Informational Transition of the Form $\alpha \models \beta$ and Its Decomposition

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In this paper the complexity and heterogeneity of informational transition occurring between informational entities is studied to some formalistic details, using the technique of informational decomposition [6, 7, 9, 10, 11]. E. Birnbaum [1] has reopened an important problem of the informational theory by a formulation of the informational-causal chain. General informational theory can substantially concern this particular problem, that is, studying the decomposition possibilities of formula $\alpha \models \beta$ and its circular, particularly, metaphysical case $\alpha \models \alpha$. In this paper, the decomposition problems of both $\alpha \models \beta$ and $\alpha \models \alpha$ will be generalized and concretized in the form of several informational systems, which appear to be serial, parallel, circular-serial, circular-parallel, metaphysicalistic-serial, and metaphysicalistic-parallel, but also canonic and noncanonic. Among others, these formula systems are studied by the methodology of informational frames and gestalts [11] showing the possibilities of decomposition. At the end, a case of the social informational transition and its decomposition is discussed to some principled details.

1 Introduction

Informational transition[1] belongs to the basic and most important concepts of the general informational theory [1]. Thus, formula $\alpha \models \beta$, and its circular and metaphysicalistic occurrence $\alpha \models \alpha$, presents the primordial informational problem from which one can start the research of the fundamental concepts of the emerging general informational theory. In this context, particular cases of open and closed transition formulas can be treated as, for example, the externalism $\alpha \models$, the internalism $\models \beta$, the metaphysicalism $\alpha \models \alpha$ (or $\beta \models \beta$), and the phenomenalism $\alpha \models; \models \beta$.

In a particular way, by Birnbaum [1] reopened problem of information transfer (transmission, distribution, broadcasting, receiving), in the form of the disturbance-influenced triad, consisting of the *signal* (or information) *transmitter* (simultaneously, the informational source), *channel*, and *receiver*, can be formally (symbolically, theoretically) generalized by the concept of the informational transition (the *informer* operand, *operator* between the informer and observer, and the *observer* operand). Informational transition concerns not only the problem of information transmitting, channeling, and receiving by machines, media, and living beings, but also the problem of informational arising (emerging of interior and exterior disturbances, impacts) within all transitional components in their spontaneity and circularity, in the framework of the informational serialism and parallelism. Significant examples of informational transition are the following:

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1. Transmission and reception of information-carrying signals through a channel between the transmitter and receiver is a *technical system* with the goal to mediate the transmitted signal, as undisturbed (undistorted) as possible, to the receiver. In this way, along the channel, noise and other signal disturbances can appear modifying the originally transmitted signal. Another source of noise and disturbances can appear also in the receiver before the signal is converted (acoustically, visually, digitally or data-likely) for the purposes of various users (the problem of the receiver internalism, e.g., of the filtering of the arrived signal).

2. Another problem is, for instance, the writing down and shaping a message for the public distribution where the author gives his/her initial text to the inspection to his/her colleagues, correctors and editors, who perform in an informationally disturbing (correcting, lecturing) manner. Then, the corrected text is printed (with the removed "failures from the text form and contents"), and as such is distributed to other readers (in general, to the intelligent observers). Here, a strict distinction within the informational triad *informer-mediator-observer* is heavily possible in the sense of a strict separation of the informer, the correcting, editing and mediating channel, and the observer (individual reader, seer, listener, interpreter). The problem is also timely conditioned where the author could have already forgotten what he has written or even did not see his final result in the distribution medium.

3. Another example of informational transition happens in a live discourse, among several discursively interacting speakers, where more than one informer and observer interact in a speaking, listening (observing) and mediating informational environment. In this sense we can understand the informational decomposition of an initial theme which is thrown into a group of informational actors (speakers) and thus, at the end of the discussion, leaves different informational results (impressions) to the participating informational actors.

2 Technical and Theoretical Models of Information Transmission (Mediation)

Technical model of information transmission or mediation proceeds from the well known triad transmitter-channel-receiver[2]. The idealistic case considers an informer, noise-free channel (mediator) and observer. The channel is commonly understood to be a transmission or propagation medium (an informationally active device) between transmitter (informer) and receiver (informer's observer). If information is carried in the form of modulated or coded electromagnetic signals and/or waves, the Maxwellian theory can be applied for the electronic circuits and electromagnetic waves to study the transmission and propagation possibilities in space and/or physical devices.

Such a technical system concerns usually the reliable, true, or exact transmission (mediation) of signals. It does not concern the informational systems of living beings which do not exclude the arising of information on the side of informer, the propagation of information through the informingly active medium and the reception (understanding) of information on the side of informational observer. If the technical problem is first of all a genuine transmission (transfer) of signals irrespective of the loaded information, informational transition in general concerns informational emerging not only in the space and time of the informer but also in the space and time of the channel and the receptor, that is, the channel observer via which information is arriving.

Therefore, the technical problem of information transmission is only a particular, purely technological problem within informational transmission. Technical problems of information transfer are more or less solved within determined technological systems where it is known under which circumstances these systems can function satisfactorily.

[2]The technical (telecommunicational) problem was mathematically formulated by Claude Shannon [4] where, as he said, *meaning* does not travel from a sender to a receiver. The only thing that travels are changes in some form of physical energy, which he called "signals". More important still, these changes in energy are signals only to those who have associated them with a code and are therefore able, as senders, to *encode* their meanings in them and, as receivers, to *decode* them [2].

On the other side, the informational problems of transition, concerning spontaneous and circular information arising within of informationally living actors environments represent substantially different philosophy, methodology and formalism. Informational theory covers essentially this philosophy by a new sort of formalism, implicitly including the informational arising in a spontaneous and circular way. There does not exist a proper theory of this naturally conditioned problem of informing of informational entities. Contemporary philosophies seek their approaches and interpretations within the more or less classical philosophical orientations (doctrines of the so-called rationalism, especially cognitive sciences) performing within natural language discussions and debates and outside promising ways of new formalizations.

3 Information Transmission at the Presence of Noise

Noise as an unforeseeable, spontaneous, chaotic and disturbing phenomenon remains in the realm of informational heterogeneity. A disturbing information does not only mean a distorted, useless or undesired phenomenon, but also the necessary and possible informational realm of changes, formations and origins, for example, in the form of the so-called counterinformation being a synonym for a spontaneously and circularly arising information, its informational generation as a consequence of occurring informational circumstances in space, time and also in brain. In this view, the informational noise carries the possibilities and necessities of informational emerging as a regular, desired or undesired, unforeseeable or expected informing of informational entities.

Instead of *information transmission at the presence of noise* we can use a more general and also more adequate term called *the transition of information in an informationally disturbing environment,* where the spontaneously arising nature of informing of entities comes to the surface. Informational disturbance can be comprehended as a cause generating informational phenomenon from which informational consequences of various kinds are coming into existence. The arising mechanism of the informational roots also in the disturbing, causing and effecting (causing-to-come-into-informing) principles where disturbing is the phenomenon which rises the cause of the consequence.

4 Possible Informational Models of Transition

On the introductory level, we can list and describe shortly the main informational models of transition, marked by $\alpha \models \beta$. Some of this models are very basic and some of them can become more and more complex in a circular, recursive, also fractal[3] manner and, certainly, in this respect, also spontaneous. The discussed models of transition $\alpha \models \beta$ will be nothing else than informational decompositions (derivations, deductions, interpretations) concerning particular elements of the transition and the transition as a whole. So, let us list the most characteristic models of informational transition.

1. A decomposition of $\alpha \models \beta$ can be begun by operator $\models$ which becomes an initial operator frame [10, 11], that is,

$$\alpha \boxed{\models} \beta$$

Usually, at the beginning, we introduce the so-called parenthesized operator frame and, the consequence of this choice is that the operator frame becomes split, in general, into three parts, of the form

$$\boxed{(\cdots(}\,\alpha\,\boxed{\models \cdots \models}\,\beta\,\boxed{)\cdots)}$$

where the left and the right parenthesis frames $\boxed{(\cdots(}$ and $\boxed{)\cdots)}$, alternatively, can be empty.

2. A more expressively compact form of the operator-decomposed transition is obtained by means of the so-called demarcated operator[4]

[3] Fractal is a mathematically conceived curve such that any small part of it, enlarged, has the same statistical character as the original (B.B. Mandelbrot, 1975, in *Les Objects Fractal*). Sets and curves with the discordant dimensional behavior of fractals were introduced at the end of the 19th century by Georg Cantor and Karl Weierstrass. Parts of the snowflake curve, when magnified, are indistinguishable from the whole [12].

[4] The so-called demarcation point, '**.**', was introduced in metamathematics by Whitehead and Russel [5]. The privilege of such denotation is that the sequence of operands and operators in a formula remains unchanged, which does not hold for the Polish prefix or suffix transformation of formulas.

frame, where instead of each parenthesis pair with operator, that is, $(\cdots)\models$ and $\models(\cdots)$, one demarcation point is used, that is, $\cdots.\models$ and $\models.\cdots$, respectively. The consequence of such notation is the disappearance of the parenthesis frames and, in this way, the appearance of only one unsplit operator frame in the decomposed transition (and also other) formulas. In general, the possible demarcated forms of the decomposed transition becomes

$$\alpha\boxed{\models\omega_1.\models\cdots\omega_n.\models}\beta;$$
$$\vdots$$
$$\alpha\boxed{\models\omega_1.\models\cdots.\models.\omega_i\models.\cdots\models.\omega_n\models}\beta;$$
$$\vdots$$
$$\alpha\boxed{\models.\omega_1\cdots\models.\omega_n\models}\beta$$

The first and the last operator frame do not include the demarcated form $.\models.$ because the place of the main operator is at the end or at the beginning of the formula and operands β (the first formula) and α (the last formula) are not parenthesized. Thus, the main informational operator $\models$ is in the first formula at its end and in the last formula at its beginning.

3. The next two examples concern informational transition $\alpha\models\beta$ in its form of operator composition, that is,

$$\alpha\boxed{\models_\alpha}\circ\boxed{\models_\beta}\beta$$

In this way, simultaneously, to some extent, the meaning of the operator composition denoted by $\models\circ\models$, comes to the surface. In this context, it can be decided, where the separation of operators $\models_\alpha$ and $\models_\beta$ actually occurs. The one separation point is certainly the composition operator '$\circ$' and the other two are operands α and β. One must not forget, that operator $\models_\alpha$ is an informationally active attribute of operand α and similarly holds for operator $\models_\beta$ in respect to operand β.

Let us decompose the parenthesized, operator-composed transitional form $\alpha\models_\alpha\circ\models_\beta\beta$. The general form will be

$$\boxed{(\cdots(}\alpha\boxed{\models\cdots\models}\circ\boxed{\models\cdots\models}\beta\boxed{)\cdots)}$$

where $\models_\alpha$ and $\models_\beta$ are split to the left parenthesis frame and the right parenthesis frame, respectively. Parenthesis frames can also be empty. This situation becomes clear when one imagines that the $\circ$-operator stands at the place of the main operator $\models$ of a formula and that just this operator is split in the sense of $\models\circ\models$, where the left $\models$ belongs to $\models_\alpha$-decomposition and the right $\models$ belongs to $\models_\beta$-decomposition.

4. The next possibility of the informational transition decomposition is the one of the previous case when the parenthesized form is replaced by the demarcated one. In this situation, operator frames $\models_\alpha$ and $\models_\beta$ are not anymore split and the expression becomes compact and more transparent. Characteristic cases of such possibility are

$$\alpha\boxed{\models\omega_1.\models\cdots.\models\omega_n.\models}\circ\boxed{\models}\beta;$$
$$\vdots$$
$$\alpha\boxed{\begin{array}{l}\models\omega_1.\models\cdots\\ .\models\omega_i.\models\end{array}}\circ\boxed{\begin{array}{l}\models.\omega_{i+1}\models.\cdots\\ \models.\omega_n\models\end{array}}\beta;$$
$$\vdots$$
$$\alpha\boxed{\models}\circ\boxed{\models.\omega_1\models.\cdots\models.\omega_n\models}\beta$$

No operator frame does include the form $.\models.$ (the place of the main operator of a formula) because this operator is hidden in the operator composition $\models\circ\models$.

5. The next question concerns the so-called circular transition. An informational entity, in itself, can function as a serial circular informational connection of its interior components which inform as any other regular informational entity. There is certainly possible to imagine an exterior circular informing in which a distinguished entity takes over the role to function as the main informational entity in a circle of informing entities. In principle, these circular situations do not differ substantially from the previous cases. The original informational transition $\alpha\models\beta$ is replaced by the initial circular notation $\alpha\models\alpha$.

There are various possibilities of studying decomposed circular transitions. For instance, in Fig. 2, there is a unique simple case of a transitional loop. Fig. 3 offers another interpretation, where to the serially decomposed loop there exists a parallel, yet non-decomposed circle. And lastly, in Fig. 5, the non-decomposed circular path can be replaced by the reversely decomposed first loop, bringing a senseful interpretation and informational examination of the first loop by the second one.

6. The next case provides an additional perturbation of the already decomposed components ω_1, ω_2, $\cdots$, ω_n by means of some disturbing components δ_1, δ_2, $\cdots$, δ_n, respectively, as shown in Fig. 10. These components impact the ω-chain from the interior or the exterior. An interpretation of this disturbance is possible by means of parallel formulas, that is,

$$\delta_j \models \omega_j;\ j = 1, 2, \cdots, n$$

This situation is studied in detail in Section 5.14 and represents an informational extension and theoretical interpretation of the case opened by Birnbaum in [1].

7. Finally, there is possible to expand the basic decomposed informational decomposition with the initial components ω_1, ω_2, $\cdots$, ω_n in a fractal form as shown in Fig. 11. Thus, to the internal components ω_1, ω_2, $\cdots$, ω_n of the first transition similar other transitions take place in an unlimited manner regarding the number of transitions. In this way, a complex transitional fractal is obtained consisting of variously connected informational transitions. In this way, the basic system of decomposed transition is extended by the additional system of informational formulas, that is,

$$\begin{array}{l}(\cdots((\alpha_i \models \omega_{i,1}) \models \omega_{i,2}) \models \cdots \omega_{i,n_i-1}) \models \omega_{i,n_i};\\ \delta_{i,j} \models \omega_{i,j};\\ \omega_{i,n_i} \models \omega_i;\\ i = 1, 2, \cdots; n;\ j = 1, 2, \cdots, n_i\end{array}$$

This formula system represents only a part of the graph interpretation in Fig. 11, not being presented in an informational gestalt form yet.

5 Serial, Parallel, and Circular Structure of Informational Transition Decomposition

5.1 Decomposition Possibilities

Informational transition of the form $\alpha \models \beta$ can be decomposed in several informational ways—from the simplest to the most complex ones, but also in a serial, parallel, circular, and metaphysicalistic way. All components of transition $\alpha \models \beta$, that is, operands α and β and operator $\models$, can be decomposed (analyzed, synthesized, interpreted) to an arbitrarily necessary or possible detail. By advancing of decomposition, informational boundaries between the occurring entities α, $\models$, and β can become unclear and perplexed within the complexity of the structure which arises through various decomposition approaches.

One of the basic problems is the systematization of decomposition possibilities (processes, entities) and their symbolic presentation. Decomposition of the general transition $\alpha \models \beta$ or its metaphysicalistic case $\alpha \models \alpha$ can concern the serial, parallel, circular, metaphysicalistic, and any mixed case of the informational deconstruction of $\alpha \models \beta$ and $\alpha \models \alpha$. Let us introduce the following *general decomposition* markers:

${}^{\ell}_{i}\Delta_{\rightarrow}(\alpha \models \beta)$	serial i-decomposition Δ of $\alpha \models \beta$ of serial length ℓ (5.2);
${}^{\ell}\Delta_{\parallel}(\alpha \models \beta)$	parallel decomposition Δ of $\alpha \models \beta$ of parallel length ℓ (5.8);
${}^{\ell}_{i}\Delta^{\circlearrowleft}_{\rightarrow}(\alpha \models \alpha)$	circular serial i-decomposition Δ of $\alpha \models \alpha$ of circular-serial length ℓ (5.9);
${}^{\ell}\Delta^{\circlearrowleft}_{\parallel}(\alpha \models \alpha)$	circular parallel decomposition Δ of $\alpha \models \alpha$ of circular-parallel length ℓ (5.11)

where for subscript i (look at Subsubsection 5.12.6) there is

$$i = 1, 2, \cdots, \frac{1}{\ell+1}\binom{2\ell}{\ell}$$

Metaphysicalistic decomposition is specifically structured, that is, metaphysicalistically standardized. We introduce

${}^{\ell}_{i}\mathfrak{M}^{\circlearrowleft}_{\rightarrow}(\alpha \models \alpha)$	metaphysicalistic serial i-decomposition $\mathfrak{M}$ of $\alpha \models \alpha$ of circular-serial length ℓ (5.12);
${}^{\ell}\mathfrak{M}^{\circlearrowleft}_{\parallel}(\alpha \models \alpha)$	metaphysicalistic parallel decomposition $\mathfrak{M}$ of $\alpha \models \alpha$ of circular-parallel length ℓ (5.13)

5.2 A Serial Decomposition of $\alpha \models \beta$, that is, ${}^{n+1}_{i}\Delta_{\rightarrow}(\alpha \models \beta)$

Let us start the decomposition process of transition $\alpha \models \beta$ with the simplest and most usual serial case. Let us sketch this simple situation by the graph in Fig. 1. This figure is a simplifica-

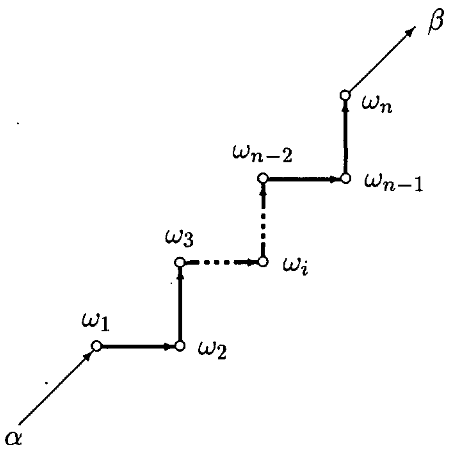

Figure 1: *A simple graphical interpretation of informational transition $\alpha \models \beta$ divided into the informer part (α), serially decomposed channel or internal part with informational structure of ω_1, ω_2, $\cdots$, ω_n, and the observer part (β). This graphical scheme represents the serial gestalt of $\alpha \models \beta$ serial decomposition, that is, all possible serially parenthesized or demarcated forms of the length $\ell = n + 1$. The zig-zag path illustrates the discursive (spontaneous, alternative, also intentionally oriented) way of informing.*

tion of the model given by Fig. 1 in [1]. On the other side, we have studied several forms of serial informational decomposition of informational entities and their transitions (e.g. in [6, 7, 9, 10]). The graph in Fig. 1 represents an informational gestalt [11] because various interpretations of it are possible.

Let us interpret this graph in 'the most logical' manner. This interpretation roots in the understanding of technical systems where we conclude in the following way:

- Transition $\alpha \models \beta$ is understood as a process running from the left to the right side of the formula. We rarely take $\alpha \models \beta$, according to a parallel decomposition possibility, as a parallel process of components α, β, and $\alpha \models \beta$.

- Processing from the left to the right, we come to the conclusion that the adequate informational formulas describing the internally structured decompositions of transition $\alpha \models \beta$ are, according to Subsection 5.1,

$$\begin{array}{l} {}^{n+1}_{\ \ 1}\Delta_{\rightharpoondown}(\alpha \models \beta) \rightleftharpoons \\ ((((\cdots(\cdots(((\alpha \models \omega_1) \models \omega_2) \models \omega_3) \models \cdots \\ \quad \omega_i) \models \cdots \omega_{n-2}) \models \omega_{n-1}) \models \omega_n) \models \beta); \\ {}^{n+1}_{\ \ 2}\Delta_{\rightharpoondown}(\alpha \models \beta) \rightleftharpoons \\ (((\cdots(\cdots(((\alpha \models \omega_1) \models \omega_2) \models \omega_3) \models \cdots \\ \quad \omega_i) \models \cdots \omega_{n-2}) \models \omega_{n-1}) \models (\omega_n \models \beta)); \\ \vdots \\ {}^{\qquad n+1}_{\frac{1}{n+2}\binom{2n+2}{n+1}}\Delta_{\rightharpoondown}(\alpha \models \beta) \rightleftharpoons \\ (\alpha \models (\omega_1 \models (\omega_2 \models (\omega_3 \models \cdots (\omega_i \models \cdots \\ \quad (\omega_{n-2} \models (\omega_{n-1} \models (\omega_n \models \beta))) \cdots) \cdots)))) \end{array}$$

where $\rightleftharpoons$ is read as *means* or, also, *informs meaningly*.

- This conclusion delivers $\models$-operator decompositions of $\alpha \models \beta$ which, in the frame-parenthesized form [10, 11], are

$$\boxed{((((\cdots(\cdots(((}\ \alpha\ \boxed{\begin{array}{l} \models \omega_1) \models \omega_2) \models \omega_3) \\ \models \cdots \omega_i) \models \cdots \omega_{n-2}) \\ \models \omega_{n-1}) \models \omega_n) \models \end{array}}\ \beta;$$

$$\boxed{(((\cdots(\cdots(((}\ \alpha\ \boxed{\begin{array}{l} \models \omega_1) \models \omega_2) \models \omega_3) \\ \models \cdots \omega_i) \models \cdots \omega_{n-2}) \\ \models \omega_{n-1}) \models (\omega_n \models \end{array}}\ \beta\ \boxed{)}\,;$$

$$\vdots$$

$$\alpha\ \boxed{\begin{array}{l} \models (\omega_1 \models (\omega_2 \models (\omega_3 \\ \models \cdots (\omega_i \models \cdots (\omega_{n-2} \\ \models (\omega_{n-1} \models (\omega_n \models \end{array}}\ \beta\ \boxed{)))\cdots)\cdots))))}$$

- More clarity could be brought to the surface by the use of the so-called frame-demarcated decomposition [11] which for the the first decomposition formula gives

$$\alpha\ \boxed{\begin{array}{l} \models \omega_1 \bullet \models \omega_2 \bullet \models \omega_3 \bullet \\ \models \cdots \omega_i \bullet \models \cdots \omega_{n-2} \bullet \\ \models \omega_{n-1} \bullet \models \omega_n \bullet \models \end{array}}\ \beta$$

- As we see, the operator decomposition in $\alpha \models \beta$ is externally independent; there are only internal components by which the internal structure of operator is interpreted, that is, decomposed into details.

The first formula is actually the strict informer α's view of the transition phenomenon $\alpha \models \beta$. The strict observer β's view of the transition phenomenon $\alpha \models \beta$ is the last formula

$$\begin{aligned}&(\alpha \models \beta) \rightleftharpoons_{\text{dcn}}\\ &(\alpha \models (\omega_1 \models (\omega_2 \models (\omega_3 \models \cdots (\omega_i \models \cdots\\ &\quad (\omega_{n-2} \models (\omega_{n-1} \models (\omega_n \models \beta))) \cdots) \cdots))))\end{aligned}$$

The viewpoint of the observer β proceeds systematically from the right to the left of the transition formula and so delivers a decomposed formula which, in respect to the positions of the parenthesis pairs, is structured in a mirrored form to the formula of the viewpoint of the informer[5].

The graph in Fig. 1 represents a gestalt belonging to any of its informational formula. Gestalt is a set of formulas which can be constructed for an informational graph. The strict informer and the observer viewpoint are only two possibilities: all the other are between the both. We will show how all formulas of a transition gestalt can be, to some extent, differently interpreted by the so-called operator composition $\models_\alpha \circ \models_\beta$.

5.3 A Transparent Scheme of the Canonic Serial Decomposition of $\alpha \models \beta$

Let us introduce the general transparent scheme $\mathfrak{S}$ of the canonic serial decomposition, marked by ${}^{n+1}_{i+1}\Delta^{\text{can}}_{\rightarrow}(\alpha \models \beta)$, in the form

$$\begin{aligned}&\mathfrak{S}\left({}^{n+1}_{i+1}\Delta^{\text{can}}_{\rightarrow}(\alpha \models \beta)\right) \rightleftharpoons\\ &\alpha\,\omega_1\omega_2\omega_3\cdots\omega_{i-1}\omega_i \mid \omega_{i+1}\omega_{i+2}\cdots\omega_{n-2}\omega_{n-1}\omega_n\beta\end{aligned}$$

where the schemes for the first (*pure informer* or informingly structured informer) and the last (*pure observer* or observingly structured observer), that is, $(n+1)$-th canonic decomposition are

$$\begin{aligned}&\mathfrak{S}\left({}^{n+1}_{1}\Delta^{\text{can}}_{\rightarrow}(\alpha \models \beta)\right) \rightleftharpoons\\ &\alpha\,\omega_1\omega_2\omega_3\cdots\omega_{i-1}\omega_i\omega_{i+1}\omega_{i+2}\cdots\omega_{n-2}\omega_{n-1}\omega_n \mid \beta;\end{aligned}$$

$$\begin{aligned}&\mathfrak{S}\left({}^{n+1}_{n+1}\Delta^{\text{can}}_{\rightarrow}(\alpha \models \beta)\right) \rightleftharpoons\\ &\alpha \mid \omega_1\omega_2\omega_3\cdots\omega_{i-1}\omega_i\omega_{i+1}\omega_{i+2}\cdots\omega_{n-2}\omega_{n-1}\omega_n\beta\end{aligned}$$

where

$$0 \le i \le n$$

Each underline marks one parenthesis pair at its ends, symbol '|' marks the main operator ($\models^*$ or $\boxed{\models}$) of decomposition, and between two operands (e.g., concatenation $\omega_i\omega_{i+1}$) an operator $\models$ appears, according to the underlined formula segments.

A serial decomposition is *canonic* if and only if its informer part is purely informer-canonic and its observer part is purely observer-canonic. For a serial decomposition of $\alpha \models \beta$ of length $\ell = n+1$ there are exactly $n+1$ canonic formulas.

5.4 Introducing Canonic Gestalt of Serial Decomposition of $\alpha \models \beta$

Canonic gestalt Γ^{can} is a particular, reduced form of gestalt Γ, concerning an arbitrary serial decomposition of transition $\alpha \models \beta$, that is (also a non-canonic), ${}^{n+1}_{j}\Delta_{\rightarrow}(\alpha \models \beta)$, where

$$1 \le j \le \frac{1}{n+2}\binom{2n+2}{n+1}$$

The canonic gestalt is nothing else than an informational system of exactly $n+1$ canonic decompositions

$${}^{n+1}_{1}\Delta^{\text{can}}_{\rightarrow}(\alpha \models \beta); \cdots ; {}^{n+1}_{n+1}\Delta^{\text{can}}_{\rightarrow}(\alpha \models \beta)$$

Thus, we introduce the following definition of the canonic gestalt of a transition decomposition:

[5] In this respect, there is interesting to mention, that some traditional implication axioms can be structured in a circular-observational manner. E.g., the propositional axiom of *consequent determination*, $A \rightarrow (B \rightarrow A)$, as the first axiom in different proposition and predicate calculi is identically true while $(A \rightarrow B) \rightarrow A$ is not.

$$\Gamma^{\mathrm{can}}\left({}^{n+1}_{\ j}\Delta_{\rightarrow}(\alpha \models \beta)\right) \rightleftharpoons_{\mathrm{Def}}$$

$$\left(\begin{array}{l}
(((\cdots(\cdots(((\alpha \models \omega_1) \models \omega_2) \models \omega_3) \models \cdots \\
\quad \omega_i) \models \cdots \omega_{n-2}) \models \omega_{n-1}) \models \omega_n) \boxed{\models} \beta; \\
((\cdots(\cdots(((\alpha \models \omega_1) \models \omega_2) \models \omega_3) \models \cdots \\
\quad \omega_i) \models \cdots \omega_{n-2}) \models \omega_{n-1}) \boxed{\models} (\omega_n \models \beta); \\
(\cdots(\cdots(((\alpha \models \omega_1) \models \omega_2) \models \omega_3) \models \cdots \\
\quad \omega_i) \models \cdots \omega_{n-2}) \boxed{\models} (\omega_{n-1} \models (\omega_n \models \beta)); \\
\vdots \\
((\alpha \models \omega_1) \models \omega_2) \boxed{\models} (\omega_3 \models \cdots (\omega_i \models \cdots \\
\quad (\omega_{n-2} \models (\omega_{n-1} \models (\omega_n \models \beta))) \cdots) \cdots); \\
(\alpha \models \omega_1) \boxed{\models} (\omega_2 \models (\omega_3 \models \cdots (\omega_i \models \cdots \\
\quad (\omega_{n-2} \models (\omega_{n-1} \models (\omega_n \models \beta))) \cdots) \cdots)); \\
\alpha \boxed{\models} (\omega_1 \models (\omega_2 \models (\omega_3 \models \cdots (\omega_i \models \cdots \\
\quad (\omega_{n-2} \models (\omega_{n-1} \models (\omega_n \models \beta))) \cdots) \cdots)))
\end{array}\right)$$

The main operator $\models$ in each of $n+1$ formulas of the array is framed, that is, $\boxed{\models}$, to be easily surveyed.

Let us use, instead of the lengthy denotation for a canonic gestalt $\Gamma^{\mathrm{can}}\left({}^{n+1}_{\ j}\Delta_{\rightarrow}(\alpha \models \beta)\right)$, the symbol $\Gamma^{\mathrm{can}\,n}_{\alpha\models\beta}$. Canonic gestalt[6] $\Gamma^{\mathrm{can}\,n}_{\alpha\models\beta}$ is a parallel system of formulas where each formula can be marked by an indexed component $\varphi^{\mathrm{can}\,n,i}_{\alpha\models\beta}$ representing the adequate canonic decomposition of transition $\alpha \models \beta$. The number of possible decompositions in the gestalt depends on the number of the interior components ω_i, that is, n. By induction, the number of different canonic decompositions of the length $\ell = n+1$ (the number of the occurring binary operators $\models$ in a formula) of transition $\alpha \models \beta$ is $n+1$. Thus,

$$\Gamma^{\mathrm{can}\,n}_{\alpha\models\beta} \rightleftharpoons \left(\varphi^{\mathrm{can}\,n,1}_{\alpha\models\beta}; \varphi^{\mathrm{can}\,n,2}_{\alpha\models\beta}; \cdots; \varphi^{\mathrm{can}\,n,n}_{\alpha\models\beta}; \varphi^{\mathrm{can}\,n,n+1}_{\alpha\models\beta}\right)$$

where

$$\varphi^{\mathrm{can}\,n,i}_{\alpha\models\beta} \rightleftharpoons$$

$$\boxed{\begin{array}{l}
\underbrace{(\cdots(}_{n+1-i}\ \alpha \models \omega_1) \models \cdots \omega_{n+1-i})\ \overbrace{\boxed{\models}}^{(n+2-i)\text{-th}} \\
\quad (\omega_{n+2-i} \models \cdots \models (\omega_n \models \beta\underbrace{)\cdots)}_{i-1}
\end{array}};$$

$$i = 1, 2, \cdots, n+1$$

The parenthesized operand gestalt $\Gamma^{\mathrm{can}\,n}_{\alpha\models\beta}$, as a consequence of serial decomposition of transition $\alpha \models \beta$ by informational components ω_1, ω_2, $\cdots$, ω_n, can be expressed by means of parenthesis gestalts $\Pi^{\mathrm{can}\,n}_{(}$ and $\Pi^{\mathrm{can}\,n}_{)}$, discussed in Subsection 5.6, and the particular operator gestalt $\Gamma^{\mathrm{can}\,n}_{)\models(}$, that is,

$$\Gamma^{\mathrm{can}\,n}_{\alpha\models\beta} \rightleftharpoons \Pi^{\mathrm{can}\,n}_{(}\ \alpha\ \Gamma^{\mathrm{can}\,n}_{)\models(}\ \beta\ \Pi^{\mathrm{can}\,n}_{)}$$

where

$$\Gamma^{\mathrm{can}\,n}_{)\models(} \rightleftharpoons \boxed{\begin{array}{l}
\phi^{\mathrm{can}\,n,1}_{)\models(} \\
\phi^{\mathrm{can}\,n,2}_{)\models(} \\
\vdots \\
\phi^{\mathrm{can}\,n,n+1}_{)\models(}
\end{array}}$$

and

$$\phi^{\mathrm{can}\,n,i}_{)\models(} \rightleftharpoons$$

$$\boxed{\begin{array}{l}
\models \omega_1) \models \cdots \omega_{n+1-i})\ \overbrace{\boxed{\models}}^{(n+2-i)\text{-th}}\ (\omega_{n+2-i} \models \\
\quad \cdots \models (\omega_n \models
\end{array}};$$

$$i = 1, 2, \cdots, n+1$$

and, finally,

$$\varphi^{\mathrm{can}\,n,i}_{\alpha\models\beta} \rightleftharpoons \pi^{\mathrm{can}\,n,i}_{(}\ \alpha\ \phi^{\mathrm{can}\,n,i}_{)\models(}\ \beta\ \pi^{\mathrm{can}\,n,i}_{)};$$
$$i = 1, 2, \cdots, n+1$$

Evidently, for the parenthesis frames there is

$$\pi^{\mathrm{can}\,n,i}_{(} \rightleftharpoons \underbrace{((\cdots(}_{n+1-i} \quad \text{and} \quad \pi^{\mathrm{can}\,n,i}_{)} \rightleftharpoons \underbrace{))\cdots)}_{i-1}$$

We can also reverse the process of the right-left enumeration, replacing subscript i by j, reversing

[6] There exist exactly $\frac{1}{n+2}\binom{2n+2}{n+1} - (n+1)$ noncanonic decompositions of length $\ell = n+1$ of transition $\alpha \models \beta$. They can be gathered in the form of a noncanonic gestalt $\Gamma^{\mathrm{ncan}\,n}_{\alpha\models\beta}$ of length ℓ.

the order of formulas (the last one becomes the first one) in $\Gamma^{\mathrm{can}\,n}_{\alpha\models\beta}$ and setting

$$\varphi^{\mathrm{can}\,n,j}_{\alpha\models\beta} \rightleftharpoons \boxed{\underbrace{(\cdots(}_{j-1}\alpha\models\omega_1)\models\cdots\omega_{j-1})\overbrace{\boxed{\models}}^{j\text{-th}}(\omega_j\models \cdots\models(\omega_n\models\beta\underbrace{)\cdots)}_{n+1-j}};$$

$$j=1,2,\cdots,n+1$$

For the parenthesis frames one obtains

$$\pi^{\mathrm{can}\,n,j}_{(} \rightleftharpoons \underbrace{((\cdots(}_{j-1} \quad\text{and}\quad \pi^{\mathrm{can}\,n,j}_{)} \rightleftharpoons \underbrace{))\cdots)}_{n+1-j}$$

Partial (inner) frames of particular formulas are

$$\phi^{\mathrm{can}\,n,j}_{)\models(} \rightleftharpoons \boxed{\models\omega_1)\models\cdots\omega_{i-1})\overbrace{\boxed{\models}}^{j\text{-th}}(\omega_j\models\cdots\models(\omega_n\models};$$

$$j=1,2,\cdots,n+1$$

and, finally,

$$\varphi^{\mathrm{can}\,n,j}_{\alpha\models\beta} \rightleftharpoons \pi^{\mathrm{can}\,n,j}_{(}\;\alpha\;\phi^{\mathrm{can}\,n,j}_{)\models(}\;\beta\;\pi^{\mathrm{can}\,n,j}_{)};$$

$$j=1,2,\cdots,n+1$$

5.5 Demarcated Case of Canonic Gestalt of Serial Decomposition of $\alpha\models\beta$

A compact presentation of the operational effectiveness of a gestalt belonging to informational transition $\alpha\models\beta$ is obtained by the introduction of framed demarcated canonic gestalt. This means that a framed gestalt of framed demarcated particular formulas of length $\ell=n+1$ is used. The effect of such use it to get a vectored gestalt formula of the shape

$$\alpha\;\boxed{\begin{array}{c}
\boxed{\models\omega_1\centerdot\models\omega_2\centerdot\models\omega_3\centerdot\models\cdots\omega_i\centerdot\models\cdots\omega_{n-2}\centerdot\models\omega_{n-1}\centerdot\models\omega_n\centerdot\boxed{\models}}\\
\boxed{\models\omega_1\centerdot\models\omega_2\centerdot\models\omega_3\centerdot\models\cdots\omega_i\centerdot\models\cdots\omega_{n-2}\centerdot\models\omega_{n-1}\centerdot\boxed{\models}\centerdot\omega_n\models}\\
\boxed{\models\omega_1\centerdot\models\omega_2\centerdot\models\omega_3\centerdot\models\cdots\omega_i\centerdot\models\cdots\omega_{n-2}\centerdot\boxed{\models}\centerdot\omega_{n-1}\models\centerdot\omega_n\models}\\
\vdots\\
\boxed{\models\omega_1\centerdot\models\omega_2\centerdot\boxed{\models}\centerdot\omega_3\models\cdots\centerdot\omega_i\models\cdots\centerdot\omega_{n-2}\models\centerdot\omega_{n-1}\models\centerdot\omega_n\models}\\
\boxed{\models\omega_1\centerdot\boxed{\models}\centerdot\omega_2\models\centerdot\omega_3\models\cdots\centerdot\omega_i\models\cdots\centerdot\omega_{n-2}\models\centerdot\omega_{n-1}\models\centerdot\omega_n\models}\\
\boxed{\boxed{\models}\centerdot\omega_1\models\centerdot\omega_2\models(\omega_3\models\cdots\centerdot\omega_i\models\cdots\centerdot\omega_{n-2}\models\centerdot\omega_{n-1}\models\centerdot\omega_n\models}
\end{array}}\;\beta$$

The frame between operands α and β is an operator frame replacing now, after a gestalt-like decomposition, the general informational operator $\models$ in transition $\alpha\models\beta$. The main operator frame of the transition is a parallel frame of $n+1$ serial operator frames constituting the parallel-serial canonic operator decomposition of the original operator $\models$ in $\alpha\models\beta$. As we see, the demarcated style of formula writing brings the advantage of a compact complex informational operator expression.

Instead of the parenthesized, canonic transition-operand gestalt $\Gamma^{\mathrm{can}\,n}_{\alpha\models\beta}$, in which operands α and β are included, the canonic transition-operator gestalt (in demarcated form), $\Gamma^{\mathrm{can}\,n}_{.\models.}$ is a parallel array of demarcated decomposed operator frames, $\phi^{\mathrm{can}\,n,i}_{.\models.}$, $i=1,2,\cdots,n+1$. Thus, a decompositionally complex structure of the simplest transition has the form

$$(\alpha\models\beta)\rightleftharpoons\left(\alpha\;\boxed{\begin{array}{c}\phi^{\mathrm{can}\,n,1}_{.\models.}\\ \phi^{\mathrm{can}\,n,2}_{.\models.}\\ \vdots\\ \phi^{\mathrm{can}\,n,n+1}_{.\models.}\end{array}}\;\beta\right)$$

where

$$\left(\alpha \boxed{\begin{array}{c} \phi_{.\models.}^{\mathrm{can}_{n,1}} \\ \phi_{.\models.}^{\mathrm{can}_{n,2}} \\ \vdots \\ \phi_{.\models.}^{\mathrm{can}_{n,n+1}} \end{array}} \beta \right) \rightleftharpoons \left(\begin{array}{l} \alpha\, \phi_{.\models.}^{\mathrm{can}_{n,1}}\, \beta; \\ \alpha\, \phi_{.\models.}^{\mathrm{can}_{n,2}}\, \beta; \\ \vdots \\ \alpha\, \phi_{.\models.}^{\mathrm{can}_{n,n+1}}\, \beta \end{array} \right)$$

That what is possible in case of using demarcation points, that is,

$$\alpha\, \Gamma_{.\models.}^{\mathrm{can}_n}\, \beta$$

instead of parenthesis pairs would never be possible in such a compact and clear form. For instance, we can have $\Gamma_{\alpha \models \beta}^{\mathrm{can}_n}$ where operands α and β appear implicitly. But certainly, $\alpha\, \Gamma_{.\models.}^{\mathrm{can}_n}\, \beta \rightleftharpoons \Gamma_{\alpha \models \beta}^{\mathrm{can}_n}$.

5.6 The Meaning of Operator Composition $\models \circ \models$ and Decomposition in Case of the Canonic Serial Decomposition of Informational Transition $\alpha \models \beta$

How could the operator composition of the form

$$\alpha \models_\alpha \circ \models_\beta \beta$$

concern the canonic serial operator decomposition of types $\Gamma_{\alpha \models \beta}^{\mathrm{can}_n}$ and $\Gamma_{.\models.}^{\mathrm{can}_n}$? Could it, in comparison of both cases, come to an informationally meaning equivalence?

Let us introduce the rule by which operator $\models$ can be replaced by the composition $\models \circ \models$ or, formally,

$$\models \leftarrow (\models \circ \models)$$

This rule will be used at the places of the framed (main) operator $\models$, that is, $\boxed{\models}$. An operator-framed place will represent the place of the composition operator $\circ$, so, the formula part on the left of it will be something marked as $\models_\alpha$ and the formula part on the right of it will be something marked as $\models_\beta$, when proceeding from the transitional case $\alpha \models \beta$. There is

$$(\alpha \models_\alpha \circ \models_\beta \beta) \rightleftharpoons$$

$$\left(\begin{array}{l}
\boxed{(((\cdots(\cdots(((}_{\pi_{(}^{\mathrm{can}_{n,1}}}\ \alpha \boxed{\begin{array}{l} \models \omega_1) \models \omega_2) \models \\ \omega_3) \models \cdots \omega_i) \models \\ \cdots \omega_{n-2}) \models \\ \omega_{n-1}) \models \omega_n) \models \end{array}}_{\phi_{)\models\circ}^{\mathrm{can}_{n,1}}} \\
\qquad \circ \boxed{\models}_{\phi_{\circ\models(}^{\mathrm{can}_{n,1}}}\ \beta\, \boxed{}_{\pi_{)}^{\mathrm{can}_{n,1}}}; \\[2ex]
\boxed{((\cdots(\cdots(((}_{\pi_{(}^{\mathrm{can}_{n,2}}}\ \alpha \boxed{\begin{array}{l} \models \omega_1) \models \omega_2) \models \\ \omega_3) \models \cdots \omega_i) \models \\ \cdots \omega_{n-2}) \\ \models \omega_{n-1}) \models \end{array}}_{\phi_{)\models\circ}^{\mathrm{can}_{n,2}}} \\
\qquad \circ \boxed{\models (\omega_n \models}_{\phi_{\circ\models(}^{\mathrm{can}_{n,2}}}\ \beta\, \boxed{)}_{\pi_{)}^{\mathrm{can}_{n,2}}}; \\
\vdots \\
\boxed{(}_{\pi_{(}^{\mathrm{can}_{n,n}}}\ \alpha\, \boxed{\models \omega_1) \models}_{\phi_{)\models\circ}^{\mathrm{can}_{n,n}}} \circ \\
\quad \boxed{\begin{array}{l} \models (\omega_2 \models (\omega_3 \models \\ \cdots (\omega_i \models \cdots \models \\ (\omega_{n-1} \models (\omega_n \models \end{array}}_{\phi_{\circ\models(}^{\mathrm{can}_{n,n}}} \quad \beta\, \boxed{)))\cdots)\cdots))}_{\pi_{)}^{\mathrm{can}_{n,n}}}; \\[2ex]
\boxed{}_{\pi_{(}^{\mathrm{can}_{n,n+1}}}\ \alpha\, \boxed{\models}_{\phi_{)\models\circ}^{\mathrm{can}_{n,n+1}}} \circ \\
\quad \boxed{\begin{array}{l} \models (\omega_1 \models (\omega_2 \models \\ (\omega_3 \models \cdots (\omega_i \models \\ \cdots (\omega_{n-2} \models \\ (\omega_{n-1} \models (\omega_n \models \end{array}}_{\phi_{\circ\models(}^{\mathrm{can}_{n,n+1}}} \quad \beta\, \boxed{)))\cdots)\cdots)))}_{\pi_{)}^{\mathrm{can}_{n,n+1}}}
\end{array} \right)$$

To obtain the transparency of the last parenthesized formula, we can use the frame subscripts in the last formula, $\pi_{\mathrm{subscript}}^{\mathrm{superscript}}$ and $\phi_{\mathrm{subscript}}^{\mathrm{superscript}}$, where, for example, $\pi_{(}^{\mathrm{can}_{n,i}}$ marks $n+1-i$ consecutive symbols '(', $\pi_{)}^{\mathrm{can}_{n,j}}$ marks $j-1$ consecutive symbols ')', $\phi_{)\models\circ}^{\mathrm{can}_{n,k}}$ marks the k-corresponding operator frame on the left of composition operator '$\circ$' and $\phi_{\circ\models(}^{\mathrm{can}_{n,k}}$ marks the k-corresponding operator frame on the right of operator '$\circ$'. Thus, for a compact presentation of the last formula we have

$$(\alpha \models_\alpha \circ \models_\beta \beta) \rightleftharpoons$$

$$\left(\begin{array}{l}
\pi_{(}^{\mathrm{can}\,n,1}\ \alpha\ \phi_{)\models\circ}^{\mathrm{can}\,n,1} \circ \phi_{\circ\models(}^{\mathrm{can}\,n,1}\ \beta\ \pi_{)}^{\mathrm{can}\,n,1};\\
\pi_{(}^{\mathrm{can}\,n,2}\ \alpha\ \phi_{)\models\circ}^{\mathrm{can}\,n,2} \circ \phi_{\circ\models(}^{\mathrm{can}\,n,2}\ \beta\ \pi_{)}^{\mathrm{can}\,n,2};\\
\vdots\\
\pi_{(}^{\mathrm{can}\,n,n}\ \alpha\ \phi_{)\models\circ}^{\mathrm{can}\,n,n} \circ \phi_{\circ\models(}^{\mathrm{can}\,n,n}\ \beta\ \pi_{)}^{\mathrm{can}\,n,n};\\
\pi_{(}^{\mathrm{can}\,n,n+1}\ \alpha\ \phi_{)\models\circ}^{\mathrm{can}\,n,n+1} \circ \phi_{\circ\models(}^{\mathrm{can}\,n,n+1}\ \beta\ \pi_{)}^{\mathrm{can}\,n,n+1}
\end{array}\right)$$

One can introduce the parenthesis-canonic gestalt of the left parenthesis frames, for example,

$$\Pi_{(}^{\mathrm{can}\,n} \rightleftharpoons \boxed{\begin{array}{l}
\pi_{(}^{\mathrm{can}\,n,1}\\
\pi_{(}^{\mathrm{can}\,n,2}\\
\vdots\\
\pi_{(}^{\mathrm{can}\,n,n}\\
\pi_{(}^{\mathrm{can}\,n,n+1}
\end{array}}$$

where the replacement for the right-left or the left-right enumeration is

$$\boxed{\begin{array}{l}
\pi_{(}^{\mathrm{can}\,n,1}\\
\pi_{(}^{\mathrm{can}\,n,2}\\
\vdots\\
\pi_{(}^{\mathrm{can}\,n,n}\\
\pi_{(}^{\mathrm{can}\,n,n+1}
\end{array}} \leftarrow \boxed{\begin{array}{c}
\overbrace{((\cdots(}^{n}\\
\overbrace{((\cdots(}^{n-1}\\
\vdots\\
(\\
\square
\end{array}} \quad \text{or} \quad \boxed{\begin{array}{c}
\square\\
(\\
\vdots\\
\overbrace{((\cdots(}^{n-1}\\
\overbrace{((\cdots(}^{n}
\end{array}}$$

respectively. Similarly, for the right parenthesis frames there is

$$\Pi_{)}^{\mathrm{can}\,n} \rightleftharpoons \boxed{\begin{array}{l}
\pi_{)}^{\mathrm{can}\,n,1}\\
\pi_{)}^{\mathrm{can}\,n,2}\\
\vdots\\
\pi_{)}^{\mathrm{can}\,n,n}\\
\pi_{)}^{\mathrm{can}\,n,n+1}
\end{array}}$$

with the replacement concerning the right-left or the left-right enumeration

$$\boxed{\begin{array}{l}
\pi_{)}^{\mathrm{can}\,n,1}\\
\pi_{)}^{\mathrm{can}\,n,2}\\
\vdots\\
\pi_{)}^{\mathrm{can}\,n,n}\\
\pi_{)}^{\mathrm{can}\,n,n+1}
\end{array}} \leftarrow \boxed{\begin{array}{c}
\square\\
)\\
\vdots\\
\overbrace{))\cdots)}^{n-1}\\
\overbrace{))\cdots)}^{n}
\end{array}} \quad \text{or} \quad \boxed{\begin{array}{c}
\overbrace{))\cdots)}^{n}\\
\overbrace{))\cdots)}^{n-1}\\
\vdots\\
)\\
\square
\end{array}}$$

respectively. In this way, the gestalt of the partial, main-operator composed, parenthesized left operator frame is

$$\Gamma_{)\models\circ}^{\mathrm{can}\,n} \rightleftharpoons \boxed{\begin{array}{l}
\phi_{)\models\circ}^{\mathrm{can}\,n,1}\\
\phi_{)\models\circ}^{\mathrm{can}\,n,2}\\
\vdots\\
\phi_{)\models\circ}^{\mathrm{can}\,n,n+1}
\end{array}}$$

The gestalt of the partial, main-operator composed, parenthesized right operator frame is

$$\Gamma_{\circ\models(}^{\mathrm{can}\,n} \rightleftharpoons \boxed{\begin{array}{l}
\phi_{\circ\models(}^{\mathrm{can}\,n,1}\\
\phi_{\circ\models(}^{\mathrm{can}\,n,2}\\
\vdots\\
\phi_{\circ\models(}^{\mathrm{can}\,n,n+1}
\end{array}}$$

The framed components can be recognized from the general parenthesized formula $\alpha \models_\alpha \circ \models_\beta \beta$. This formula is a concatenation of the discussed parenthesis frames, main-operator composed left and right operator frames and the addressed informational operands α and β in the form

$$(\alpha \models_\alpha \circ \models_\beta \beta) \rightleftharpoons$$
$$\left(\Pi_{(}^{\mathrm{can}\,n}\ \alpha\ \Gamma_{)\models\circ}^{\mathrm{can}\,n} \circ \Gamma_{\circ\models(}^{\mathrm{can}\,n}\ \beta\ \Pi_{)}^{\mathrm{can}\,n}\right)$$

Because of the parenthesis form of basic formulas, the last gestalt formula is split in several segments, which are the left parenthesis gestalt, operand α, the left operator gestalt, operator '$\circ$', the right operator gestalt, operand β, and the right parenthesis gestalt.

To obtain a more compact expression of the formula where the left and the right operational frames are not split and can be, finally, also regularly vectored (in an operator-gestalt manner), we can use the demarcated style of formula notation, that is,

$$\alpha \models_\alpha \circ \models_\beta \beta \,.\rightleftharpoons .$$

$$\boxed{\begin{array}{l}
\alpha \underbrace{\boxed{\begin{array}{l}\models \omega_1 \,.\models \omega_2 \,.\models \omega_3 \,.\\ \models \cdots \omega_i \,.\models \cdots \omega_{n-2} \,.\\ \models \omega_{n-1} \,.\models \omega_n \,.\models\end{array}}}_{\phi^{\mathrm{can}\,n,1}_{.\models\circ}} \circ \underbrace{\boxed{\models}}_{\phi^{\mathrm{can}\,n,1}_{\circ\models.}} \beta; \\[2ex]
\alpha \underbrace{\boxed{\begin{array}{l}\models \omega_1 \,.\models \omega_2 \,.\models \\ \omega_3 \,.\models \cdots \omega_i \,.\models \\ \cdots \omega_{n-2} \,.\models \omega_{n-1} \\ .\models\end{array}}}_{\phi^{\mathrm{can}\,n,2}_{.\models\circ}} \circ \underbrace{\boxed{\models .\,\omega_n \models}}_{\phi^{\mathrm{can}\,n,2}_{\circ\models.}} \beta; \\[2ex]
\vdots \\[2ex]
\alpha \underbrace{\boxed{\models \omega_1 \,.\models}}_{\phi^{\mathrm{can}\,n,n}_{.\models\circ}} \circ \underbrace{\boxed{\begin{array}{l}\models .\,\omega_2 \models .\,\omega_3 \models \\ \cdots .\,\omega_i \models \cdots \models \\ .\,\omega_{n-1} \models .\,\omega_n \models\end{array}}}_{\phi^{\mathrm{can}\,n,n}_{\circ\models.}} \beta; \\[2ex]
\alpha \underbrace{\boxed{\models}}_{\phi^{\mathrm{can}\,n,n+1}_{.\models\circ}} \circ \underbrace{\boxed{\begin{array}{l}\models .\,\omega_1 \models .\,\omega_2 \models .\,\omega_3 \\ \models \cdots .\,\omega_i \models \cdots .\,\omega_{n-2} \\ \models .\,\omega_{n-1} \models .\,\omega_n \models\end{array}}}_{\phi^{\mathrm{can}\,n,n+1}_{\circ\models.}} \beta
\end{array}}$$

The outmost frame is nothing else than the operand staying on the right of the operator of meaning, $\rightleftharpoons$. Formula is written in the consequent demarcated form where semicolons perform as separation markers between parallel formulas.

To get an extremely compact expression of this formula, one can contract the occurring operator frames into two operator gestalts on the left and the right side of the composition symbol '$\circ$', marked by $\Gamma^{\mathrm{can}\,n}_{.\models\circ}$ and $\Gamma^{\mathrm{can}\,n}_{\circ\models.}$, respectively. Evidently,

$$\Gamma^{\mathrm{can}\,n}_{.\models.} \rightleftharpoons \Gamma^{\mathrm{can}\,n}_{.\models\circ} \circ \Gamma^{\mathrm{can}\,n}_{\circ\models.}$$

where

$$\Gamma^{\mathrm{can}\,n}_{.\models\circ} \rightleftharpoons \boxed{\begin{array}{c}\phi^{\mathrm{can}\,n,1}_{.\models\circ} \\ \phi^{\mathrm{can}\,n,2}_{.\models\circ} \\ \vdots \\ \phi^{\mathrm{can}\,n,n}_{.\models\circ} \\ \phi^{\mathrm{can}\,n,n+1}_{.\models\circ}\end{array}}\;; \quad \Gamma^{\mathrm{can}\,n}_{\circ\models.} \rightleftharpoons \boxed{\begin{array}{c}\phi^{\mathrm{can}\,n,1}_{\circ\models.} \\ \phi^{\mathrm{can}\,n,2}_{\circ\models.} \\ \vdots \\ \phi^{\mathrm{can}\,n,n}_{\circ\models.} \\ \phi^{\mathrm{can}\,n,n+1}_{\circ\models.}\end{array}}$$

and for the informational transition of the form $\alpha \models_\alpha \circ \models_\beta \beta$, finally, one obtains

$$\alpha \boxed{\begin{array}{c}\phi^{\mathrm{can}\,n,1}_{.\models\circ} \\ \phi^{\mathrm{can}\,n,2}_{.\models\circ} \\ \vdots \\ \phi^{\mathrm{can}\,n,n}_{.\models\circ} \\ \phi^{\mathrm{can}\,n,n+1}_{.\models\circ}\end{array}} \circ \boxed{\begin{array}{c}\phi^{\mathrm{can}\,n,1}_{\circ\models.} \\ \phi^{\mathrm{can}\,n,2}_{\circ\models.} \\ \vdots \\ \phi^{\mathrm{can}\,n,n}_{\circ\models.} \\ \phi^{\mathrm{can}\,n,n+1}_{\circ\models.}\end{array}} \beta$$

In the last formula, there must be a strict correspondence between the elements of the enframed left and right operator gestalt in respect of the superscript i, where

$$\phi^{\mathrm{can}\,n,i}_{.\models\circ} \rightleftharpoons$$

$$\boxed{\models \omega_1 \,.\models \omega_2 \models .\cdots \omega_{n-i} \,.\models \omega_{n+1-i} \models};$$

$$\phi^{\mathrm{can}\,n,i}_{\circ\models.} \rightleftharpoons$$

$$\boxed{\models .\,\omega_{n+2-i} \models .\,\omega_{n+3-i} \cdots \models .\,\omega_{n-1} \models .\,\omega_n \models};$$

$$i = 1, 2, \cdots, n+1$$

and ω_j for $j \le 0$ and $j > n$ does not exist.

The symbolism concerning canonically decomposed gestalts and their formulas for transitional cases $\alpha \models \beta$ and $\alpha \models_\alpha \circ \models_\beta \beta$ is shown in Table 1.

5.7 Noncanonic Serial Decomposition of $\alpha \models \beta$, that is, ${}^{n+1}_{\;\;q}\Delta^{\mathrm{non}}_{\rightharpoonup}(\alpha \models \beta)$

Both canonic and noncanonic serial decompositions constitute the realm of all possible serial decompositions of transition $\alpha \models \beta$. As one has learned, there are exactly $\frac{1}{n+2}\binom{2n+2}{n+1}$ possible decompositions of one and the same decomposition components $\omega_1, \cdots, \omega_n$, that is, of length $n+1$.

Noncanonic decompositions are exactly those which are not canonic, that is,

$$\frac{1}{n+2}\binom{2n+2}{n+1} - (n+1)$$

of them.

Let us introduce the general transparent scheme $\mathfrak{S}$ of the noncanonic serial decomposition, marked by ${}^{n+1}_{\;\;q}\Delta^{\mathrm{non}}_{\rightharpoonup}(\alpha \models \beta)$, in the form

$$\mathfrak{S}\left({}^{n+1}_{\;\;q}\Delta^{\mathrm{non}}_{\rightharpoonup}(\alpha \models \beta)\right) \rightleftharpoons$$

$$\alpha\, \underline{\omega_1 \omega_2 \omega_3 \cdots \underline{\omega_{i-1} \omega_i}} \mid \underline{\underline{\omega_{i+1} \omega_{i+2}} \cdots \omega_{n-2} \omega_{n-1} \omega_n \beta}$$

Canonic Gestalts for $(\alpha \models \beta)$-Decomposition	Gestalt Formulas: $i = 1, 2, \cdots, n+1$	Canonic Gestalts for $(\alpha \models_\alpha \circ \models_\beta \beta)$-Decomposition	Gestalt Formulas: $i = 1, 2, \cdots, n+1$
$\Gamma_{\alpha \models \beta}^{\mathrm{can}_n}$	$\varphi_{\alpha \models \beta}^{\mathrm{can}_{n,i}}$	$\Gamma_{\alpha \models \circ \models \beta}^{\mathrm{can}_n}$	$\varphi_{\alpha \models \circ \models \beta}^{\mathrm{can}_{n,i}}$
$\Gamma_{\alpha . \models . \beta}^{\mathrm{can}_n}$	$\varphi_{\alpha . \models . \beta}^{\mathrm{can}_{n,i}}$	$\Gamma_{\alpha . \models \circ \models . \beta}^{\mathrm{can}_n}$	$\varphi_{\alpha . \models \circ \models . \beta}^{\mathrm{can}_{n,i}}$
$\Pi_{(}^{\mathrm{can}_n}\, \alpha\, \Gamma_{) \models (}^{\mathrm{can}_n}\, \beta\, \Pi_{)}^{\mathrm{can}_n}$	$\pi_{(}^{\mathrm{can}_{n,i}}\, \alpha\, \phi_{) \models (}^{\mathrm{can}_{n,i}}\, \beta\, \pi_{)}^{\mathrm{can}_{n,i}}$	$\Pi_{(}^{\mathrm{can}_n}\, \alpha\, \Gamma_{) \models \circ}^{\mathrm{can}_n} \circ \Gamma_{\circ \models (}^{\mathrm{can}_n}\, \beta\, \Pi_{)}^{\mathrm{can}_n}$	$\pi_{(}^{\mathrm{can}_{n,i}}\, \alpha\, \phi_{) \models \circ}^{\mathrm{can}_{n,i}} \circ \phi_{\circ \models (}^{\mathrm{can}_{n,i}}\, \beta\, \pi_{)}^{\mathrm{can}_{n,i}}$
$\alpha\, \Gamma_{. \models .}^{\mathrm{can}_n}\, \beta$	$\alpha\, \phi_{. \models .}^{\mathrm{can}_{n,i}}\, \beta$	$\alpha\, \Gamma_{. \models \circ}^{\mathrm{can}_n} \circ \Gamma_{\circ \models .}^{\mathrm{can}_n}\, \beta$	$\alpha\, \phi_{. \models \circ}^{\mathrm{can}_{n,i}} \circ \phi_{\circ \models .}^{\mathrm{can}_{n,i}}\, \beta$

Table 1: *A systematic overview of possibilities (and possible markers) of the serially decomposed parenthesized and demarcated gestalts and framed formulas belonging to the informational transition $\alpha \models \beta$, where there are n decomposing operands, that is, transition-interior informational components ω_1, ω_2, $\cdots$, ω_n. A gestalt $\Gamma_{\ldots}^{\mathrm{can}_n}$ is a parallel system of n formulas consisting of different frames $\phi_{\ldots}^{\mathrm{can}_{n,i}}$ and operands α and β.*

where the characteristic schemes of the pure observingly structured informer part and the pure informingly structured observer part noncanonic decompositions are

$$\mathfrak{S}\left({}^{n+1}_{q_1}\Delta_{\rightarrow}^{\mathrm{non}}(\alpha \models \beta)\right) \rightleftharpoons$$

$$\alpha\, \omega_1\omega_2\omega_3 \cdots \omega_{i-1}\omega_i\omega_{i+1}\omega_{i+2} \cdots \omega_{n-2}\underline{\omega_{n-1}\omega_n} \mid \beta;$$

$$\mathfrak{S}\left({}^{n+1}_{q_2}\Delta_{\rightarrow}^{\mathrm{non}}(\alpha \models \beta)\right) \rightleftharpoons$$

$$\alpha \mid \underline{\omega_1\omega_2}\omega_3 \cdots \omega_{i-1}\omega_i\omega_{i+1}\omega_{i+2} \cdots \omega_{n-2}\omega_{n-1}\omega_n\beta$$

where

$$n + 2 \leq q, q_1, q_2 \leq \frac{1}{n+2}\binom{2n+2}{n+1}$$

Each underline marks one parenthesis pair at its ends, symbol '|' marks the main operator ($\models^*$ or $\boxed{\models}$) of decomposition, and between two operands (e.g., concatenation $\omega_i\omega_{i+1}$) an operator $\models$ appears, according to the underlined formula segments.

What could the last example (subscript q) of noncanonic decomposition represent? If one considers that the decomposition components $\omega 1, \cdots, \omega_1$ belong to the informer entity α, the last component, ω_i, is the final observer of the informing on the way from α (the topic informer) to ω_i itself, so, it can decide upon that which will be mediated to the topic observer β. In this respect, ω_i functions as a decisive output filter or a censor of that what α informs. On the other hand, the decomposition components $\omega_{i+1}, \cdots, \omega_n$ can be understood as belonging to the observing entity β where ω_{i+1} functions as a decisive input filter or a censor of that what will be informed through the informing chain from ω_{n+1} to β. While in the informer part $(\alpha, \omega_1, \cdots, \omega_n)$ the censorship functions observingly, in the observing part of the decomposition $(\omega_{n+1}, \cdots, \omega_n, \beta)$ the censorship functions informingly.

A serial decomposition is *noncanonic* if and only if its informer part is not purely informer-canonic and its observer part is not purely observer-canonic.

Some of the noncanonic decompositions deserve a particular attention because they can be grasped as characteristic cases which can be interpreted by some conventional notions of informing like conscious, informer and observer controlled, intelligent and, first of all, senseful and causally structured informing of entities.

The next example of a noncanonic decomposition illustrates an arbitrarily structured formula where the informer as well as the observer part of decomposition explicate embedded informer and observer structures. In this way

$$\mathfrak{G}\left({}^{n+1}_{\;\;q_3}\Delta^{\mathrm{non}}_{\rightarrow}(\alpha \models \beta)\right) \rightleftharpoons$$

$$\alpha \,|\, \underline{\underline{\underline{\underline{\omega_1\omega_2\omega_3\cdots\underline{\omega_{i-1}\omega_i}}}\; \underline{\underline{\omega_{i+1}\omega_{i+2}\cdots\underline{\omega_{n-2}\omega_{n-1}}}}\; \underline{\omega_n\beta}}}$$

is one of the possible diverse decompositions where informer and observer views are hiddenly present in the informer and observer part of the decomposition.

5.8 A Parallel Decomposition of $\alpha \models \beta$, that is, ${}^{n+1}\Delta_{\parallel}(\alpha \models \beta)$

How can a transition $\alpha \models \beta$ be decomposed in a parallel way and what does such a decomposition represent? In which way does it differ substantially from a serial decomposition?

As one can grasp, informational parallelism conceals some very complex serialism which is again nothing else than a parallelism of serialism. That which is significant for one's comprehension roots in the simplest possible parallelism, that is not in a parallelism of long serial decompositions but in the shortest ones. So, which is the shortest (simplest) part of a decomposition? The answer is: the basic possible transition from one operand to the other. The study of a parallel decomposition system of such basic transitions is the topic of this subsection.

Thus, let us introduce the basic parallel decomposition of informational transition in the form

$${}^{n+1}\Delta_{\parallel}(\alpha \models \beta) \rightleftharpoons \begin{pmatrix} \alpha \models \omega_1; \\ \omega_1 \models \omega_2; \\ \vdots \\ \omega_{n-1} \models \omega_n; \\ \omega_n \models \beta \end{pmatrix}$$

What does this decomposition represent?

Informational system ${}^{n+1}\Delta_{\parallel}(\alpha \models \beta)$ can be interpreted in the following ways:

1. ${}^{n+1}\Delta_{\parallel}(\alpha \models \beta)$ is a parallel system of consequently followed, the most basic transitions, between the initial informer operand α and the final observer operand β;

2. ${}^{n+1}\Delta_{\parallel}(\alpha \models \beta)$ represents the serial causal chain (decomposition) of consequently followed operands $\alpha, \omega_1, \cdots, \omega_n, \beta$, and all from this decomposition derived decompositions belong to the gestalt $\Gamma({}^{n+1}\Delta_{\parallel}(\alpha \models \beta))$, where the number of serial decompositions of length $n+1$ is $\frac{1}{n+2}\binom{2n+2}{n+1}$; and

3. ${}^{n+1}\Delta_{\parallel}(\alpha \models \beta)$ is the formal counterpart (equivalent) of the informational graph $\mathfrak{G}$ (Fig. 1), by which all decompositions belonging to the informational gestalt $\Gamma({}^{n+1}\Delta_{\parallel}(\alpha \models \beta))$ are determined.

5.9 A Circular Serial Decomposition of $\alpha \models \alpha$, that is, ${}^{n+1}\Delta^{\circlearrowleft}_{\parallel}(\alpha \models \beta)$

What does happen if the graph in Fig. 1 is circularly closed according to Fig. 2? Which are the possible interpretations of the graph?

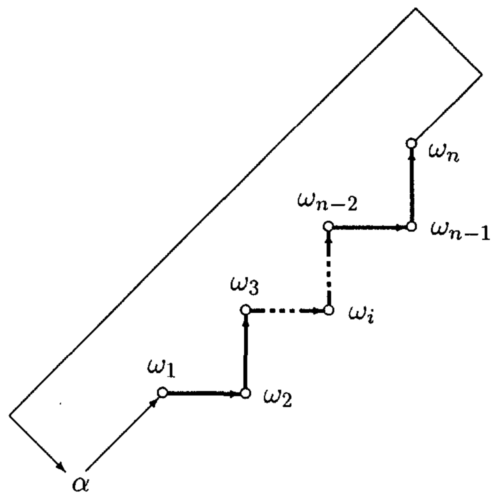

Figure 2: *A simple graphical interpretation of the circular transition $\alpha \models \alpha$ divided into the informer part (α), serially decomposed internal part with informational structure of $\omega_1, \omega_2, \cdots, \omega_n$, and the observer part which is α itself. This graphical scheme represents the simplest gestalt of $\alpha \models \alpha$, that is, all possible serial parenthesized or demarcated forms of the length $\ell = n+1$.*

Formally, there is not a substantial difference between transitions $\alpha \models \beta$ and $\alpha \models \alpha$ and, for the circular case, where β was replaced by α, operand α becomes the informer and, simultaneously, the observer of itself. The ω-structure can be understood both to be its interior or interior informational structure or even a mixed interior-exterior structure.

For us, the circular interior structure is significant in the so-called metaphysicalistic case. Further, if an ω is an interior structure, the principles of informational Being-in [9] hold, so,

$$\omega_1, \omega_2, \cdots, \omega_n \subset \alpha$$

Further, we must not forget the separation possibilities between the informing and the informed part of α. In the circular case, there is,

$$\alpha \models_\alpha \circ \models_\alpha \alpha$$

where the operator composition operator '$\circ$' is a unique separator between the informing and the observing part of α. This informer-observer distinction becomes extremely significant in the metaphysicalistic case when, for instance, information produced by counterinforming of an intelligent entity α has to be informationally embedded, that is, observed and connected to the existing informational body of entity α. Thus, a circular informational structure is not only a trivial, nonsense, or an abstract entity: it has its own function of informational production and evaluation in the sense of spontaneous and circular informational arising, that is, changing, generating and amplifying the informational change.

In circular informational structures, the problem of the informing and the observing part within a cyclically informing entity come to the surface. This problem is significant at the conceptualization (structure, design) of a circular informational entity. In principle, each entity informs also cyclically, for instance, preserving its form and content and changing it in an arisingly spontaneous an circular way. This principle belongs to the basic axioms of informing of entities (see, for example, [6, 8]).

Let us proceed from the operand frame of the gestalt $\Gamma^{\mathrm{can}_n}_{\alpha\models\alpha}$, that is, of a circularly decomposed informational transition

$$\varphi^{\mathrm{can}_{n,i}}_{\alpha\models\alpha} \rightleftharpoons \boxed{\begin{array}{l} \underbrace{(\cdots(}_{n+1-i}\ \alpha\models\omega_1)\models\cdots)\ \overbrace{\boxed{\models}}^{(n+2-i)\text{-th}}\ (\omega_{n+2-i}\models\cdots \\ \qquad \models(\omega_n\models\alpha\underbrace{)\cdots)}_{i-1} \end{array}};$$
$$i = 1, 2, \cdots, n+1$$

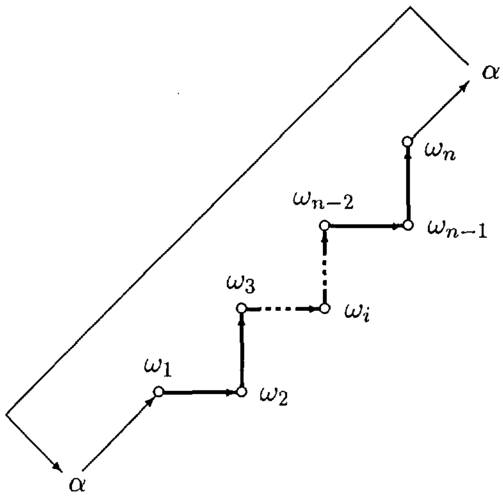

Figure 3: *Another graphical interpretation of the circular transition $\alpha \models \alpha$, which is divided into the informer part (α), serially decomposed internal part with informational structure of ω_1, ω_2, $\cdots$, ω_n, and the observer part which is α itself in the decomposed path and, with the non-decomposed backward path.*

The framed operator, $\boxed{\models}$, is at the $(n+2-i)$-th position of the framed formula and represents the so-called main formula operator, at the place where formula is split into the left informing part (informer α) and the right observing part (observer α). But, the framed operator, $\boxed{\models}$, can be further split and, according to Table 1 (and the previous discussion), there is,

$$\varphi^{\mathrm{can}_{n,i}}_{\alpha\models\alpha} \rightleftharpoons \boxed{\pi^{\mathrm{can}_{n,i}}_{(}\ \alpha\ \phi^{\mathrm{can}_{n,i}}_{)\models\circ} \circ \phi^{\mathrm{can}_{n,i}}_{\circ\models(}\ \beta\ \pi^{\mathrm{can}_{n,i}}_{)}};$$
$$i = 1, 2, \cdots, n+1$$

where partial frames $\pi^{\mathrm{can}_{n,i}}_{(}$, $\phi^{\mathrm{can}_{n,i}}_{)\models\circ}$, $\phi^{\mathrm{can}_{n,i}}_{\circ\models(}$ and $\pi^{\mathrm{can}_{n,i}}_{)}$ can be easily identified from the previous discussion. Thus, the separated informing and observing parts of circularly decomposed transition $\alpha \models \alpha$ are

$$\overbrace{((\cdots(}^{n+1-i}\alpha\models\omega_1)\models\cdots)\models\omega_{n+1-i})\quad \overbrace{\models}^{(n+2-i)\text{-th}};$$
$$\models(\omega_{n+2-i}\models\cdots\models(\omega_{n-1}\models(\omega_n\models\alpha\overbrace{)\cdots)}^{i-1});$$
$$i = 1, 2, \cdots, n+1$$

Another, slightly modified graphical presentation in Fig. 3, following from Fig. 1 and Fig. 2, offers

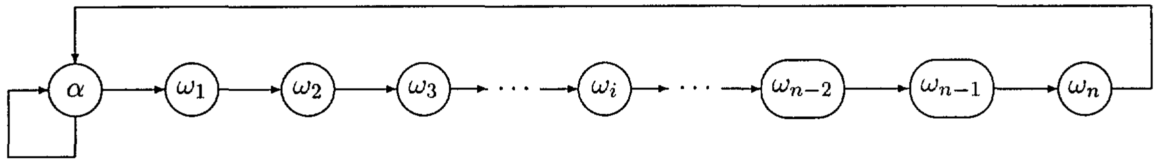

Figure 4: *The circular informational graph corresponding the graphical interpretation in Fig. 3. In an informational graph, the one and the same operand must appear only once (concerns α).*

an essential interpretation, namely, the parallelism of the ω-decomposed path and the backward non-decomposed path $\alpha \models \alpha$. It does not represent the so-called informational graph in which each operand must appear only once. The correct informational graph is shown in Fig. 4. The formal parallel presentation of this graph is the formula system

$$\begin{array}{lll} \alpha \models \alpha; & & \\ \alpha \models \omega_1; & \omega_1 \models \omega_2; & \omega_2 \models \omega_3; \\ \cdots & \omega_i \models \omega_{i+1}; & \cdots \\ \omega_{n-2} \models \omega_{n-1}; & \omega_{n-1} \models \omega_n; & \omega_n \models \alpha \end{array}$$

using, entirely, the basic transitions only (from one operand to the other, or the same).

5.10 A Circular Forward and Backward Serial Decomposition of Informational Transition

The problem of the circular forward and backward serial decomposition emerges in cases of the so-called metaphysicalistic informing when entities inform in an intelligent way and the question of the informing and the observing parts of entities becomes significant. In this situation, we have a general scheme of informing as shown in Fig. 5. Before we begin to discuss the circular and the reversely circular form of informational transition, let us construct Table 1 in which, in a surveying way, the operand and operator gestalts of different sorts, as the result of serial decomposition, are listed. In this table, the parenthesis gestalt pairs of the form $\phi_{(}^{\mathrm{can}\,n+1-i}$ and $\phi_{)}^{i-1}$ are replaced by systematically marked pairs $\pi_{(}^{\mathrm{can}\,n,i}$ and $\pi_{)}^{\mathrm{can}\,n,i}$ where $\pi_{(}^{\mathrm{can}\,n,i} \rightleftharpoons \boxed{\underbrace{((\cdots(}_{n+1-i}}$ and $\pi_{)}^{\mathrm{can}\,n,i} \rightleftharpoons \boxed{\underbrace{))\cdots)}_{i-1}}$ for $i = 1, 2, \cdots, n+1$.

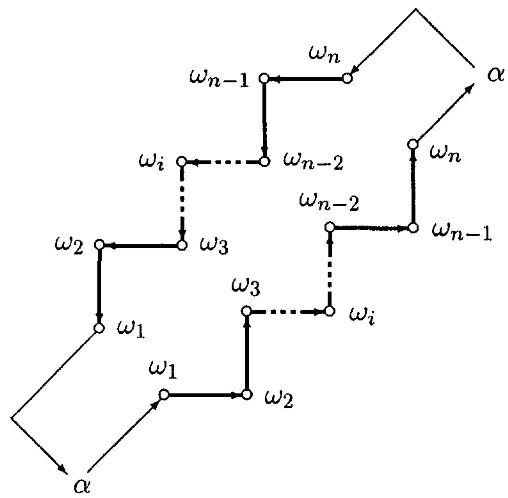

Figure 5: *A graphical interpretation of the forward and backward circular transition $\alpha \models \alpha$, representing a parallel system of a forward and backward loop, being appropriate for an intelligent entity (e.g. forward and backward analysis and informational synthesis).*

5.11 A Circular Parallel Decomposition of $\alpha \models \alpha$, that is, $^{n+1}\Delta_{\parallel}^{\circlearrowleft}(\alpha \models \alpha)$

There is not an essential difference between parallel and circular parallel decomposition in respect to the formal informational scheme

$$^{n+1}\Delta_{\parallel}^{\circlearrowleft}(\alpha \models \alpha) \rightleftharpoons \begin{pmatrix} \alpha \models \omega_1; \\ \omega_1 \models \omega_2; \\ \vdots \\ \omega_{n-1} \models \omega_n; \\ \omega_n \models \alpha \end{pmatrix}$$

But, the essential difference occurs in the following:

1. $^{n+1}\Delta_{\parallel}^{\circlearrowleft}(\alpha \models \beta)$ is a circular parallel system of

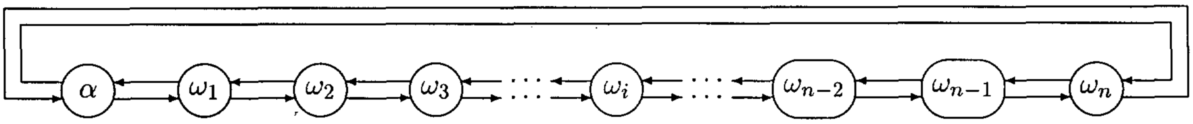

Figure 6: *The bicircular informational graph corresponding to the graphical interpretation in Fig. 5. In an informational graph, the one and the same operand must appear only once (concerns α, ω_1, $\cdots$, ω_n).*

consequently followed, the most basic transitions, between the initial informer operand α and the final observer operand, which is the same α;

2. ${}^{n+1}\Delta^{\circlearrowleft}_{\|}(\alpha \models \beta)$ represents the circular (serial) causal chain (decomposition) of consequently, in a circle followed operands $\alpha, \omega_1, \cdots, \omega_n$, and all from this decomposition derived decompositions belong to the circular gestalt $\Gamma({}^{n+1}\Delta^{\circlearrowleft}_{\|}(\alpha \models \beta))$, where the number of decompositions is $\frac{n+1}{n+2}\binom{2n+2}{n+1}$; and

3. ${}^{n+1}\Delta^{\circlearrowleft}_{\|}(\alpha \models \beta)$ is the formal counterpart (equivalent) of the circular informational graph $\mathfrak{G}$ (Fig. 2), by which all decompositions belonging to the informational gestalt $\Gamma({}^{n+1}\Delta^{\circlearrowleft}_{\|}(\alpha \models \beta))$ are determined.

5.12 Standardized Metaphysicalistic Serial Decomposition of $\alpha \models \alpha$, that is, ${}^{\ell}_{j}\mathfrak{M}^{\circlearrowleft}_{\rightharpoondown}(\alpha \models \alpha)$

5.12.1 Introduction

Metaphysicalism means circular informing originating in the initial transition $\alpha \models \alpha$ and its metaphysicalistic decomposition which, to some extent, was standardized [6] in a reductionistic manner. In this Subsection, our attention will concentrate on parenthesized, demarcated, normal and reverse cyclic, operator-compositional canonic and noncanonic metaphysicalistic informational decompositions and the corresponding gestalts. As we see, there is a couple of metaphysicalistic gestalts of a decomposed entity α which can be investigated from the standard metaphysicalistically generalized and reasonably reductionistic point of view considering the variety of possible decompositions and gestalts.

5.12.2 Generalized Metaphysicalistic Decomposition of an Informational Entity

Let α represent an informational entity concerning something β. Let this entity be metaphysically decomposed in its serially connected but also in its parallel informing components:

- *informing components* (superscript i)

$$\alpha_1, \alpha_2, \cdots, \alpha_j$$

- *counterinforming components* (superscript $\mathfrak{c}$)

$$\alpha_1, \alpha_2, \cdots, \alpha_p$$

and

- *informationally embedding components* (superscript $\mathfrak{e}$)

$$\alpha_1, \alpha_2, \cdots, \alpha_q$$

Besides, some circular forms of informing of involved metaphysicalistic components, including entity α, occur, thus obligatory, different loops exist regarding the metaphysicalistic components. Let this situation be concretized by the informational graph in Fig. 7. As a standardized (artificially constructed) situation, three substantial groups of an entity's metaphysicalism exist: *intentional informing* ensures the preservation (physical, mental, informational character) of the entity; *counterinforming* represents the emerging and essentially changing possibilities and character of entity's informing intention, so that the character of the entity can emerge and change as a consequence of the exterior and interior impacts concerning the entity; *informational embedding* is a sort of final acceptance and confirmation of the emerged and changed possibilities and state of the entity's character.

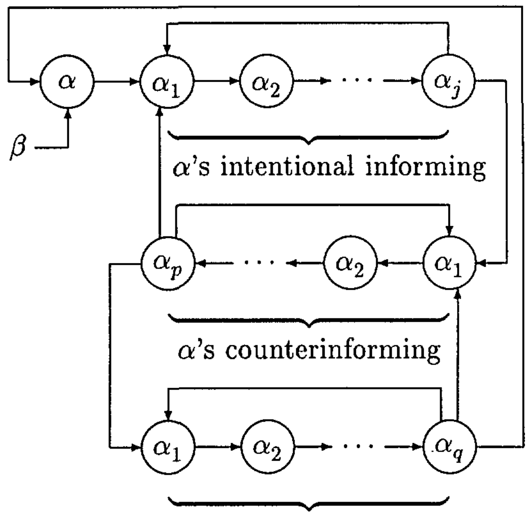

Figure 7: *A generalized metaphysicalism of entity α with interior informing, counterinforming and informational embedding, concerning something β.*

Another comment of Fig. 7 concerns the loops of the informational graph. Six basic loops are recognized, however, this does not mean that in a concrete case additional loops between metaphysicalistic components can be introduced. The following principle seems reasonable:

Principle of Metaphysicalism of Metaphysicalism. *Components of a metaphysicalistic entity are, in principle, metaphysicalistic entities. Such a determination causes an endless fractalness of metaphysicalism (metaphysicalistic fractalism).* □.

Let us study some basic properties of the graph in Fig. 7.

5.12.3 Reductionistic Basic Metaphysicalistic Model of an Informational Entity

Let us begin with the basic (most primitive) case, where the metaphysicalistic decompositional components of operand α within transition $\alpha \models \alpha$ are

$$\mathfrak{I}_\alpha, \mathfrak{i}_\alpha, \mathfrak{C}_\alpha, \mathfrak{c}_\alpha, \mathfrak{E}_\alpha, \mathfrak{e}_\alpha$$

called

1. (intentional or entity's characteristic) informing,
2. intention of the entity (its instantaneously arising character, concept, definition),
3. counterinforming (opposing, synonymous, antonymous, questioning intentional informing),
4. counterinformational entity (informational opposition, synonyms, antonyms, questions requiring answers as consequences of the intention),
5. embedding (the process of the connection of new information arisen by counterinforming, e.g., in the form of answering), and
6. embedding entity (information) by which new products are regularly connected with the existing informational body of the entity,

respectively. These operands come at the places of the decomposition components ω_1, ω_2, ω_3, ω_4, ω_5, and ω_6, in this order, so, $n = 6$ and the number of formulas in the canonic gestalt concerning solely the topic circular entity α is 7, in noncanonic gestalt 422, and altogether 429. The same number of formulas appear in gestalts belonging to the remaining six circular (metaphysicalistic) operands (components).

5.12.4 Canonic Metaphysicalistic (Reductionistic) Gestalts

Let us construct the canonic (informer-observer regular) gestalts according to Table 1 on one side and, then, in the next Subsubsection, sketch the structure of and determine the number of the remaining noncanonic gestalts.

There are the following cases of the reduced (standardized) canonic metaphysicalistic (the front superscript 'met') gestalts:

- metaphysicalistic, parenthesized reductionistic canonic gestalt (PRCG for short) ${}^{\mathrm{met}}\Gamma^{\mathrm{can}\,6}_{\alpha\models\alpha}$;
- metaphysicalistic, demarcated reductionistic canonic gestalt (DRCG) ${}^{\mathrm{met}}\Gamma^{\mathrm{can}\,6}_{\alpha.\models.\alpha}$;
- metaphysicalistic, parenthesized, operator-composed reductionistic canonic gestalt (POCRCG) ${}^{\mathrm{met}}\Gamma^{\mathrm{can}\,6}_{\alpha\models\circ\models\alpha}$; and
- metaphysicalistic, demarcated, operator-composed reductionistic canonic gestalt (DOCRCG) ${}^{\mathrm{met}}\Gamma^{\mathrm{can}\,6}_{\alpha.\models\circ\models.\alpha}$

The PNCG consists of canonic formulas only and the number of formulas in a PNCG depends on the length ℓ being equal to the number of binary operators in a canonic formula of PRCG. In a standard metaphysical case this number is always $\ell = n + 1 = 7$. Thus,

$$
{}^{\mathrm{met}}\Gamma^{\mathrm{can}6}_{\alpha\models\alpha} \rightleftharpoons
\left(
\begin{array}{l}
((((((\alpha \models \mathfrak{I}_\alpha) \models \mathfrak{i}_\alpha) \models \mathfrak{C}_\alpha) \models \\
\quad \mathfrak{c}_\alpha) \models \mathfrak{E}_\alpha) \models \mathfrak{e}_\alpha) \boxed{\models} \alpha; \\
(((((\alpha \models \mathfrak{I}_\alpha) \models \mathfrak{i}_\alpha) \models \mathfrak{C}_\alpha) \models \\
\quad \mathfrak{c}_\alpha) \models \mathfrak{E}_\alpha) \boxed{\models} (\mathfrak{e}_\alpha \models \alpha); \\
((((\alpha \models \mathfrak{I}_\alpha) \models \mathfrak{i}_\alpha) \models \mathfrak{C}_\alpha) \models \\
\quad \mathfrak{c}_\alpha) \boxed{\models} (\mathfrak{E}_\alpha \models (\mathfrak{e}_\alpha \models \alpha)); \\
(((\alpha \models \mathfrak{I}_\alpha) \models \mathfrak{i}_\alpha) \models \mathfrak{C}_\alpha) \boxed{\models} \\
\quad (\mathfrak{c}_\alpha \models (\mathfrak{E}_\alpha \models (\mathfrak{e}_\alpha \models \alpha))); \\
((\alpha \models \mathfrak{I}_\alpha) \models \mathfrak{i}_\alpha) \boxed{\models} (\mathfrak{C}_\alpha \models \\
\quad (\mathfrak{c}_\alpha \models (\mathfrak{E}_\alpha \models (\mathfrak{e}_\alpha \models \alpha)))); \\
(\alpha \models \mathfrak{I}_\alpha) \boxed{\models} (\mathfrak{i}_\alpha \models (\mathfrak{C}_\alpha \models \\
\quad (\mathfrak{c}_\alpha \models (\mathfrak{E}_\alpha \models (\mathfrak{e}_\alpha \models \alpha))))); \\
\alpha \boxed{\models} (\mathfrak{I}_\alpha \models (\mathfrak{i}_\alpha \models (\mathfrak{C}_\alpha \models \\
\quad (\mathfrak{c}_\alpha \models (\mathfrak{E}_\alpha \models (\mathfrak{e}_\alpha \models \alpha))))))
\end{array}
\right)
$$

The structure philosophy of this gestalt can be understood by means of Fig. 8 which represents the specific (canonic) arrangement of parenthesis pairs within a metaphysicalistic formula of length $\ell = 7$. The reader can see that the so-called canonic formulas are nothing else than a strict consideration of a systematic informer-observer principle which is consequently sequential from the view of the informer and the view of the observer informing on the left and on the right side of the main operator $\models^*$. Sketches $1, \cdots, 7$ in Fig. 8 show this regular (canonic) principle in a transparent and instructive manner.

1 $\alpha\, \mathfrak{I}_\alpha\, \mathfrak{i}_\alpha\, \mathfrak{C}_\alpha\, \mathfrak{c}_\alpha\, \mathfrak{E}_\alpha\, \mathfrak{e}_\alpha \mid \alpha$	5 $\alpha\, \mathfrak{I}_\alpha\, \mathfrak{i}_\alpha \mid \mathfrak{C}_\alpha\, \mathfrak{c}_\alpha\, \mathfrak{E}_\alpha\, \mathfrak{e}_\alpha\, \alpha$
2 $\alpha\, \mathfrak{I}_\alpha\, \mathfrak{i}_\alpha\, \mathfrak{C}_\alpha\, \mathfrak{c}_\alpha\, \mathfrak{E}_\alpha \mid \mathfrak{e}_\alpha\, \alpha$	6 $\alpha\, \mathfrak{I}_\alpha \mid \mathfrak{i}_\alpha\, \mathfrak{C}_\alpha\, \mathfrak{c}_\alpha\, \mathfrak{E}_\alpha\, \mathfrak{e}_\alpha\, \alpha$
3 $\alpha\, \mathfrak{I}_\alpha\, \mathfrak{i}_\alpha\, \mathfrak{C}_\alpha\, \mathfrak{c}_\alpha \mid \mathfrak{E}_\alpha\, \mathfrak{e}_\alpha\, \alpha$	7 $\alpha \mid \mathfrak{I}_\alpha\, \mathfrak{i}_\alpha\, \mathfrak{C}_\alpha\, \mathfrak{c}_\alpha\, \mathfrak{E}_\alpha\, \mathfrak{e}_\alpha\, \alpha$
4 $\alpha\, \mathfrak{I}_\alpha\, \mathfrak{i}_\alpha\, \mathfrak{C}_\alpha \mid \mathfrak{c}_\alpha\, \mathfrak{E}_\alpha\, \mathfrak{e}_\alpha\, \alpha$	

Figure 8: *A schematic presentation of the seven metaphysicalistic reductionistic canonic gestalts of different forms, that is,* ${}^{\mathrm{met}}\Gamma^{\mathrm{can}6}_{\alpha\models\alpha}$, ${}^{\mathrm{met}}\Gamma^{\mathrm{can}6}_{\alpha.\models.\alpha}$, ${}^{\mathrm{met}}\Gamma^{\mathrm{can}6}_{\alpha\models\circ\models\alpha}$, *and* ${}^{\mathrm{met}}\Gamma^{\mathrm{can}6}_{\alpha.\models\circ\models.\alpha}$. *Symbol '|' marks the place of the main operator and a line marks a subformula which is inside of a parenthesis pair.*

Another comment to the sketches in Fig. 8 concerns the recognition process when the informer appears in the scope of the observer, that is, when it is gradually recognized into more and more details by the observer. This process can be understood as the shifting from the initial, informer-governed situation when the observing entity just senses the informer and becomes aware of its presence (sketch 1 in Fig. 8). But, that what is initially hidden in the informing of the informer, progressively transits to the observer site building up the recognition of the informer by the observer and, in this way, shifting to the transitions sketched and marked by 2 to 7.

The sketch 7 in Fig. 8 demonstrates the situation in which the observer α observes metaphysically all its inner components, that is, $\mathfrak{I}_\alpha$, $\mathfrak{i}_\alpha$, $\mathfrak{C}_\alpha$, $\mathfrak{c}_\alpha$, $\mathfrak{E}_\alpha$, and $\mathfrak{e}_\alpha$. The reader can comprehend how the case 1 is important for the informer's point of view where information about the components is mediated to the observer site. In the case 7, the observers point of view comes to the surface when the inner components have already become a part of the observing entity α. Of course, both situations can have a permanent importance during the metaphysical cyclic informing, so they can coexist equally, together with other possibilities.

The next gestalt form corresponding to the parenthesized metaphysicalistic gestalt is the demarcated one (DRCG) and we show it exclusively for the sake of the completeness of the metaphysicalistic case of informational transition. Thus,

$$
{}^{\mathrm{met}}\Gamma^{\mathrm{can}\,6}_{\alpha\,.\models.\,\alpha} \rightleftharpoons
\left(\begin{array}{l}
\alpha \models \mathfrak{I}_\alpha \,.\models \mathfrak{i}_\alpha \,.\models \mathfrak{C}_\alpha \,.\models \\
\quad \mathfrak{c}_\alpha \,.\models \mathfrak{E}_\alpha \,.\models \mathfrak{e}_\alpha \boxed{.\models.}\, \alpha; \\
\alpha \models \mathfrak{I}_\alpha \,.\models \mathfrak{i}_\alpha \,.\models \mathfrak{C}_\alpha \,.\models \\
\quad \mathfrak{c}_\alpha \,.\models \mathfrak{E}_\alpha \boxed{.\models.}\, \mathfrak{e}_\alpha \models \alpha; \\
\alpha \models \mathfrak{I}_\alpha \,.\models \mathfrak{i}_\alpha \,.\models \mathfrak{C}_\alpha \,.\models \\
\quad \mathfrak{c}_\alpha \boxed{.\models.}\, \mathfrak{E}_\alpha \models.\, \mathfrak{e}_\alpha \models \alpha; \\
\alpha \models \mathfrak{I}_\alpha \,.\models \mathfrak{i}_\alpha \,.\models \mathfrak{C}_\alpha \boxed{.\models.} \\
\quad \mathfrak{c}_\alpha \models.\, \mathfrak{E}_\alpha \models.\, \mathfrak{e}_\alpha \models \alpha; \\
\alpha \models \mathfrak{I}_\alpha \models \mathfrak{i}_\alpha \boxed{.\models.}\, \mathfrak{C}_\alpha \models. \\
\quad \mathfrak{c}_\alpha \models.\, \mathfrak{E}_\alpha \models.\, \mathfrak{e}_\alpha \models \alpha; \\
\alpha \models \mathfrak{I}_\alpha \boxed{.\models.}\, \mathfrak{i}_\alpha \,.\models.\, \mathfrak{C}_\alpha \models. \\
\quad \mathfrak{c}_\alpha \models.\, \mathfrak{E}_\alpha \models.\, \mathfrak{e}_\alpha \models \alpha; \\
\alpha \boxed{.\models.}\, \mathfrak{I}_\alpha \models.\, \mathfrak{i}_\alpha \models.\, \mathfrak{C}_\alpha \models. \\
\quad \mathfrak{c}_\alpha \models.\, \mathfrak{E}_\alpha \models.\, \mathfrak{e}_\alpha \models \alpha
\end{array}\right)
$$

The parenthesized, operator-composed reductionistic canonic gestalt (POCRCG) for the reductionistic metaphysicalistic case is

$$
{}^{\mathrm{met}}\Gamma^{\mathrm{can}\,6}_{\alpha\models\circ\models\alpha} \rightleftharpoons
\left(\begin{array}{l}
((((((\alpha \models \mathfrak{I}_\alpha) \models \mathfrak{i}_\alpha) \models \mathfrak{C}_\alpha) \models \mathfrak{c}_\alpha) \\
\quad \models \mathfrak{E}_\alpha) \models \mathfrak{e}_\alpha) \boxed{\models\circ\models}\, \alpha; \\
(((((\alpha \models \mathfrak{I}_\alpha) \models \mathfrak{i}_\alpha) \models \mathfrak{C}_\alpha) \models \mathfrak{c}_\alpha) \\
\quad \models \mathfrak{E}_\alpha) \boxed{\models\circ\models}\, (\mathfrak{e}_\alpha \models \alpha); \\
((((\alpha \models \mathfrak{I}_\alpha) \models \mathfrak{i}_\alpha) \models \mathfrak{C}_\alpha) \models \mathfrak{c}_\alpha) \\
\quad \boxed{\models\circ\models}\, (\mathfrak{E}_\alpha \models (\mathfrak{e}_\alpha \models \alpha)); \\
(((\alpha \models \mathfrak{I}_\alpha) \models \mathfrak{i}_\alpha) \models \mathfrak{C}_\alpha) \boxed{\models\circ\models} \\
\quad (\mathfrak{c}_\alpha \models (\mathfrak{E}_\alpha \models (\mathfrak{e}_\alpha \models \alpha))); \\
((\alpha \models \mathfrak{I}_\alpha) \models \mathfrak{i}_\alpha) \boxed{\models\circ\models} \\
\quad (\mathfrak{C}_\alpha \models (\mathfrak{c}_\alpha \models (\mathfrak{E}_\alpha \models (\mathfrak{e}_\alpha \models \alpha)))); \\
(\alpha \models \mathfrak{I}_\alpha) \boxed{\models\circ\models}\, (\mathfrak{i}_\alpha \models \\
\quad (\mathfrak{C}_\alpha \models (\mathfrak{c}_\alpha \models (\mathfrak{E}_\alpha \models (\mathfrak{e}_\alpha \models \alpha))))); \\
\alpha \boxed{\models\circ\models}\, (\mathfrak{I}_\alpha \models (\mathfrak{i}_\alpha \models \\
\quad (\mathfrak{C}_\alpha \models (\mathfrak{c}_\alpha \models (\mathfrak{E}_\alpha \models (\mathfrak{e}_\alpha \models \alpha))))))
\end{array}\right)
$$

Finally, we can write down the demarcated, operator-composed canonic gestalt (DOCCG) in the form

$$
{}^{\mathrm{met}}\Gamma^{\mathrm{can}\,6}_{\alpha\,.\models\circ\models.\,\alpha} \rightleftharpoons
\left(\begin{array}{l}
\alpha \models \mathfrak{I}_\alpha \,.\models \mathfrak{i}_\alpha \,.\models \mathfrak{C}_\alpha \,.\models \mathfrak{c}_\alpha \\
\quad .\models \mathfrak{E}_\alpha \,.\models \mathfrak{e}_\alpha \boxed{.\models\circ\models}\, \alpha; \\
\alpha \models \mathfrak{I}_\alpha \,.\models \mathfrak{i}_\alpha \,.\models \mathfrak{C}_\alpha \,.\models \mathfrak{c}_\alpha \\
\quad .\models \mathfrak{E}_\alpha \boxed{.\models\circ\models.}\, \mathfrak{e}_\alpha \models \alpha; \\
\alpha \models \mathfrak{I}_\alpha \,.\models \mathfrak{i}_\alpha \,.\models \mathfrak{C}_\alpha \,.\models \mathfrak{c}_\alpha \\
\quad \boxed{.\models\circ\models.}\, \mathfrak{E}_\alpha \models.\, \mathfrak{e}_\alpha \models \alpha; \\
\alpha \models \mathfrak{I}_\alpha \,.\models \mathfrak{i}_\alpha \,.\models \mathfrak{C}_\alpha \boxed{.\models\circ\models.} \\
\quad \mathfrak{c}_\alpha \models.\, \mathfrak{E}_\alpha \models.\, \mathfrak{e}_\alpha \models \alpha; \\
\alpha \models \mathfrak{I}_\alpha \,.\models \mathfrak{i}_\alpha \boxed{.\models\circ\models.} \\
\quad \mathfrak{C}_\alpha \models.\, \mathfrak{c}_\alpha \models.\, \mathfrak{E}_\alpha \models.\, \mathfrak{e}_\alpha \models \alpha; \\
\alpha \models.\, \mathfrak{I}_\alpha \boxed{.\models\circ\models.}\, \mathfrak{i}_\alpha \models. \\
\quad \mathfrak{C}_\alpha \models.\, \mathfrak{c}_\alpha \models.\, \mathfrak{E}_\alpha \models.\, \mathfrak{e}_\alpha \models \alpha; \\
\alpha \boxed{\models\circ\models.}\, \mathfrak{I}_\alpha \models.\, \mathfrak{i}_\alpha \models. \\
\quad \mathfrak{C}_\alpha \models.\, \mathfrak{c}_\alpha \models.\, \mathfrak{E}_\alpha \models.\, \mathfrak{e}_\alpha \models \alpha
\end{array}\right)
$$

Evidently, there exist many other metaphysicalistic formulas of length $\ell = 7$ which can become senseful in a particular situation. The canonical concept follows a strict (systematic) sequential 'propagation' of parenthesis pairs from the left side for the informer point of view and from the right side for the observer point of view, simultaneously. Between these points of view lies the main (informer-observer-separating) operator.

5.12.5 Gestalts and Schemes Belonging to the Partial Decomposition of Canonic Metaphysicalistic Formulas

Partial decomposition of a canonic formula of any length means that the main operator retains its position, and only the left and the right part of the formula can be decomposed arbitrarily. In this manner, the number of the obtained formulas for a canonic formula is equal to the product of numbers of formulas proceeding from the left and the right part of the original canonic formula.

Noncanonic metaphysical gestalts can be, similarly as canonic ones, marked in the following way:

- parenthesized normal noncanonic (superscript 'non') gestalt (PNNCG) ${}^{\mathrm{met}}\Gamma^{\mathrm{non}6}_{\alpha\models\alpha}$;
- demarcated normal noncanonic gestalt (DNNCG) ${}^{\mathrm{met}}\Gamma^{\mathrm{non}6}_{\alpha.\models.\alpha}$;
- parenthesized, operator-composed noncanonic gestalt (POCNCG) ${}^{\mathrm{met}}\Gamma^{\mathrm{non}6}_{\alpha\models\circ\models\alpha}$; and
- demarcated, operator-composed noncanonic gestalt (DOCNNG) ${}^{\mathrm{met}}\Gamma^{\mathrm{non}6}_{\alpha.\models\circ\models.\alpha}$.

Let us show systematically which canonic and noncanonic formulas follow by decomposition from each canonic formula according to Fig. 8 and Table 2.

1. Possible noncanonic decompositions of the first metaphysicalistic canonic formula

Let us analyze systematically the first canonic formula in respect to all possible canonic and noncanonic formulas which can be derived according to the scheme superscribed by 1 in Fig. 8. In this way, the causal analysis answers the question of all possibilities concerning the pure metaphysicalistic informer situation, presented by formula

$$((((((\alpha \models \mathfrak{I}_\alpha) \models \mathfrak{i}_\alpha) \models \mathfrak{C}_\alpha) \models \mathfrak{c}_\alpha) \models \mathfrak{E}_\alpha) \models \mathfrak{e}_\alpha) \boxed{\models} \alpha$$

The position of the main operator remains preserved and the subformula

$$(((((\alpha \models \mathfrak{I}_\alpha) \models \mathfrak{i}_\alpha) \models \mathfrak{C}_\alpha) \models \mathfrak{c}_\alpha) \models \mathfrak{E}_\alpha) \models \mathfrak{e}_\alpha$$

with exception of its own parenthesis configuration, which is embedded in the original formula, has to be presented by all possible other configurations. This means that the original scheme

$${}^{1/1}\alpha\,\mathfrak{I}_\alpha\,\mathfrak{i}_\alpha\,\mathfrak{C}_\alpha\,\mathfrak{c}_\alpha\,\mathfrak{E}_\alpha\,\mathfrak{e}_\alpha \mid \alpha$$

has to be varied, keeping the informer principle, where all decomposition content is within the informer part of the decomposition of $\alpha \models \alpha$. Thus, according to Table 2, the informational schemata of noncanonic decompositions are

$${}^{1/2}\alpha\,\mathfrak{I}_\alpha\,\mathfrak{i}_\alpha\,\mathfrak{C}_\alpha\,\mathfrak{c}_\alpha\,\mathfrak{E}_\alpha\,\mathfrak{e}_\alpha \mid \alpha$$

$${}^{1/3}\alpha\,\mathfrak{I}_\alpha\,\mathfrak{i}_\alpha\,\mathfrak{C}_\alpha\,\mathfrak{c}_\alpha\,\mathfrak{E}_\alpha\,\mathfrak{e}_\alpha \mid \alpha$$

$$\ldots$$

$${}^{1/132}\alpha\,\mathfrak{I}_\alpha\,\mathfrak{i}_\alpha\,\mathfrak{C}_\alpha\,\mathfrak{c}_\alpha\,\mathfrak{E}_\alpha\,\mathfrak{e}_\alpha \mid \alpha$$

In these schemes, various possible causal situations of the so-called pure-informingly structured metaphysicalism of entity α come to the surface.

Let us introduce the general gestalt marker

$${}^{\mathrm{met}}\Gamma^{n}_{\alpha\models\beta} \rightleftharpoons \Gamma\left({}^{n+1}_{\;\;j}\mathfrak{M}_{\rightharpoondown}(\alpha \models \beta)\right)$$

What does the formula ${}^{\mathrm{met}}\Gamma^{5}_{\alpha\models\alpha} \models \alpha$ mean at all? Evidently, the previous discussion of the decomposition, regarding the first metaphysicalistic canonic formula, can be interpreted by the introduced formula, where

$$\left({}^{\mathrm{met}}\Gamma^{5}_{\alpha\models\alpha} \models \alpha\right) \rightleftharpoons \left(\begin{pmatrix} (((((\alpha \models \mathfrak{I}_\alpha) \models \mathfrak{i}_\alpha) \models \mathfrak{C}_\alpha) \models \mathfrak{c}_\alpha) \models \\ \quad \mathfrak{E}_\alpha) \models \mathfrak{e}_\alpha, \\ ((((\alpha \models \mathfrak{I}_\alpha) \models \mathfrak{i}_\alpha) \models \mathfrak{C}_\alpha) \models \mathfrak{c}_\alpha) \models \\ \quad (\mathfrak{E}_\alpha \models \mathfrak{e}_\alpha), \\ \vdots \\ \alpha \models (\mathfrak{I}_\alpha \models (\mathfrak{i}_\alpha \models (\mathfrak{C}_\alpha \models (\mathfrak{c}_\alpha \models \\ \quad (\mathfrak{E}_\alpha \models \mathfrak{e}_\alpha))))) \end{pmatrix} \models \alpha\right)$$

where ${}^{\mathrm{met}}\Gamma^{5}_{\alpha\models\alpha}$ represents the union of the canonic gestalt ${}^{\mathrm{met}}\Gamma^{\mathrm{can}5}_{\alpha\models\alpha}$ and the noncanonic gestalt ${}^{\mathrm{met}}\Gamma^{\mathrm{non}5}_{\alpha\models\alpha}$ or, formally,

$${}^{\mathrm{met}}\Gamma^{5}_{\alpha\models\alpha} \rightleftharpoons \begin{pmatrix} {}^{\mathrm{met}}\Gamma^{\mathrm{can}5}_{\alpha\models\alpha}; \\ {}^{\mathrm{met}}\Gamma^{\mathrm{non}5}_{\alpha\models\alpha} \end{pmatrix}$$

The number of different formula decompositions is $\frac{1}{7}\binom{12}{5} \times \frac{1}{1}\binom{0}{0} = 132$, where $\binom{0}{0} = 1$.

2. Possible noncanonic decompositions of the second metaphysicalistic canonic formula

One of the basic question is how many formulas can follow from the second metaphysicalistic canonic formula when the position of the main operator remains preserved. Evidently, in the form of the informational schemes, according to Fig. 8 and Table 2,

$${}^{2/1}\alpha\,\mathfrak{I}_\alpha\,\mathfrak{i}_\alpha\,\mathfrak{C}_\alpha\,\mathfrak{c}_\alpha\,\mathfrak{E}_\alpha \mid \mathfrak{e}_\alpha\,\alpha$$

$${}^{2/2}\alpha\,\mathfrak{I}_\alpha\,\mathfrak{i}_\alpha\,\mathfrak{C}_\alpha\,\mathfrak{c}_\alpha\,\mathfrak{E}_\alpha \mid \mathfrak{e}_\alpha\,\alpha$$

$$\ldots$$

$${}^{2/42}\alpha\,\mathfrak{I}_\alpha\,\mathfrak{i}_\alpha\,\mathfrak{C}_\alpha\,\mathfrak{c}_\alpha\,\mathfrak{E}_\alpha \mid \mathfrak{e}_\alpha\,\alpha$$

where formula schemes 2/2, 2/3, ... , 2/42 are noncanonic. One can observe that the number of different formula decompositions is $\frac{1}{6}\binom{10}{5} \times \frac{1}{2}\binom{2}{1} = 42$ (the product of the formula left and right part possibilities).

3. Possible noncanonic decompositions of the third metaphysicalistic canonic formula

Evidently, in the form of the informational schemes, according to Fig. 8 and Table 2, for the third metaphysicalistic canonic formula decomposition, there is

$$^{3/1}\;\alpha\,\mathfrak{I}_\alpha\,\mathfrak{i}_\alpha\,\mathfrak{C}_\alpha\,\mathfrak{c}_\alpha \mid \mathfrak{E}_\alpha\,\mathfrak{e}_\alpha\,\alpha$$

$$^{3/2}\;\alpha\,\mathfrak{I}_\alpha\,\mathfrak{i}_\alpha\,\mathfrak{C}_\alpha\,\mathfrak{c}_\alpha \mid \mathfrak{E}_\alpha\,\mathfrak{e}_\alpha\,\alpha$$

$$\ldots$$

$$^{3/28}\;\alpha\,\mathfrak{I}_\alpha\,\mathfrak{i}_\alpha\,\mathfrak{C}_\alpha\,\mathfrak{c}_\alpha \mid \mathfrak{E}_\alpha\,\mathfrak{e}_\alpha\,\alpha$$

where formula schemes 3/2, 3/3, ... , 3/28 are noncanonic. One can observe that the number of different formula decompositions is $\frac{1}{5}\binom{8}{4} \times \frac{1}{3}\binom{4}{2} = 28$ (the product of the formula left and right part possibilities).

4. Possible noncanonic decompositions of the fourth metaphysicalistic canonic formula

Further, in the form of the informational schemes, according to Fig. 8 and Table 2, for the fourth metaphysicalistic canonic formula decomposition, there is

$$^{4/1}\;\alpha\,\mathfrak{I}_\alpha\,\mathfrak{i}_\alpha\,\mathfrak{C}_\alpha \mid \mathfrak{c}_\alpha\,\mathfrak{E}_\alpha\,\mathfrak{e}_\alpha\,\alpha$$

$$^{4/2}\;\alpha\,\mathfrak{I}_\alpha\,\mathfrak{i}_\alpha\,\mathfrak{C}_\alpha \mid \mathfrak{c}_\alpha\,\mathfrak{E}_\alpha\,\mathfrak{e}_\alpha\,\alpha$$

$$\ldots$$

$$^{4/25}\;\alpha\,\mathfrak{I}_\alpha\,\mathfrak{i}_\alpha\,\mathfrak{C}_\alpha \mid \mathfrak{c}_\alpha\,\mathfrak{E}_\alpha\,\mathfrak{e}_\alpha\,\alpha$$

where formula schemes 4/2, 4/3, ... , 4/25 are noncanonic. One can observe that the number of different formula decompositions is $\frac{1}{4}\binom{6}{3} \times \frac{1}{4}\binom{6}{3} = 25$.

5. Possible noncanonic decompositions of the fifth metaphysicalistic canonic formula

The case of the fifth metaphysicalistic canonic formula is scheme-symmetric to the case 3. Thus,

$$^{5/1}\;\alpha\,\mathfrak{I}_\alpha\,\mathfrak{i}_\alpha \mid \mathfrak{C}_\alpha\,\mathfrak{c}_\alpha\,\mathfrak{E}_\alpha\,\mathfrak{e}_\alpha\,\alpha$$

$$^{5/2}\;\alpha\,\mathfrak{I}_\alpha\,\mathfrak{i}_\alpha \mid \mathfrak{C}_\alpha\,\mathfrak{c}_\alpha\,\mathfrak{E}_\alpha\,\mathfrak{e}_\alpha\,\alpha$$

$$\ldots$$

$$^{5/28}\;\alpha\,\mathfrak{I}_\alpha\,\mathfrak{i}_\alpha \mid \mathfrak{C}_\alpha\,\mathfrak{c}_\alpha\,\mathfrak{E}_\alpha\,\mathfrak{e}_\alpha\,\alpha$$

where formula schemes 5/2, 5/3, ... , 5/28 are noncanonic. One can observe that the number of different formula decompositions is $\frac{1}{3}\binom{4}{2} \times \frac{1}{5}\binom{8}{4} = 28$.

6. Possible noncanonic decompositions of the sixth metaphysicalistic canonic formula

The case of the sixth metaphysicalistic canonic formula is scheme-symmetric to the case 2. Thus,

$$^{6/1}\;\alpha\,\mathfrak{I}_\alpha \mid \mathfrak{i}_\alpha\,\mathfrak{C}_\alpha\,\mathfrak{c}_\alpha\,\mathfrak{E}_\alpha\,\mathfrak{e}_\alpha\,\alpha$$

$$^{6/2}\;\alpha\,\mathfrak{I}_\alpha \mid \mathfrak{i}_\alpha\,\mathfrak{C}_\alpha\,\mathfrak{c}_\alpha\,\mathfrak{E}_\alpha\,\mathfrak{e}_\alpha\,\alpha$$

$$\ldots$$

$$^{6/42}\;\alpha\,\mathfrak{I}_\alpha \mid \mathfrak{i}_\alpha\,\mathfrak{C}_\alpha\,\mathfrak{c}_\alpha\,\mathfrak{E}_\alpha\,\mathfrak{e}_\alpha\,\alpha$$

where formula schemes 6/2, 6/3, ... , 6/42 are noncanonic. One can observe that the number of different formula decompositions is $\frac{1}{2}\binom{2}{1} \times \frac{1}{6}\binom{10}{5} = 42$.

7. Possible noncanonic decompositions of the seventh metaphysicalistic canonic formula

Let us analyze systematically the last canonic formula in respect to all possible noncanonic formulas which can be derived according to the scheme superscripted by 7 in Fig. 8. In this way, the causal analysis answers the question of all possibilities concerning the pure metaphysicalistic observer situation, presented by formula

$$\alpha \boxed{\models}$$
$$(\mathfrak{I}_\alpha \models (\mathfrak{i}_\alpha \models (\mathfrak{C}_\alpha \models (\mathfrak{c}_\alpha \models (\mathfrak{E}_\alpha \models (\mathfrak{e}_\alpha \models \alpha))))))$$

The position of the main operator remains preserved and the subformula

$$\mathfrak{I}_\alpha \models (\mathfrak{i}_\alpha \models (\mathfrak{C}_\alpha \models (\mathfrak{c}_\alpha \models (\mathfrak{E}_\alpha \models (\mathfrak{e}_\alpha)))))$$

with exception of its own parenthesis configuration, which is embedded in the original formula, has to be presented by all possible other configurations. This means that the original scheme

$$^{7/1}\alpha \,|\, \mathfrak{I}_\alpha\, \mathfrak{i}_\alpha\, \mathfrak{C}_\alpha\, \mathfrak{c}_\alpha\, \mathfrak{E}_\alpha\, \mathfrak{e}_\alpha\, \alpha$$

has to be varied, keeping the observer principle, where all decomposition content is within the observer part of the decomposition of $\alpha \models \alpha$. Thus, according to Table 2,

$$^{7/2}\alpha \,|\, \mathfrak{I}_\alpha\, \mathfrak{i}_\alpha\, \mathfrak{C}_\alpha\, \mathfrak{c}_\alpha\, \mathfrak{E}_\alpha\, \mathfrak{e}_\alpha\, \alpha$$

$$^{7/3}\alpha \,|\, \mathfrak{I}_\alpha\, \mathfrak{i}_\alpha\, \mathfrak{C}_\alpha\, \mathfrak{c}_\alpha\, \mathfrak{E}_\alpha\, \mathfrak{e}_\alpha\, \alpha$$

$$\cdots$$

$$^{7/132}\alpha \,|\, \mathfrak{I}_\alpha\, \mathfrak{i}_\alpha\, \mathfrak{C}_\alpha\, \mathfrak{c}_\alpha\, \mathfrak{E}_\alpha\, \mathfrak{e}_\alpha\, \alpha$$

In these schemes, various possible causal situations of the so-called pure-observingly structured metaphysicalism of entity α come to the surface. The number of different formula decompositions is $\frac{1}{1}\binom{0}{0} \times \frac{1}{7}\binom{12}{6} = 132$, where $\binom{0}{0} = 1$.

5.12.6 The Number of All Possible Formulas in Metaphysicalistic and Sub-metaphysicalistic Gestalts

The question, how many formulas can be derived from an informational formula of length ℓ, is certainly righteous. If we know this number we are able to conclude how many noncanonical formulas are possible. And we can expect that this number will rise with the length ℓ of a formula.

Let N_ℓ represent the number of all possible formulas of length ℓ. An analysis of this case where parenthesis pairs and their possible displacements within a formula perform as binary operator permutations [11] gives

$$N_\ell = \frac{1}{\ell+1}\binom{2\ell}{\ell} = \frac{2\ell\,(2\ell-1)\cdots(\ell+2)}{\ell!}$$

We get the short overview in Table 2.

Standard metaphysicalistic formulas of length $\ell = 6$ represent shells which can be further analyzed ($\ell < 6$) and filled with concrete, e.g. concrete intelligent subformulas, so the length of a formula becomes $\ell > 6$. Under such circumstances the number of other senseful possibilities can, according to the ℓ/N_ℓ-table, rise extensively.

ℓ	N_ℓ	ℓ	N_ℓ	ℓ	N_ℓ
1	1	6	132	11	58 786
2	2	7	429	12	208 012
3	5	8	1 430	13	742 900
4	14	9	4 862	14	2 674 440
5	42	10	16 796	15	9 694 845

Table 2: *The dependence of the number of formulas N_ℓ on the length ℓ (number of binary operators) of a formula.*

Because the number of canonic formulas of length ℓ is $N_\ell^{\text{can}} = \ell = n + 1$, where n is the number of decomposed components in the transition $\alpha \models \alpha$ (or $\alpha \models \beta$, in general), the number of noncanonic formulas of length ℓ is

$$N_\ell^{\text{non}} = N_\ell - \ell$$

Let in a formula, divided by the main operator into the left and the right part, mark by ℓ_{left} the length of the left part and by ℓ_{right} the right part of the formula, where $\ell_{\text{left}} + \ell_{\text{right}} = \ell - 1$. Then, the number of possible decompositions when the position of the main operator remains preserved, is, evidently,

$$\frac{1}{\ell_{\text{left}}+1}\binom{2\ell_{\text{left}}}{\ell_{\text{left}}} \times \frac{1}{\ell_{\text{right}}+1}\binom{2\ell_{\text{right}}}{\ell_{\text{right}}}$$

After that, from the noncanonic decomposition of canonic formulas, for a formula of length ℓ, with $\binom{0}{0} = 1$, immediately follows

$$\frac{1}{\ell+1}\binom{2\ell}{\ell} =$$

$$\sum_{k=1}^{\ell} \frac{1}{\ell-k+1}\binom{2(\ell-k)}{\ell-k} \times \frac{1}{k}\binom{2(k-1)}{k-1}$$

Thus, for the debated metaphysicalistic case, where $\ell = 7$, there is $429 = 132 + 42 + 28 + 25 + 28 + 42 + 132$.

5.12.7 Canonic and Noncanonic Metaphysicalistic Gestalts

The canonic metaphysicalistic gestalt presents all possible pure informer-observer decompositions of the standardized metaphysicalistic structure α,

$\mathfrak{I}_\alpha$, $\mathfrak{i}_\alpha$, $\mathfrak{C}_\alpha$, $\mathfrak{c}_\alpha$, $\mathfrak{E}_\alpha$, and $\mathfrak{e}_\alpha$. The number of canonic formulas, within this structure, is 7 (equal to the number of metaphysicalistic components).

The noncanonic metaphysicalistic gestalt unites all possible causal cases of the parenthetically structured standardized metaphysicalism of entity α. The number of noncanonic formulas, within this structure, is $\frac{1}{8}\binom{14}{7} - 7 = 422$.

The presented discussion of standardized metaphysicalism of an entity α did not consider other possible loops (with exception of the main loop) which can be introduced between the standard metaphysicalistic components. This, standardized situation too, is presented by the informational graph in Fig. 9.

5.13 The Metaphysicalistic Parallel Decomposition of $\alpha \models \alpha$, that is, $^{\ell_k}\mathfrak{M}_{\|}^{\circlearrowleft}(\alpha \models \alpha)$

5.13.1 The Generalized Case

Any serial metaphysicalistic formula $^{\mathrm{met}}_{\;k}\varphi_{\rightarrow}^{\circlearrowleft}(\alpha \models \alpha)$ belonging to the metaphysicalistic gestalt can be parallelized, that is $\Pi\left(^{\mathrm{met}}_{\;j}\varphi_{\rightarrow}^{\circlearrowleft}(\alpha \models \alpha)\right)$. The result is, according to Fig. 7, for the parallelization of the main (the longest) decomposition,

$$\Pi\left(^{j+p+q+1}\mathfrak{M}_{\|}^{\circlearrowleft}(\alpha \models \alpha)\right) \rightleftharpoons$$
$$\begin{pmatrix} \alpha \models \alpha_1; \\ \alpha_1 \models \alpha_2; \alpha_2 \models \alpha_3; \cdots; \alpha_{j-1} \models \alpha_j; \\ \alpha_j \models \alpha_1; \\ \alpha_1 \models \alpha_2; \alpha_2 \models \alpha_3; \cdots; \alpha_{p-1} \models \alpha_p; \\ \alpha_p \models \alpha_1; \\ \alpha_1 \models \alpha_2; \alpha_2 \models \alpha_3; \cdots; \alpha_{q-1} \models \alpha_q; \\ \alpha_q \models \alpha \end{pmatrix}$$

5.13.2 The Reductionistic (Standardized) Metaphysicalistic Case

Virtually, the so-called standardized metaphysicalistic case is the minimal one, which appears to be senseful in the context of informing, counterinforming, and informational embedding. These three components, each of them including the component of informing and informing entity, should guarantee the informational arising in a spontaneous and circular way, together with the topic(s) entity α. Thus, the parallelization of any metaphysicalistically decomposed formula of length 7 delivers the result in the form

$$\Pi\left(^{7}\mathfrak{M}_{\|}^{\circlearrowleft}(\alpha \models \alpha)\right) \rightleftharpoons$$
$$\begin{pmatrix} \alpha \models \mathfrak{I}_\alpha; \\ \mathfrak{I}_\alpha \models \mathfrak{i}_\alpha; \mathfrak{i}_\alpha \models \mathfrak{C}_\alpha; \\ \mathfrak{C}_\alpha \models \mathfrak{c}_\alpha; \mathfrak{c}_\alpha \models \mathfrak{E}_\alpha; \\ \mathfrak{E}_\alpha \models \mathfrak{e}_\alpha; \mathfrak{e}_\alpha \models \alpha \end{pmatrix}$$

The graph corresponding to the right part of the last formula is presented in Fig. 9.

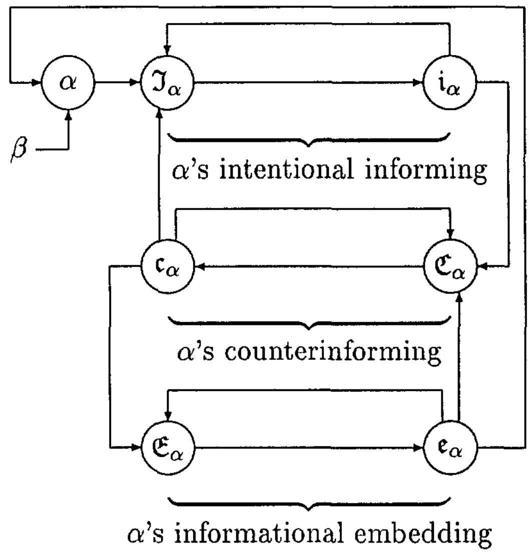

Figure 9: *A standardized (reductionistic) metaphysicalism of entity α with basic interior informing, counterinforming and informational embedding, concerning something β.*

The whole content of the graph in Fig. 9 must consider the externally impacting operand β, that is, $\alpha_{\|}^{\circlearrowleft}(\beta)$, and the additional internal feedbacks. The most general symbolic solution for the graph in Fig. 9 upon α, in which all of the possible metaphysicalistic decompositions are included, is

$$\alpha_{\|}^{\circlearrowleft}(\beta) \rightleftharpoons \begin{pmatrix} \beta \models \alpha; \\ \alpha \models \mathfrak{I}_\alpha; \\ \mathfrak{I}_\alpha \models \mathfrak{i}_\alpha; \mathfrak{i}_\alpha \models \mathfrak{C}_\alpha; \\ \mathfrak{C}_\alpha \models \mathfrak{c}_\alpha; \mathfrak{c}_\alpha \models \mathfrak{E}_\alpha; \\ \mathfrak{E}_\alpha \models \mathfrak{e}_\alpha; \mathfrak{e}_\alpha \models \alpha; \\ \mathfrak{i}_\alpha \models \mathfrak{I}_\alpha; \mathfrak{c}_\alpha \models \mathfrak{C}_\alpha; \\ \mathfrak{e}_\alpha \models \mathfrak{E}_\alpha; \\ \mathfrak{c}_\alpha \models \mathfrak{I}_\alpha; \mathfrak{e}_\alpha \models \mathfrak{C}_\alpha \end{pmatrix}$$

Solution $\alpha_{\|}^{\circlearrowleft}(\beta)$ describes the entirety of the graph in Fig. 9, and this informational system can be solved upon any other component of the system, with exception of the exterior component β, in a particular or serial way, or in a universal or parallel way.

5.14 A Straightforward Heterogeneous Serial Decomposition of Informational Transition

Let us introduce the complexity of informational decomposition of transition $\alpha \models \beta$ by the graph in Fig. 10. This figure is a modification of the model

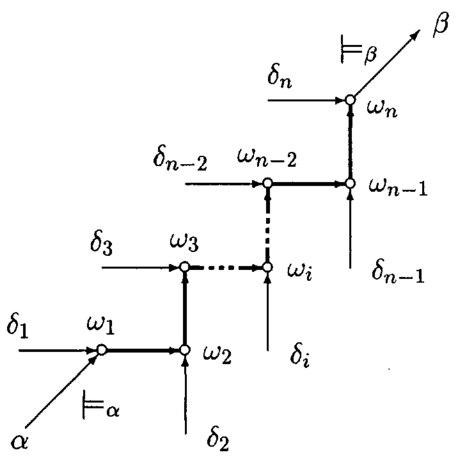

Figure 10: *A graphical interpretation of the informational transition $\alpha \models \beta$ divided into the informer part (α with operator $\models_\alpha$), the channel part with its internal informational structure of ω_1, ω_2, $\cdots$, ω_1 for the acceptance of the exterior informational disturbers δ_1, δ_2, $\cdots$, δ_n, and the observer part (β with preceding operator $\models_\beta$). In fact, this graphical scheme represents the so-called gestalt of $\alpha \models \beta$, that is, all possible serial parenthesized forms of the length $\ell = n + 1$.*

given by Fig. 1 in [1]. As one can see, at each internal component ω_1, ω_2, $\cdots$, ω_n, inner and/or outer disturbing entities δ_1, δ_2, $\cdots$, δ_n come into game and can be differently metaphysically or in some other way (linearly, circularly) decomposed.

In this sense, a more complex, fractal-like decomposition of the general transitional form $\alpha \models \beta$ is presented in Fig. 11, certainly, in its most straightforward form. In this figure, each component α_i ($i = 1, 2, \cdots, n$) is linearly decomposed, however, this does not mean that arbitrary circular connections cannot exist. By this graph, the possibilities of the informational (causal, inner and outer impacting) complexity, which could come into existence, become conceptually and formalistically evident.

6 A Concept of the Decision-Making System Concerning the Transition of a Social System

Today, various forms of social transitions (also in capitalist systems [3]) are taking place. One of the most characteristic one is that of proceeding from the communist to capitalist system, e.g. in the countries of Middle Europe and Eastern Europe. The question is which are the most remarkable phenomena and how could they be captured by informational means, that is, in forms of informational formula systems. So, let us study, only in an initial way, the most remarkable terminology and basic informational processes, by the systems of informational transitions.

6.1 Terminological Background

At the beginning of the study, sufficiently precise (remarkable) terminology is important, because it constitutes the conceptual background for the development and decomposition of the characteristically circular transitions and their complex (parallel, serial) linking within a system of social-transition phenomena.

Let us introduce some basic informational entities and their symbols (operands) and operational properties (operand-operator loops):

1. First of the most remarkable phenomenon of new democracies is *nationalism,* marked by the symbol $\mathfrak{n}$. It represents the central point around which other phenomena occur cyclically as it is evident in the next subsection, where the informational graph for a decision-making system is presented.

2. The second most visible phenomenon in postcommunist systems is *corruption,* marked by the symbol $\mathfrak{c}$. Corruption is in the center of some very specific processes, e.g., financial by-passing by firms and banks, budget legalization of criminal-founded business,

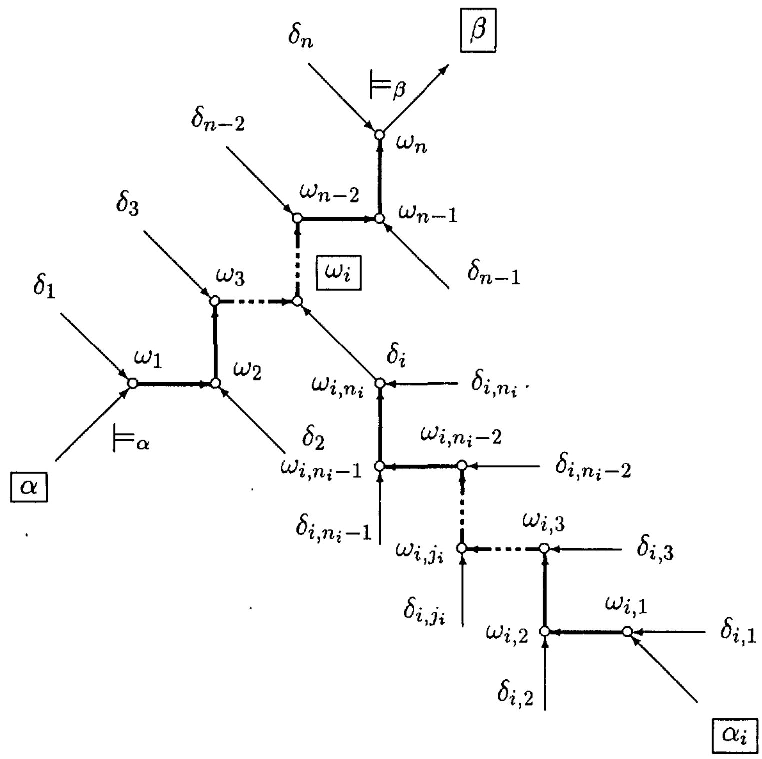

Figure 11: *A graphical interpretation of the composed informational transition $\alpha \models \beta$ divided into the informer part (α with operator $\models_\alpha$), the channel part with its internal informational structure of ω_1, $\omega_2, \cdots, \omega_1$ for the acceptance of the exterior informational disturbers $\delta_1, \delta_2, \cdots, \delta_n$, and the observer part (β with preceding operator $\models_\beta$). In fact, this graphical scheme represent the so-called gestalt of $\alpha \models \beta$, that is, all possible serial parenthesized forms of the length $\ell = n+1$.*

losses and bankruptcy, privatization, denationalization, defalcation, sanitation of banks, absence of legal legislation, etc. The informational connections will be presented by the mentioned informational graph.

3. The return of nationalized property is accompanied with a sort of moratorium (restriction), $\mathfrak{m}$, called the *moratorium concerning the real-estate return to foreigners.*

4. Another kind of restriction, $\mathfrak{r}_1$, is called the *restriction of the real-estate return to citizens.*

5. The third form of restriction, $\mathfrak{r}_2$, is called the *restriction of investments coming from (particular) foreign countries.*

6. The process of *denationalization,* $\mathfrak{d}$, happens between the most remarkable entities $\mathfrak{c}$ (corruption) and $\mathfrak{n}$ (nationalism) when it is governed (impacted) by $\mathfrak{c}$ and governs (impacts) $\mathfrak{n}$.

7. The government certainly has to improve the market functioning of some firms by the *government (budget) subsidy of inefficient firms,* $\mathfrak{g}$.

8. On the other hand, the *privatization of social firms,* $\mathfrak{p}$, is taking place, with the moratorium of reprivatization of foreigners' property.

9. This process is accompanied by the *defalcation of social property,* $\mathfrak{d}_2$, because of badly (porously) elaborated legislation.

10. To the most important financial phenomena belongs the *improvement (sanitation) of domestic banks in debts and discounts,* $\mathfrak{i}$.

11. One of the significant phenomena is the so-called *partitocratic interest,* $\mathfrak{p}_2$, through which, mainly, the corruption as a social problem is being substantially impacted.

12. The partitocratic interest is fed by the *individual corruption within the ruling political*

parties, $\mathfrak{c}_2$, impacting the partitocratic interest, $\mathfrak{p}_2$, and the government subsidy of inefficient firms, $\mathfrak{g}$.

The enumerated entities of the social transition are in no way the only relevant ones. They constitute an initial model of an inner-politics decision-making system for postcommunist countries.

6.2 A Functional Model of the System

The listed entities can now be put into a circularly perplexed informational graph in Fig. 12. Within

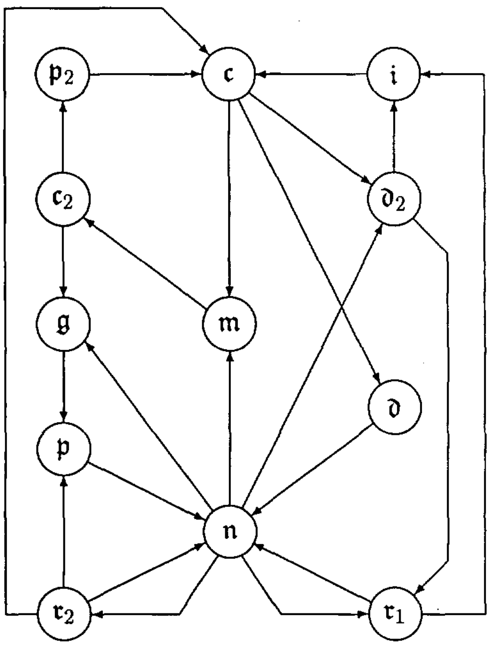

Figure 12: *A graphical interpretation of an inner-politics decision-making system for a postcommunist strategy.*

this graph, by inspection, 16 mutually coupled loops can be identified. As the reader can see, each entity is circularly impacted by the 11 remaining entities. Each loop can be structured in a particular causal form (by occurring parenthesis pairs), or it may happen that even more than one particular circular formula exists for a certain loop of the graph. In an extreme case, the gestalt for a given circular formula can exist, that is, a particular system of causal formulas can inform. On the other hand, the graph can be entirely described by the basic transition parallel circular (loop) system in the form

$$\mathfrak{G}\,(\lambda_{\parallel}^{\circlearrowleft}(\mathfrak{c},\, \mathfrak{c}_2,\, \mathfrak{d},\, \mathfrak{d}_2,\, \mathfrak{g},\, \mathfrak{i},\, \mathfrak{m},\, \mathfrak{n},\, \mathfrak{p},\, \mathfrak{p}_2,\, \mathfrak{r}_1,\, \mathfrak{r}_2)) \rightleftharpoons$$
$$\left(\begin{array}{llll}
\mathfrak{d} \models \mathfrak{n}; & & & \\
\mathfrak{r}_1 \models \mathfrak{i}; & \mathfrak{r}_1 \models \mathfrak{n}; & & \\
\mathfrak{g} \models \mathfrak{p}; & & & \\
\mathfrak{r}_2 \models \mathfrak{n}; & \mathfrak{r}_2 \models \mathfrak{p}; & \mathfrak{r}_2 \models \mathfrak{c}; & \\
\mathfrak{n} \models \mathfrak{r}_1; & \mathfrak{n} \models \mathfrak{g}; & \mathfrak{n} \models \mathfrak{r}_2; & \mathfrak{n} \models \mathfrak{d}_2; \\
 & \mathfrak{n} \models \mathfrak{m}; & & \\
\mathfrak{p} \models \mathfrak{n}; & & & \\
\mathfrak{d}_2 \models \mathfrak{r}_1; & \mathfrak{d}_2 \models \mathfrak{i}; & & \\
\mathfrak{c}_2 \models \mathfrak{g}; & \mathfrak{c}_2 \models \mathfrak{p}_2; & & \\
\mathfrak{i} \models \mathfrak{c}; & & & \\
\mathfrak{m} \models \mathfrak{c}_2; & & & \\
\mathfrak{p}_2 \models \mathfrak{c}; & & & \\
\mathfrak{c} \models \mathfrak{m}; & \mathfrak{c} \models \mathfrak{d}; & \mathfrak{c} \models \mathfrak{d}_2 &
\end{array}\right)$$

This parallel structure of atomic formulas captures the entire circular causal interweavement (all the possibilities) of the system drawn in Fig. 12. On the basis of this formula system the graph in Fig. 12, together with all possible causal situations, is uniquely determined.

If the graph in Fig. 12 is uniquely interpreted by the parallel system of 23 atomic-transition formulas then it implies all possible gestalts Γ of circular formulas (graphical loops) $\lambda_i^{\circlearrowleft}$ belonging to the 16 particular causal loops of the graph $\mathfrak{G}$. Thus,

$$\mathfrak{G}\,(\lambda_{\parallel}^{\circlearrowleft}(\mathfrak{c},\, \mathfrak{c}_2,\, \mathfrak{d},\, \mathfrak{d}_2,\, \mathfrak{g},\, \mathfrak{i},\, \mathfrak{m},\, \mathfrak{n},\, \mathfrak{p},\, \mathfrak{p}_2,\, \mathfrak{r}_1,\, \mathfrak{r}_2)) \Longrightarrow$$
$$\left(\begin{array}{l}
\Gamma(\lambda_1^{\circlearrowleft}(\mathfrak{c},\, \mathfrak{d}_2,\, \mathfrak{i}));\ \Gamma(\lambda_2^{\circlearrowleft}(\mathfrak{c},\, \mathfrak{d},\, \mathfrak{n},\, \mathfrak{r}_2)); \\
\Gamma(\lambda_3^{\circlearrowleft}(\mathfrak{c},\, \mathfrak{d}_2,\, \mathfrak{r}_1,\, \mathfrak{i}));\ \Gamma(\lambda_4^{\circlearrowleft}(\mathfrak{c},\, \mathfrak{m},\, \mathfrak{c}_2,\, \mathfrak{i})); \\
\Gamma(\lambda_5^{\circlearrowleft}(\mathfrak{c},\, \mathfrak{d},\, \mathfrak{n},\, \mathfrak{r}_1,\, \mathfrak{i}));\ \Gamma(\lambda_6^{\circlearrowleft}(\mathfrak{c},\, \mathfrak{d},\, \mathfrak{n},\, \mathfrak{d}_2,\, \mathfrak{i})); \\
\Gamma(\lambda_7^{\circlearrowleft}(\mathfrak{c},\, \mathfrak{d},\, \mathfrak{n},\, \mathfrak{m},\, \mathfrak{c}_2,\, \mathfrak{p}_2)); \\
\Gamma(\lambda_8^{\circlearrowleft}(\mathfrak{c},\, \mathfrak{d}_2,\, \mathfrak{r}_1,\, \mathfrak{n},\, \mathfrak{m},\, \mathfrak{c}_2,\, \mathfrak{p}_2)); \\
\Gamma(\lambda_9^{\circlearrowleft}(\mathfrak{c},\, \mathfrak{m},\, \mathfrak{c}_2,\, \mathfrak{g},\, \mathfrak{p},\, \mathfrak{n},\, \mathfrak{d}_2,\, \mathfrak{i})); \\
\Gamma(\lambda_{10}^{\circlearrowleft}(\mathfrak{c},\, \mathfrak{m},\, \mathfrak{c}_2,\, \mathfrak{g},\, \mathfrak{p},\, \mathfrak{n},\, \mathfrak{r}_1,\, \mathfrak{i})); \\
\Gamma(\lambda_{11}^{\circlearrowleft}(\mathfrak{n},\, \mathfrak{r}_1));\ \Gamma(\lambda_{12}^{\circlearrowleft}(\mathfrak{n},\, \mathfrak{r}_2)); \\
\Gamma(\lambda_{13}^{\circlearrowleft}(\mathfrak{n},\, \mathfrak{r}_2,\, \mathfrak{p}));\ \Gamma(\lambda_{14}^{\circlearrowleft}(\mathfrak{n},\, \mathfrak{g},\, \mathfrak{p})); \\
\Gamma(\lambda_{15}^{\circlearrowleft}(\mathfrak{n},\, \mathfrak{d}_2,\, \mathfrak{r}_1));\ \Gamma(\lambda_{16}^{\circlearrowleft}(\mathfrak{n},\, \mathfrak{m},\, \mathfrak{c}_2,\, \mathfrak{g},\, \mathfrak{p}))
\end{array}\right)$$

In this system, circular formulas of the form

$$\lambda_i^{\circlearrowleft}(\mathfrak{a}_1, \mathfrak{a}_2, \cdots, \mathfrak{a}_{m_i});\ i = 1, 2, \cdots, 16$$

have been introduced which mark, in the ordered form, the circles of the circularly involved operands $\mathfrak{a}_1, \mathfrak{a}_2, \cdots, \mathfrak{a}_{m_i}$. One can see that 13 loops concern the operand $\mathfrak{n}$ (nationalism) and 10 of them the operand $\mathfrak{c}$ (corruption).

If we consider that a loop *can begin* at any operand of a loop in the prescribed order, the given initial circular formula constitutes the implication

$$\lambda_i^{\circlearrowleft}(\mathfrak{a}_1, \mathfrak{a}_2, \cdots, \mathfrak{a}_{m_i}) \Longrightarrow \begin{pmatrix} \Gamma(\lambda_i^{\circlearrowleft}(\mathfrak{a}_1, \mathfrak{a}_2, \cdots, \mathfrak{a}_{m_i})); \\ \Gamma(\lambda_i^{\circlearrowleft}(\mathfrak{a}_2, \mathfrak{a}_3, \cdots, \mathfrak{a}_{m_i}, \mathfrak{a}_1)); \\ \vdots \\ \Gamma(\lambda_i^{\circlearrowleft}(\mathfrak{a}_{m_i}, \mathfrak{a}_1, \cdots, \mathfrak{a}_{m_i-1})) \end{pmatrix}; \quad i = 1, 2, \cdots, 16$$

To study a single i-loop of the system means to have $\frac{m_i}{1+m_i}\binom{2m_i}{m_i}$ causal opportunities for this loop only. Altogether, there are, evidently,

$$N = \prod_{i=1}^{16} \frac{m_i}{1+m_i}\binom{2m_i}{m_i}$$

different possible (to some extent senseful) causal cases. The reader can compute the very large value of N by himself/herself. A parallel informational machine would, corresponding to the graph in Fig. 12, process informationally all these cases and, in accordance to some additional—informational—criteria, show only the (most) relevant (few) ones.

7 Conclusion

The debated analysis and synthesis (the adequate common term for both would be *decomposition*) of informational transition of the form $\alpha \models \beta$ shows the complexity of the question concerning the informing and, in an narrower sense, communication between two or more informational entities in a system. The study shows an unbounded complexity which may emerge in the process of a transition decomposition. Some initially revealed virtualities come to the surface evidently.

The concept and, particularly, formalism of the informational transition satisfy any possible requests regarding to informer-observer situation, that is, observing of informing and observing, operand and operator framing and gestalting [11], and other imaginable concepts within the second-order cybernetics. A social transition, too, can be formalized using this concept of parallel performing transition entities, considering the possibilities of circularly perplexed causalism[7].

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[7]Informational causalism will be studied more exhaustively in the paper of the author, entitled *Causality of the Informational,* which will be published as soon as possible.