}$ and $i > \frac{n}{2}$.

The MS-problem for the Doob graph $D(m,n)$ is solved for the second largest eigenvalue $\lambda_1(m,n)$ and the smallest eigenvalue $\lambda_{2m+n}(m,n)$. So, it seems very interesting to consider the following question.

Problem 13.3. Solve the MS-problem for the third largest eigenvalue $\lambda_2(m,n)$ of the Doob graph $D(m,n)$.

The MS-problem for the bilinear forms graph $\mathrm{Bil}_q(n,m)$ is solved for the smallest eigenvalue λ_D in case $n=m=2$ and q is prime. For bilinear forms graphs of larger diameters over the arbitrary field it is proved that the weight distribution bound cannot be attained. This leads to the following interesting questions:

Problem 13.4. For the bilinear forms graph $\mathrm{Bil}_q(n,m)$ of diameter D:

- Characterize optimal λ_D-eigenfunctions in case of $D=2$ for a prime q (including the case of $n \neq m$).
- Solve the MS-problem for the smallest eigenvalue λ_D in case of $D=2$ and arbitrary q.
- Solve the MS-problem for the smallest eigenvalue λ_D in case of $D \geq 3$ and arbitrary q.

The MS-problem for the Grassmann graph $J_q(N,m)$ is solved for the smallest eigenvalue λ_D. Since the Grassmann graph can be considered as a q-analogue of the Johnson graph it may be interesting to consider the following question:

Problem 13.5. Solve the MS-problem for the second largest eigenvalue of the Grassmann graph $J_q(N,m)$.

The MS-problem for the Paley graph $P(q^2)$ is solved for both non-principal eigenvalues. We formulate the following problem for optimal eigenfunctions.

Problem 13.6. Characterize optimal λ_1-eigenfunctions and λ_2-eigenfunctions of the Paley graph $P(q^2)$.

The MS-problem for the Star graph S_n is solved only for the second largest eigenvalue. So, the following question is very natural.

Problem 13.7. Solve the MS-problem for the third largest eigenvalue of the Star graph S_n.

At the end of this section we also would like to bring the attention of the reader to the following problems:

Problem 13.8. For distance-regular graphs find the conditions for the weight distribution bound to be achieved.

Problem 13.9. For distance-regular graphs find a sharper lower bound on the cardinality of a graph eigenfunction support than the weight distribution bound.

Problem 13.10. Find a lower bound on the cardinality of a graph eigenfunction support for the Cayley graphs.

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