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# THEORIES ABOUT PURE SOCIAL COORDINATION WITH EXPERIMENTAL EVIDENCE FROM SLOVENIA**[1]

**Abstract.** *The article presents a discussion of the results of laboratory experiments on social coordination that allowed various forms of reasoning to be used. The experiments were conducted in the TIG laboratory at the University of Primorska. We investigate the type of reasoning the participants used while making decisions in the laboratory. In particular, two contemporary theories of coordination are tested, the first describing a team-oriented and the second an individual-oriented type of thinking. The participants' coordination behaviour shows that young people hold the potential to develop both some form of cooperative reasoning and a more individualistic, boundedly rational focus on their own success, such as referred to in cognitive hierarchy theory. Instead of team reasoning, we find evidence in support for a simpler, albeit less profitable odd-one-out heuristic.*
**Keywords:** *coordination problems, team reasoning, individual-oriented reasoning, bounded rationality, experimental decision-making.*

## INTRODUCTION

The issue of how multiple partners coordinate their decisions fundamentally influences people's everyday behaviour as well as the way institutions, the economy and politics function (Chisholm 1989; Camerer and Knez 2010). Mooney (1947) defined social coordination as "the orderly arrangement of group efforts to provide unity of action in the pursuit of a common purpose". It encompasses the mental and behavioural alignment of people in shared social situations. Successful coordination is necessary for the emergence and existence of harmonious

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interpersonal relationships and the fruitful cooperation of people who have problems and tasks in common (Janssen 2003). It is also a necessary condition for the successful management of groups/organisations and forming of constructive collective intentions, even for successful interpersonal communication in everyday life that leads to mutual agreement and trust (Becker and Murphy 1992; Noe 2006; Vlaar et al. 2007). Various disciplines dealing with human social behaviour investigate the questions of what coordination is and how to achieve and maintain it, such as social psychology, behavioural economics, organisation theory, operations research, computer science etc.

In the literature, one can find very different and conflicting opinions on the key factors of social coordination (Tomasello 2009; Axelrod 2011; Colman and Gold 2018). Some researchers distinguish the term "concatenate coordination" from the concept of "mutual coordination" (Klein and Osborn 2009). The former only involves the integration of the actions of several individuals to establish some orderly group action. The latter, broader term encompasses all forms of mutual cooperation and correspondence in the functioning of people in a common social situation. The focus in this article is on mutual coordination.

Mutual coordination problems are social scenarios in which individuals must independently make decisions that align with the choices of others so as to achieve a mutually beneficial outcome. These problems are ubiquitous in social, economic and organisational contexts where the actions of multiple agents must coincide to achieve an outcome that is beneficial for all (Camerer and Knez 2010). A classic example is the problem of choosing a meeting time or location when the communication between two individuals breaks down, such as when one person's telephone runs out of battery. Even though both people would like to meet in the same location, there may be many locations to choose from and thus they might be waiting at different ones. The main problem is not to choose the *best* location, but to choose the *same* one.

One way of resolving mutual coordination issues is by exploring elementary social situations featuring a limited and transparent set of situational challenges and possible responses to them. Game theory can then be used to model these with games of coordination (Camerer and Knez 2010). Using such games, the causes, reasons, extent and manner of coordination among actors become clearer. Further, it is possible to experimentally test various hypotheses regarding the origin, methods and processes of coordination that may extend to social dilemmas and team problems (Ule and Živoder 2018). This type of research is particularly developed in contemporary experimental economics, animal and human behavioural psychology, ecological studies etc. (Noë 2006; Schram and Ule 2018; Crawford 2019). One way of gaining insight into the processes lying behind cooperation and coordination is to compare experimental behaviour across different cohorts and different societies (Thöni 2019).

One element shown to affect interactive behaviour is the scope of social and market integration in a given society (Baldassarri 2020; Kuzminska et al. 2022).

The industrial, and especially informational, modernising of developed societies has led to a rapid rise in various forms of social disintegration and fragmentation. These processes induce ever more feelings of insecurity and disorientation or, as Zygmunt Bauman states in his analysis of the consequences held by globalisation, a "liquid modernity" that is increasingly dissolving the foundations of social solidarity, interpersonal bonds and social institutions (Bauman 2007). A situation like this makes achieving social coordination and cooperation such a growing problem on all levels of social life that the very concept of society is coming under question (Mavelli and Cerella 2024). Exploring the basic forms and modes of coordination between people from societies with varying levels of market integration may help with understanding its effect on various forms of sociality. Velkavrh and Ule (2022), for instance, found significant differences in the choices made by Slovenian and Dutch experimental subjects in a series of experimental games that modelled a range of social challenges. The higher levels of solidarity, honesty and generosity observed for Slovenian subjects are consistent with Bauman's (2007) interpretation, noting that Slovenia is among the collectivistic and the Netherlands the individualistic societies in the classification proposed by Hofstede et al. (2010). Whether the impacts of a culture of individualism extends to coordination is a question that remains unanswered.

In this article, we present the results of an experimental study of social coordination, conducted with student subjects in the TIG laboratory at the University of Primorska. To investigate the role of societal individualism, the results of a related experimental study on coordination by Bardsley et al. (2010) carried out in England (UK) and the Netherlands, two highly individualistic societies, were compared. Slovenian participants were found to have exhibited similar coordination behaviour to those participating in England where the experimenters employed similar procedures to ours.

We next investigate which type of reasoning is used by participants in Slovenia using the deductive method described in Bardsley et al. (2010). In particular, we test two contemporary theories of coordination, one describing a team-oriented and the other an individual-oriented type of thinking. Our hypothesis that Slovenian subjects are more likely to apply team reasoning is not supported by the results. Indeed, not a single subject in Slovenia consistently applied the team reasoning heuristic. A significant number of subjects in Slovenia, like in England, applied the more individual-oriented cognitive hierarchy theory instead.

Finally, we explore whether the subjects in Slovenia used a partly team-oriented heuristic that increases the chance of coordination, rather the expected payoff of a team. While this heuristic was postulated, it was not tested in Bardsley et al. (2010). We find that a minority of subjects in Slovenia consistently made coordination choices with this heuristic. The Slovenian data can be fully explained by three behavioural rules, one individualist, the second collectivist and the third random choice.

## THEORETICAL FRAMEWORK

Coordination problems on the scale of a society range from which side of the road to drive on or which side of a corridor to walk to the choice of language to communicate with. A related problem in markets and organisations is often the choice of which technological platform to use, such as between email and social network communication, or between computer operating systems. These examples all belong to a particular class of "pure" mutual coordination problems in which individuals need to make decisions entirely dependent on aligning their choices with others, without any conflicts of interest (Mehta et al. 1994). Unlike other types of coordination problems, like those involving mixed motives (where participants have some conflicting preferences), pure coordination problems are characterised by the absence of disagreement over the best possible outcome. The challenge is hence not about choosing the best option, but assuring that every player selects the same option.

On the social level, while such problems are often solved with social norms, conventions and regulation, these might not exist in small everyday coordination problems between individuals. Understanding how people approach local coordination problems has been a central topic of research in behavioural game theory because classical game theory fails to solve it. Namely, although any outcome where everyone chooses the same action is a potential solution, there are many such outcomes, and the classic game theory, based on methodological individualism and assuming common knowledge of rationality, does not select any of them (Mehta et al. 1994). Two prominent contemporary theoretical frameworks that depart from these assumptions and address coordination problems are Cognitive Hierarchy Theory (CHT) and Team Reasoning. Both theories offer valuable insights into how individuals approach coordination problems, yet differ in their assumptions about human rationality and reasoning.

Cognitive Hierarchy Theory (CHT) was proposed by Stahl and Wilson (1995) and expanded by Camerer et al. (2004) as a framework for understanding how individuals reason in coordination problems when uncertain about the strategies of others. CHT suggests that players vary in the depth of their reasoning, which affects their ability to anticipate the actions of others. The theory posits that players of coordination problems can be classified on different levels according to how many steps ahead they think. Level 0 players choose randomly or use environmental hints such as prominent or salient labels. Level 1 players reason one step ahead, assuming others will choose randomly or act in line with some simple rule. Level 2 players reason two steps ahead, anticipating that others are reasoning on level 1, and so on. Two versions, CHTR and CHTP, have been proposed, distinguished by their assumptions concerning level 0 players. CHTR assumes that level 0 players select actions with uniform probability (Bacharach and Stahl 2000; Harsanyi and Selten 1988). CHTP is instead based on the assumption that level 0 players choose an action that commands attention, such as having a prominent label or yielding the highest payoff (Lewis 1969; Schelling 1960; Bordalo et al. 2022).

CHT provides a more nuanced understanding of coordination by accounting for the different ways people process and reason about the decisions of others. The theory suggests that coordination is possible even when players' reasoning abilities differ provided that they can adjust their expectations and adapt to the strategies of others. However, players reasoning too far ahead and expecting others to be more strategic than they actually are can lead to overthinking and suboptimal outcomes (Coricelli et al. 2020).

In contrast to CHT, Team Reasoning contends that coordination problems can be solved via collective reasoning whereby individuals abandon their purely self-interested calculations and instead focus on the best strategy for the group as a whole (Mehta et al. 1994; Bacharach 1999; Colman et al. 2008; Bardsley et al. 2010; Bardsley and Ule 2017; Colman and Gold, 2018). In this view, individuals not only reason from their own perspective (methodological individualism) but may also engage in a form of reasoning that takes the shared interests of the group into account. The central idea of team reasoning is that people can identify with a collective goal and reason about what works best for their team. A foundation can be located in the idea of collective intentionality that leads agents to form shared goals and mutual expectations which guide their choices beyond narrow self-interest (Gold and Sugden 2007; Petersson 2016). This helps explain how norms and conventions emerge over time, stabilising coordinated behaviour and reinforcing collectively rational strategies. Through shared mental states and mutual commitments, collective intentionality serves as the bridge between individual reasoning and truly collective rational action (Ule 2008b).

Team reasoning helps explain how people can overcome coordination failures in complex social settings such as businesses or political negotiations where conflicting individual preferences might otherwise bring inefficient outcomes (Cimprič and Pavlin 2022). By framing decisions in terms of collective benefits and aligning personal actions with team objectives, individuals can achieve mutually beneficial outcomes even in the absence of explicit communication or enforceable contracts.

While both CHT and Team Reasoning provide solutions to coordination problems, they fundamentally differ with respect to how they conceptualise human decision-making. CHT emphasises that individuals reason at different depths and coordination arises from the interaction of players with varying levels of cognitive sophistication. It is a more individualistic theory that assumes people generally act in their own interest, adjusting their strategies based on their expectations of how others will behave.

In contrast, Team Reasoning stresses collective goals and shared outcomes. It suggests that individuals can move beyond self-interest and reason in terms of group welfare, making coordination more likely. This theory assumes a higher level of social cooperation and a stronger alignment of goals among players.

**Empirical Evidence**

Discriminating empirically between explanations of coordination is difficult partly because it involves making assumptions about how the subjects themselves perceive their options. For example, in a pure coordination game, if subjects have to coordinate on the same letter from the set {A, B, C, D} in order to earn a reward, one might predict that letter A is the option with the greatest primary salience since it is the first letter of the alphabet. CHTP would then predict that all players will choose letter A as higher levels anticipate the salient choice of level 0 players. At the same time, TR could also rationalise the choice of letter A if it were seen as a sufficiently clear favourite. It would suffice that subjects judge coordination as more likely if all players follow the "choose the prominent letter" rule. Bardsley and Ule (2017) test TR against CHTR and find support for TR, but do not distinguish between TR and CHTP.

To overcome the problem of empirically distinguishing general CHT from TR, Bardsley et al. (2010) propose an experimental game in which both the label and the coordination value vary between the choices. Consider the following coordination problem. Two players must individually choose between three cards with numbers {10, 10, 9}, presented to each in an independent random order. The number indicates the amount of money they earn if they both choose the same card, but they both earn 0 if they choose different cards. To earn money, they must choose the exact same card. For example, to earn 10 it is not enough that both choose a card with the number 10, but they must choose exactly the same card with the number 10. Given that payoff is the only salient feature, $CHT_P$ would predict that level 0 players will choose one of the two cards with the number 10, level 1 players will anticipate this and also choose one of these numbers, and so on. $CHT_R$ would also predict that cards with the number 10 will be chosen much more often. Level 0 players will choose randomly, so that any card will be chosen with a probability of 1/3. For another player expecting a level 0 opponent, the expected return on choosing a card with 10 is then 10/3, yet the expected return from choosing a card with 9 is only 9/3. Level 1 players will therefore choose one of the cards with number 10, and so will all those on higher levels in anticipation of this play. TR theory predicts the card with number 9 will be selected, however. Players who think as a team would compare two possible rules, "choose the card with number 9" and "choose one of the cards with number 10" and consider which rule is better for the team if both players follow it. The first rule yields a certain payoff of 9, while the second rule yields a payoff of 10 with a probability of ½, which is the chance that both players choose the same card with number 10. The expected payoff of the second rule is therefore 5, less than 9 for the first rule. Bardsley et al. (2010) find support for both CHT and TR in their experiment with this and similar games, depending on the game's implementation on the computer screen. Nonetheless, varying results were obtained for different cohorts. Support for CHT was found among their subjects in England, whereas support for TR was found in the Netherlands. It is thus unclear whether the validity of these theories of coordination is stable across the different cohorts. Moreover, all related experiments were completed on subjects from highly individualist societies and might not hold for participants with a collectivist experience, such as from Slovenia. In the sections below, we experimentally investigate the hypothesis that Slovenian subjects are more likely to apply team reasoning in pure coordination games than the subjects from England studied by Bardsley et al. (2010).

## METHOD AND DATA SOURCES

To investigate the stability of coordination across cohorts, we investigated coordination strategies in a sample of students in Slovenia. In an experiment at the TIG laboratory at the University of Primorska, we implemented a series of pure coordination games that followed the construction described in Bardsley et al. (2010). In each game, a pair of anonymous subjects had to choose between cards showing various numbers. The numbers on each card were handwritten. While different cards showed the same number, each number was handwritten separately to provide subtle differences between cards with the same number. We thereby created a game of choice between cards, rather than between numbers, with two purposes in mind. First, handwriting meant there were subtle differences between cards bearing the same number, which made it clear to the subjects that two cards on their screen with the same number were not the same cards. Second, showing cards on the computer monitor in a circle in random order, that varied among subjects, enabled the explanation that there was no sense in applying heuristics that refer to the position on the screen.

*Table 1: EXPERIMENTAL GAMES AND THEORETICAL PREDICTIONS*

| Games | CHT prediction | TR prediction |
|---|---|---|
| a. 10, 10, 10, 10, 9 | 10 | 9 |
| b. 10, 10, 9, 9, 8 | 10 | 8 |
| c. 10, 10, 10, 9, 9 | 10 | 9 |
| d. 10, 10, 10, 9, 8 | 10 | 9 |
| e. 10, 9, 8, 7 | 10 | 10 |
| f. 10, 10, 1 | 10 | 10 |

Source: own analysis.

Six games with different sets of cards were played by each pair of our subjects and no information about the success/failure of coordination was provided between the games to avoid learning and ensure each individual participant provided an independent observation in our data. The games were related to those used in Bardsley et al. (2010) and designed, on one hand, to distinguish TR from CHT and, on the other, to catch violations of both theories. Table 1 shows which numbers were available in each game, with the CHT and TR predictions.

For each game, the $CHT_P$ and $CHT_R$ predictions coincided and were equal to 10, the highest available number. The TR prediction differed from CHT in the first four games and coincided in the last two games. We can use the first for games to distinguish between the two theories and the last two games to investigate deviations from both theories.

In each game, the two subjects saw the corresponding cards on their computer screen in a random circular order that varied from the order in which the cards were shown to the other subject. A subject made their choice by using their mouse to click on a card. The subjects were told that the order of cards on the screen was randomised for each subject separately. This was to prevent the subjects from coordinating on a card in a specific location on their screen, such as the one shown in the highest position. The experiment had 24 subjects, each trying to coordinate 6 times, matched with a different partner in each game. One game was randomly selected at the end of the experiment and each subject was paid their earnings for that game in euros, plus a small reward of 3 euros. In particular, if a subject chose the same card as their partner in that game, they earned the amount of euros equalling the number shown on that card, and otherwise earned 0.

## RESULTS AND DISCUSSION

We investigated the subjects' choices from two perspectives. The first result shows the behaviour in each game is indistinguishable from random choice. Nevertheless, this does not take into account that behaviour may be subject-specific. The second result reveals that a significant number of subjects made choices consistent with the CHT prediction, but no subjects made choices consistent with the TR prediction. Instead, post-hoc analysis shows that several subjects chose according to a related heuristic that maximises the chance for successful coordination instead of maximising the expected team payoff.

We begin by comparing the distribution of choices in all six games to the distribution that would be obtained had subjects chosen a random card in each game. The left panel of Table 2 displays for each game the proportion of subjects who chose the TR option, the probability of such choice if all subjects were choosing a card randomly, and the statistical significance of the hypothesis that the observed TR choices are above the random benchmark. The right panel of Table 2 shows for each game the related information about choices consistent with CHT.

Result 1. *The distributions of choices cannot be distinguished from random choice for either the TR and CHT count in all games, except game e where both TR and CHT make the same prediction that the card with the highest value 10 will be chosen.*

*Table 2: OBSERVED CHOICES CONSISTENT WITH TR AND CHT*

| | **TR** | | | **CHT** | | |
|---|---|---|---|---|---|---|
| **games** | **observed choices** | **random chance** | **significant** | **observed choices** | **random chance** | **significant** |
| a. | 33% | 20% | x | 67% | 80% | – |
| b. | 29% | 20% | x | 50% | 40% | X |
| c. | 35% | 40% | – | 65% | 60% | X |
| d. | 25% | 20% | x | 50% | 60% | – |
| e. | 67% | 25% | *** | 67% | 25% | *** |
| f. | 58% | 67% | – | 58% | 67% | - |

For each game, we check with the binomial test whether the observation is above the random benchmark. We indicate significance at the 0.05 level with ***, no significance with x, and an observation below the benchmark, in the opposite direction of the hypothesis, with –.
Source: own analysis.

This does not permit any conclusions about the relative success of TR vs. CHT in our data. Moreover, about one- third of our subjects' choices violated both theories by choosing a card with a number other than 10 in each control game e and f. Five subjects (21%) did this in both control games, suggesting that CHT and TR cannot even approximately describe the coordination process of the whole population. However, the analyses of separate games ignore the correlations in the decisions of subjects across all games. Next, we investigated whether the above results are due to random behaviour or if some subjects chose consistently the TR option or the CHT option.

Result 2. *Not a single subject consistently chose the TR option in all six games.*

Table 3 shows how often subjects chose according to one of the two theories. The top row indicates the number of rounds from 0 to 6 and the values below the count how many subjects chose according to one theory for precisely that number of rounds. The proportion of subjects (7 out of 24; 29.2%) who consistent with CHT chose 10 in all games is significantly higher than what one would expect (1.9%) if all subjects always chose a random card ($p < 0.01$, Binomial test).

*Table 3: A COUNT OF SUBJECTS WHO CHOSE ACCORDING TO A THEORY FOR A CERTAIN NUMBER OF ROUNDS*

| | **number of rounds** | | | | | | |
|---|---|---|---|---|---|---|---|
| | **0** | **1** | **2** | **3** | **4** | **5** | **6** |
| TR subjects | 0 | 1 | 16 | 4 | 1 | 2 | 0 |
| CHT subjects | 1 | 6 | 1 | 3 | 4 | 2 | 7 |

Source: own analysis.

While the seven subjects who perfectly followed the CHT prediction lend substantial support for this theory, it is important to also understand the coordination approach taken by the remaining 17 subjects. First, we explore whether the distribution of their choices can be explained by random choice. Due to the small number of subjects in some categories, we pool the CHT counts for the numbers in rounds 3 and 4, which should be most common if choices were random, and pool all the other counts (for numbers in rounds 0, 1, 2, 5 and 6). We compare the resulting frequencies of subjects (7 for pool [3,4] and 10 for pool [else]) to those that would be observed if choices were random (10.5 and 6.5) and find a marginally significant difference ($p = 0.07$, one-sided Fisher exact test). This indicates that random choice cannot strongly explain the coordination process of the 17 subjects who did not choose according to CHT.

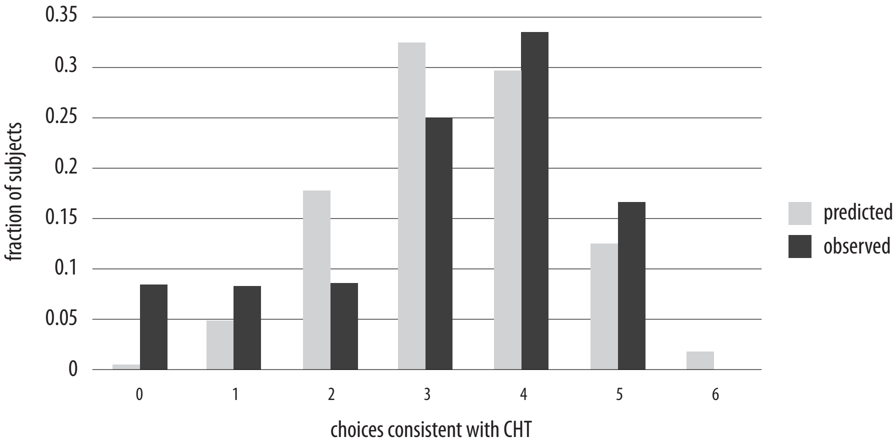
To uncover the process behind the coordination of these 17 subjects, we begin with two observations. In this post-hoc analysis, we extend the approach of Bardsley et al. (2010) to sequentially eliminate subjects choosing consistently in line with various theories until the choices of the remaining subjects cannot be distinguished from random choice. First, ten subjects chose the unique card with number 1 in game f, for which both TR and CHT predict the choice of card 10. Choosing 1 is rational only with a very high expectation that this will also be chosen by the partner, but is not rational in the presence of uncertainty about the partner's choice, which is why CHT predicts 10. Number 1 is no more prominent than number 10, which yields a 10-times higher payoff. However, it may be salient in the sense that it is the unique number in the set {10, 10, 1}, that is, the odd one out (Schelling 1960). The second observation was made by Bardsley et al. (2010) who speculate that some subjects use an odd-one-out heuristic when choosing the cards, even when this is not optimal for the team. Such a heuristic chooses the option that is in some way unique and easy to select. If both members of the team employ it, this assures successful coordination, but might not maximise the expected team payoff. For example, if both team members choose the unique card from the set {10, 10, 1} they coordinate with certainty, but earn a payoff of 1. This is less than if they both choose a random card 10, coordinate with a probability of 0.5 and earn the expected payoff $0.5 \times 10 = 5$. We next investigate whether some of our subjects may have been following this heuristic. For this, we need to specify its predictions in our six games.

Strictly defined, the odd-one-out heuristic always selects the only unique card when it is available. For instance, it chooses card 9 in game a, card 8 in game b and card 1 in game f, but its choice in games c (with no unique card), d (with two unique cards) and e (with all cards unique) is unclear. Five of our subjects chose according to this heuristic in games a, b and f. Further confirmation of their preference for unique cards is that each of them chose either the unique card 8 or the unique card 9 in game d.

Result 3. *Out of 24 subjects, 7 subjects chose consistently with CHT and 5 subjects consistently with the odd-on-out heuristics, while the behaviour of the remaining 12 subjects is indistinguishable from random choice.*

When we remove the 7 subjects who chose in line with CHT and the 5 subjects who followed an odd-one-out heuristic, we can test again whether the distribution of the number of CHT choices among the remaining 12 subjects is distinguishable from what we would observe from random choice. Figure 1 shows the similarity between the predicted fraction of subjects who would make the CHT choice for a certain number of rounds if the choice were random, and the corresponding observed frequencies. When comparing the pooled frequencies of subjects (7 for pool [3,4] and 5 for pool [else]) to those that should be observed if choices were random (7.5 and 4.5), we find no significant differences ($p = 0.77$, two-sided Fisher exact test).

*Figure 1: CONSISTENCY WITH CHT BY THE 12 SUBJECTS NOT CLASSIFIED AS USING CHT OR THE ODD-ONE-OUT HEURISTIC*




Source: own analysis.

Analysis of the subjects' decisions indicates that at least some subjects make coordination choices in line with cognitive hierarchy theory, but provides no support for the standard utilitarian model of team reasoning that assumes that subjects maximise the expected payoff of a team as a whole. However, it does suggest that some of the subjects follow a related heuristic that aims to achieve team success by choosing the unique number and assure coordination instead of maximising its expected payoff. Just 1 out of 5 of these latter subjects chose the TR options in games c, d and e, suggesting the odd-one-out heuristic is not simply an extension of team reasoning, but a distinct approach to coordination.

Our conclusions can be compared to those for the Nottingham treatments in Bardsley et al. (2010), which used a static display, like we did in our Slovenian experiment. They found the majority of subjects (25 out of 44) consistently chose the CHT option, and a minority (8 out of 44) were attracted to the odd-one-out heuristic. They also found a minority (8) of subjects often chose the TR option but their results do not distinguish subjects following the TR from the odd-on-out heuristic, leaving open the question of whether the odd-one-out heuristic is just an extreme form of team reasoning, one that seeks to assure coordination, or an entirely separate approach to coordination.

We found a significant minority of subjects acting consistently with CHT and another minority consistently with the odd-one-out heuristic, yet no subjects consistently choosing the TR option. Although the primacy of CHT and evidence for the odd-one-out choice is consistent with the conclusions in Bardsley et al. (2010), the share of CHT subjects in our data is significantly smaller than that in Bardsley (2010) ($p = 0.026$, one-tailed Fisher exact test). We thus provide evidence that coordination processes across the two cohorts are similar, with the higher level of individualism in the general social environment increasing the share of individualistic reasoning in the coordination.

Result 4. *CHT is the modal mode of consistent reasoning in both the Slovenian and English experiments. CHT is more common among English subjects than among Slovenian ones, while there is no evidence of TR in the Slovenian experiment.*

## CONCLUSION

The results of the experiment reveal the complexity of the processes of social coordination and cooperation. Half the subjects did not appear to apply a consistent process for coordination, behaving in a way indistinguishable from random. Of the two prominent accounts of coordination in the literature, we only find evidence for the individualistic one: about 30% of the subjects' choices were fully consistent with CHT. We find no support for the other account: not even one subject's choices were consistent with the collaborative account of TR. Instead, we find that about 20% of the subjects chose consistently with the odd-one-out heuristic (OOO) that we did not postulate ex-ante. While this heuristic was proposed by Bardsley et al. (2010), it was neither thoroughly tested nor distinguished from team reasoning. It postulates that in coordination games of the kind considered in this article individuals choose the sole unique number when it exists. If the team members follow this heuristic, they assure coordination. This is in contrast with TR whereby team members strive to choose the options that maximise the expected payoff for the team. The behaviour of the remaining 50% of our subjects cannot be distinguished from random choice, suggesting it is likely they do not apply a consistent mode of reasoning in coordination games.

The results from Slovenia presented here vary from those in England in one respect. A significantly higher share of English subjects chose consistently with the individualistic cognitive hierarchy theory. However, this result might be an artefact of the large share of Slovenian subjects behaving unpredictably more than indicating a cultural difference. Since we found no team reasoning among the Slovenian subjects, our results do not support the hypothesis that subjects in Slovenia applied a more collectivist mode of reasoning than those in England. One could argue that the OOO heuristic is also a representation of collectivist reasoning since it assures successful coordination when a game offers a unique single option. In any case, our evidence in support of its application also does not provide support for the culture hypothesis. The share of subjects consistent with OOO in our Slovenian sample (20.8%) is roughly the same as the share of subjects (18.2%) identified as potentially OOO in Bardsley et al. (2010). Although further analysis of their data would be required for an exact comparison, it is noted that they did not investigate this heuristic in detail.

One caveat regarding the OOO heuristic is required. Namely, it does not provide a complete account of choice for all pure coordination games because it offers no rule of choice for games without a unique number (our game c) or with more unique numbers (our games d and e). Several extensions of the heuristic for such games are possible, including maximisation of the *chance* of coordination, or by relying on another account of saliency such as the largest number. Neither of these would be fully consistent with TR. Indeed, the subjects we identified as following OOO did not choose according to TR in games c, d and e. This shows that OOO is not just an extreme form of team reasoning but a different representation of collective reasoning.

Two limitations pertain to the presented results. First, the analysis of the odd-one-out heuristic was not postulated at the outset of the study and was post-hoc. In the absence of an independent replication, we cannot confidently claim that this is a significant new mode of reasoning in coordination games. Second, our sample was not as large as the sample in Bardsley et al. (2010), leading to limited statistical power. Still, our main results are not likely to change with a larger sample given that TR reasoning and significantly less CHT reasoning was found than in the English sample.

While the topic of social coordination is connected to the topic of collective intentionality, by focusing on mutual coordination we did not assume the unilateral primacy of the irreductionist above the reductionist concepts of collective intentionality (see Tollefsen 2002). It may be that both concepts implicitly presuppose some common and deeper considerations of basic social human nature (e.g., Kern and Moll 2017). Robert Sugden notes that partners do not develop team reasoning if there is no common belief among them that the necessary and best strategy for achieving common goals is cooperative (Sugden 1993). Such a belief, in turn, presupposes the joint willingness of the partners to cooperate on the realisation of common goals (Ule 2008a). Both team reasoning and cooperation are based on the partners' conscious willingness to participate in a common event/task. The coordination behaviour of our subjects shows that young people hold the potential to develop some form of cooperative reasoning in the form of the odd-one-out heuristic, as well as a more individualistic, boundedly rational focus on their own success, such as that described by cognitive hierarchy theory.

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## TEORIJE O ČISTI DRUŽBENI KOORDINACIJI Z EKSPERIMENTALNIMI DOKAZI IZ SLOVENIJE

**Povzetek.** *Članek predstavlja razpravo o rezultatih laboratorijskih eksperimentov o družbeni koordinaciji, ki omogočajo različne oblike mišljenja in so bili izvedeni v laboratoriju TIG Univerze na Primorskem. Raziskuje, kakšno vrsto mišljenja uporabljajo udeleženci v naših eksperimentalnih situacijah odločanja. Ob tem primerjam predvsem dve sodobni teoriji koordinacije, od katerih ena opisuje timsko, druga pa individualno usmerjeno vrsto razmišljanja. Koordinirano vedenje udeležencev v poskusu kaže, da imajo mladi potencial za razvijanje tako sodelovalnega sklepanja kot tudi bolj individualistično, omejeno racionalno naravnanost, usmerjeno v lasten uspeh – kot jo opisuje teorija kognitivnih hierarhij. Namesto timskega mišljenja se udeleženci poslužujejo enostavnejše, a manj dobičkonosne izbire opcije, ki ne sodi med ostale.*

**Ključni pojmi:** *problemi usklajevanja, timsko mišljenje, individualno usmerjeno mišljenje, omejena racionalnost, eksperimentalno odločanje.*