Similarity increases collaborative cheating

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We report two experimental studies testing how a cognitive feeling of similarity affects dishonesty in individual and collaborative tasks when cheating hurts others. By employing a novel die-in-the-box-paradigm to a total of 1,080 subjects we find that a sense of similarity (versus dissimilarity) increases dishonesty in settings highlighting the relationship with a collaborator, but decreases dishonesty in settings highlighting the relationship with others who suffer from cheating. Corroborating these results, a code of conduct highlighting similarity towards the firm's employees leads to higher levels of cheating compared to a code of conduct highlighting similarity towards other members of the society. The results provide insights into how to craft effective organizational codes of ethical conduct.

Key words: similarity, cheating, lying, codes of ethical conduct, whistle-blowing, four-eyes principle, social responsibility

JEL codes: C92, D79, M14

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1. Introduction

When employees make decisions, they have a wide range of strategic choices available that may result in outcomes with differing degrees of social responsibility. Some choices of how to conduct a task may be socially responsible, in that employees behave according to values shared within society. Other choices, however, may violate ethical and legal rules and include behavior that yields higher returns to the individual or a small set of collaborators, at the cost to other members of the organization or society. In 2015, for example, it was revealed that Volkswagen (VW) employees intentionally manipulated diesel engines to meet the strict USA nitrogen oxide emission standards during testing (Economist 2015). The engines' software was manipulated to emit less harmful gas when the car is being tested. The software checked several indicators about whether the car is being driven or whether it is being tested, for example, it checked the extent of the movement on the steering wheel. Before being exposed, members of the team who manipulated the software were reaping the benefits of their cheating and lying (in the following we will use "cheating" and "lying" as interchangeable), by receiving bonuses and being praised for allowing VW to excel in sales. Those individuals were corruptly collaborating to promote narrow interests at the cost to clients and the larger society. Since exposure, the financial and reputation costs of Volkswagen as a result of these manipulations are enormous. Similar scandals emerge with striking regularity. As a result organizations bear substantial costs – sometimes jeopardizing their very existence – caused by the ethical misconduct of some of its members. Gaining a substantiated understanding as to the institutional structures and psychological underlying processes that lead people to behave (un-)ethically, is a timely managerial issue which triggers more and more research endeavors (Grolleau et al. 2016, Moore and Gino 2015, Cohn et al. 2014, Villeval 2014, Conrads et al. 2013, Fischbacher and Föllmi-Heusi 2013, Gino et al. 2013, Bazerman and Gino 2012, Erat and Gneezy 2012, Srivastava and Banaji 2011, Sutter 2009, Mazar et al. 2008, Gneezy 2005, Schweitzer et al. 2004, 2002).

To protect their organizations against having their employees engage in unethical behavior, management teams craft codes of ethical business conduct for their firms (Paine et al. 2005, Forster et al. 2009, Kish-Gephart et al. 2010). These codes provide an ethical compass to employees, highlighting both general and specific ethical principles employees should adhere to. Among other elements codes of conduct typically vary on how much weight they put on two dimensions: (1) relationships within versus outside the organization and (2) whether the code emphasizes similarities versus differences in these relations. Focusing on relationships within the organization, Nestlé's code of conduct, for example, states in its introduction: "Employees should always be guided by the following basic principles: – avoid any conduct that could damage or risk Nestlé or its reputation; – act legally and honestly; – put the Company's interests ahead of personal or other interests" (Nestlé 2016, p. 1). UBS (2016), in contrast, begins by mentioning relationships outside the organization: "We act fairly, honestly and in good faith towards everyone we deal with: our clients, business partners, competitors, suppliers, the public and each other" (p. 4). Codes of conduct further emphasize either internal commonalities and solidarity between their employees and sub-organizations, or diversity and differences of opinion. For example, the pharmaceutical company GlaxoSmithKline (2016) open their code of conduct by stating: “We are a community of over 100,000 people in more than 115 countries. We aim to build a culture where all our people are empowered and united by our values and a common set of expectations” (p. I). In contrast, highlighting diversity and the importance of taking different perspectives into account, the code of BP (2016) states: “Our expectations: Diversity and inclusion build teamwork and success. We value the unique contribution that each person brings to BP. We accomplish more when people from diverse backgrounds and with different talents and ideas work together in an environment where everyone can contribute and make full use of their talents” (p. 11).

With regard to the two dimensions discussed above, so far, little is known how codes of conduct should be tuned in order to boost employees’ ethical and socially responsible behavior. Does focusing employees on their relations within the organization prove to be more useful compared with a focus on relationships outside the organization? Alternatively, could a focus on relationships within the organization prove to be corruptive, making employees more likely to focus on their close circles’ interests at the expense of larger societal considerations? Furthermore, would emphasizing similarities towards others in the organization boost ethical conduct or perhaps, amplify organization-serving corrupt behavior? These are the exact questions we tackle in this paper. In two laboratory studies we employ a novel die-in-a-box design to a total of 1,080 subjects allowing us to assess individual versus close-circle serving dishonesty (the proxy we adopt here for unethical behavior). We further evoke a sense of similarity among participants using procedures commonly used in social cognition research. Our results suggest that a sense of similarity increases ethical behavior when evoked in relation to others outside one’s own organization (e.g., society), but decreases it when evoked in relation to others within one’s own organization (e.g., close collaborators). As such, our findings are telling to organizations considering how to craft their codes of conduct to facilitate ethical conduct.

Our novel die-in-the-box paradigm is an extension of the die-rolling paradigm introduced by Fischbacher and Heusi (2008) commonly employed in subsequent studies (see Fischbacher and Föllmi-Heusi (2013), Shalvi et al. (2011a,b); for a recent meta-study see Abeler et al. (2016)) to more than one decision-maker. In the die-rolling paradigm, a subject is asked to privately roll a die and to report the outcome of the roll. The subject is paid according to the reported outcome, thus allowing the subject to increase the own payoff by cheating and reporting an outcome associated with a higher payoff than actually deserving. Rolling a die guarantees a high degree of privacy because it is obvious that the experimenter cannot detect whether any particular person is cheating. Cheating is assessed by comparing the aggregate level performance to the performance expected if subjects are honest. The task (or its variations of reporting private coin toss predictions) has been validated as a proxy to a variety of real world unethical behaviors including not paying for public transport (Dai et al. 2016), not returning undeserved payment send in compensation for study participation (Potters and Stoop 2016), misbehaving in school (Cohn and Maréchal 2016), milk-sellers diluting milk with water (Kröll and Rustagi 2016), and nurses being late to work (Hanna and Wang 2016). A recent cross cultural study (Gächter and Schulz 2016) further revealed higher levels of misreporting in countries high on political fraud, corruption, and tax evasion.

The die-rolling task is useful to study individual dishonesty. Many important real-world decisions, however, are made in collaboration of more than one person. Our experimental design extends the die-rolling task to a dyadic setting in which two subjects are sequentially exposed to the exact same die roll, report its outcome sequentially, and thereby determine their payoffs. As such, the design allows studying an environment closely mirroring many organizational settings, in which one person (e.g., an employee) conducts a task (e.g., designs a software to control an engine's emission) and another person (e.g., a colleague or a manager) observes the final product and signs it off for production. We are able to estimate the prevalence of two types of ethical misconduct: (1) cheating by boosting a reported outcome conducted by the first person, and (2) covering up another's lie by not reporting it to the authorities. That is, avoiding whistle blowing another's wrongdoing.

Our design most closely resembles the dyadic die rolling task recently introduced by Weisel and Shalvi (2015). In their die rolling task, one subject privately rolls a die and reports the outcome into a computer, and the reported outcome is sent to a second subject. The second subject learns what the first reported rolling, rolls a die as well, and reports the own outcome. If both subjects report the same outcome, each gets the reported value in Euros. If they report different numbers, both get nothing. The task thus allows for the first subject to lie in order to increase the target value, and for the second subject to lie by matching the first's outcome regardless of the actual outcome rolled. Weisel and Shalvi report 82% doubles being reported (mostly 5-5s and 6-6s – the two numbers that yield the highest earnings), compared with 17% expected if subjects were honest. Our design is different from Weisel and Shalvi's in two important ways. First, in their design subjects are exposed to different private pieces of evidence (i.e., two die rolls) which they are required to report about. In our design, subjects observe the exact same piece of evidence (i.e., one die roll). The difference is important as in many organizational settings, the same information and materials are dealt with by multiple people, who need to handle it or report about it. Indeed, many organizations adopt the four eyes principle requiring one person to check and sign off the work of a colleague. Our design follows such procedure as well, making it resemble actual decision situations in organizations where people lie when reporting about the observed evidence as well as when signing off another person's report. We are able to have two subjects observe the exact same die roll by introducing custom-made boxes which prevent the first subject from tempering with the rolled outcome. The boxes thus allow the second subject to verify whether the first subject's report was honest or not. To prevent the experimenter from knowing the actual outcome, the second subject receives the key to the box, and is guided to remove the die, thus eliminating all evidence.

Second, Weisel and Shalvi compare behavior in the dyadic task to the behavior of individual subjects rolling the die twice. They find more cheating in the dyadic compared with the individual setting. However, in their design, it is unclear whether the differences between the dyadic and individual settings are driven by the collaborative aspect of working together, or alternatively, by the higher efficiency cheating entails in the dyadic setting (benefiting two rather than only one individual). In our design cheating is efficiency neutral in that it improves the payoffs of liars but causes negative externalities to others by the same amount. The setup maps, for example, a typical fraud situation where two individuals extract profits at the cost of many others, for example, shareholders of a competitor or other members of the society outside the organization. Keeping cheating efficiency neutral across treatments, allows us to compare lies that serve the interests of one person versus a dyad of collaborators at the expense of a larger collective (here, all other subjects in the experimental session). The comparison is important as it allows us to concentrate our investigation on understanding how codes of conduct focusing on similarities towards members within versus outside one's organization shape ethical (mis)conduct.

We manipulate a sense of similarity in two distinct ways. In study 1, we manipulate subjects' general focus on similarities versus dissimilarities, following a procedure to subtly activate the respective foci that was developed by Mussweiler (2001). We compare unethical conduct in individual versus collaborative settings. In the collaborative setting, the induced focus on similarities (versus dissimilarities) is likely to be applied to the social target in the experiment on which participants focus their attention, namely the other member of their dyad. In the individual setting, the induced focus on similarities is likely to be applied to the only other targets available, the other members of the session who will bear the negative externalities from one's lie. Study 2 transcends the abstract activation of similarity and is designed to address how firms might overcome the potential dishonesty of similar collaborators. Here we assess the extent to which members of an organization may behave more socially responsible if their code of conduct particularly focuses on the similarities between members of the organization and its external stakeholders (society focus) compared to a narrow focus on similarities among collaborators (firm focus). Indeed, we tend to find more cheating in the firm focus treatment than in the society focus treatment.

Our study is related to new contributions on the role of perceived similarity as a cognitive factor shaping economic behavior. Subtly inducing subjects to adopt an information-processing style that focuses on similarities versus dissimilarities (Mussweiler 2001) has considerable impact on their behavior towards others (e.g., Corcoran et al. (2009), Todd et al. (2011); for an overview, see Mussweiler (2014)). As an important example for the present work, it has been shown that the manipulation of a focus on similarities versus dissimilarities influences the extent to which individuals altruistically reward and punish others in the context of a cooperation game (Mussweiler and Ockenfels 2013).

To date, however, little is known about how such cognitive mechanisms of focusing on similarities versus dissimilarities influence ethical behavior in general, and cheating in specific. Such knowledge is essential, for example, when considering ways to craft effective organizational codes of conduct. To fill this gap, we unobtrusively manipulate similarity perceptions by letting participants work on a task (Mussweiler and Damisch 2008) in which they compare two pictures (see Appendix). About one half of participants is asked to list all of the similarities between the two pictures they can find. The remaining participants are asked to list all of the dissimilarities they can find. Extensively concentrating on similarities versus dissimilarities during the picture comparisons induces a generalized focus on either similarities or dissimilarities that carries over to subsequent tasks. The task has been shown to induce perceived self-other similarity in subsequent interactions: Participants who focused on similarities (differences) in the picture comparison task subsequently judged themselves as more similar to (dissimilar from) a given other (Mussweiler 2001)[1]. In the context of study 1, participants who focus on ways in which the pictures are similar would thus subsequently focus on ways in which they are similar to the most salient other person in the experimental set-up. In a collaborative condition in which participants engage in the die-rolling task in a dyad, the partner is the salient other. Hence, in this condition participants will focus on similarities to their dyad partner. In an individual condition in which participants engage in the die-rolling task by themselves, the persons bearing the negative externalities from their potential lies are the salient others. Hence, in the individual condition participants will focus on similarities

[1] The procedure enables a content-free variation of self-other similarity that manipulates perceived similarity independent of group identity (see, for example, Chen and Li (2009)). We avoid creating any kind of group identity in order not to confound perceived similarity and group identity (for a discussion on these matters see Mussweiler and Ockenfels (2013)). We aim at manipulating pure similarity versus dissimilarity, as they are often evoked by codes of conducts, and not boundaries between qualitatively different social groups. Such manipulations of similarities versus dissimilarities most likely affect unethical conduct via cognitive processes of the projection of own interests and norms, empathy and trust, and hence cooperation. In fact, similarity appears to be the more fundamental factor; it is spontaneously extracted from both social and non-social stimuli, and is central to human information processing, already at a very young age (Markman and Gentner 2005, Mussweiler 2014). In contrast, especially a salient and realistic group membership might also entail other motives, like a desire to compete with the outgroup over scarce resources, and as a result to harm the outgroup (e.g., Brewer and Kramer (1985)). As such motives are not in the focus of our current study we avoid emphasizing group memberships.

to the potentially harmed others. By the same token, participants who focus on ways in which the pictures are dissimilar will focus on ways in which they and the most salient other(s) are dissimilar.

2. The die-in-the-box paradigm

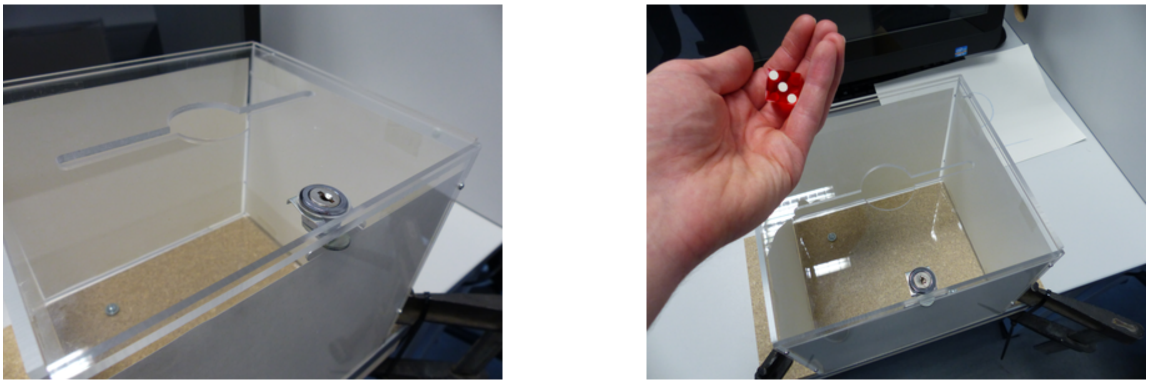

Figure 1 Die-roll into custom-made acrylic glass box with six-sided high precision die

In our experiments, we allow dyads of two subjects to observe exactly the same actual outcome of rolling one physical die while preventing communication between the subjects. We fabricated locked boxes made of acrylic glass where subjects look into sequentially. One subject privately rolls a die into this box and another subject is able to observe the outcome later. Subjects are randomly assigned to one of two roles, either first mover (F) or second mover (S). One F is randomly matched with one S to form a dyad. Further, each subject is located in a separated, randomly assigned, cubicle in the laboratory. Each dyad owns one additional cubicle that is equipped with a custom-made acrylic glass box and a high precision die also used for professional games tournaments (see Figure 1). After clarifying potential questions on the instructions, the experimenter leaves the laboratory to reduce concerns about detection of a potential lie. When the experimenter has left the laboratory, each F is asked to move to the dyad's cubicle with the acrylic glass box. All side walls of the box are covered with paper from inside so that it is not possible to look into the box. As in other die-rolling studies, F is asked to roll the die three times.[2] F is asked to roll the die twice on the table. Afterwards F removes the sheet covering the upper side of the box. Under the cover, F finds a transparent side through which F can privately look into the box. F then rolls the die into the box by throwing it through a small hole (see Figure 1). After the die

[2] In many studies, subjects roll the die more than once even though only the first die roll should be reported. Observing additional irrelevant outcomes is meant to increase the opportunity for justifications of a potential lie (Shalvi et al. 2011a, Gächter and Schulz 2016). To make our data comparable to the other studies, we also implement three die rolls.

lands in the box, F observes the rolled outcome and is asked to cover the box to ensure privacy. F reports the outcome by typing in an integer from 1 up to 6 into the computer. The number reported by F is sent to the assigned S via computer. To guarantee no communication takes place between the subjects, they do not meet each other in the laboratory nor do they know who the other dyad member was after the experiment is over.

Only if all Fs are back at their original cubicle, each S learns the number reported by the matched F and is asked to move to the dyad's cubicle with the box. S finds the die in the locked box showing the actual outcome of F's die roll. S is asked to remove the cover from the box and to report the observed outcome. S types in an integer from 1 to 6 into the computer. Thereby, S can confirm the report of F by typing in the same number or can report a different number. For example, when F lied, S may disclose this by reporting the actual outcome. S may alternatively cover up F's lie, and confirm the wrongly reported outcome. Using a key for the locked box which only S possess, S opens the box, and removes the die (see Figure 2). Removing the die enhances privacy as it makes it very clear that no one except for the matched F and S can observe the actual outcome. Importantly, it is impossible for F to manipulate the outcome of the die.[3]

Payoff structure

We provide both F and S with an incentive to cheat because this mirrors the incentives of many collaborative tasks in the workplace. Behaving dishonestly, for example, manipulating emission software in cars or accepting bribes, often increases own monetary payoffs or bonuses. At the same time, other people who observe the misconduct often benefit as well and/or are unlikely to have an incentive to disclose, as it is often costly for colleagues or even auditors to blow the whistle or disclose an observed bribe. Indeed, the literature on whistle blowing – the act of reporting on another's wrong doing – suggests that people are very reluctant to blow the whistle.

[3] We could think of three potential ways to manipulate the outcome of the die that are highly unlikely with our locked acrylic glass boxes: Firstly, manipulating the thrown number by reaching into the box to move the die. This is very difficult in our experiment because the box has a height of 21 centimeters and the hole has a radius of less than 1.5 centimeters. In particular it is difficult because any tools or pens are strictly forbidden (and, in fact, almost all pens are too short to reach the die, even if the die luckily landed in the middle of the box). Second, we prevent the possibility of shaking the box until the die switches to a more favorable outcome. The box is fixed with bolts and ring washers on a piece of wood. This piece of wood is fixed on the table with two massive screw clamps and it is impossible for subjects to move the box or even the table because the tables are fixed in the laboratory. To move the box, one would need to open the screw clamps. Further, to manipulate the die, then one would need to shake the box until the desired outcome realizes, and fix the box with the screw clamps in the same position again. To prevent this behavior, we fixed the screw clamps with cable ties. Thus, it is very difficult to open the screw clamps and if so, it would have been very easy to detect this manipulation because it is necessary to destroy the cable ties for this. Third, subjects could try to open the lock. It seems to be very difficult to break open the lock, and if so it would have been easy to detect. Otherwise, one would need special tools to open the lock. Those tools are obviously forbidden and subjects are unlikely to have those tools with them. Thus, by rolling the die into our box, we reduce potential manipulations by F and S. Thus, if F lied, S is able to observe this and F is also aware that S will detect a potential lie.

Figure 2 Open custom-made acrylic glass box to remove six-sided high precision die

In lab experiments (Bocchiaro et al. 2012, Reuben and Stephenson 2013) less than 20% report an explicit ethical violation to the relevant authorities, even when receiving an opportunity to do so in private. When S confirms the report of F, F and S each receive the reported number paid in Euro, e.g., reporting 4 would lead to a payoff of 4.00 Euro for F and 4.00 Euro for S. When S does not confirm, the number of the two reports that yields the lower payoff determines the payoff for the two subjects. For example, if F reports 5 but S reports 3, S's report determines the payoff for F and S (3.00 Euro each). However, if F reports 2 and S reports 4, F's report determines the payoff for F and S (2.00 Euro each). We follow Fischbacher and Föllmi-Heusi (2013) in that (at least one of the two, F and/or S) reporting 6 leads to the lowest payoff of 0.00 Euro which is clearly communicated to the subjects.

Our experimental design also reflects the social costs of cheating through negative externalities (see (Abbink et al. 2002) for a similar modeling of negative externalities triggered by unethical conduct). In many previous studies, cheating increases efficiency as reporting a higher number yields a higher outcome without any direct costs for others (beyond the experimenter, see Fischbacher and Föllmi-Heusi (2013) for a notable exception in their EXTERNALITY treatment). In these cases, cheating might be less ethically objectionable because it increases the welfare of the subjects. In our experiment, we model cheating as efficiency neutral to avoid efficiency considerations as an additional motivator to lie. Each die-roll payoff is subtracted in equal parts from the endowment of all 20 subjects in each session. Suppose, for example, subject F rolls the die and the actual outcome is 3. If F lies and reports 5, and S lies by confirming that 5 was indeed shown by the die, both subjects benefit in monetary terms from dishonest behavior. They receive 5.00 Euro each, even though each of them deserves only 3.00 Euro. In our efficiency neutral setting, reporting a higher number also creates the same amount of negative externalities. Thus, for each dyad reporting 5 we subtract 0.50 Euro from every subject's payoff, whereas for reporting

3 we only subtract 0.30 Euro. Then, reporting 5 after observing 3 increases the own payoff by 2.00 Euro (= 5.00 Euro – 3.00 Euro), creating costs of 4.00 Euro that are borne by all subjects in the laboratory. Thereby, all participants in an experimental session resemble members of a society who have to bear the social costs from cheating. Another interpretation would be that cheating enables a kind of stealing from a larger group or society. To guarantee that every subject receives a positive payoff at the end of the experiment, subjects receive an endowment of 4.50 Euro from which the deductions can be paid.

3. Study 1

Study 1 is designed to understand how cheating and lying – as a proxy for unethical conduct – is affected by two dimensions, i.e., perceived similarity compared to dissimilarity in individual and collaborative tasks.

3.1. Experimental Design and Procedures

We employ a 2 x 2 design (see Table 1). Each treatment contains two independent stages. The first stage serves to induce pure (dis)similarity with the help of a commonly used procedure to subtly induce participants to adopt an information-processing style that focuses on similarities versus differences (Mussweiler 2001). The second stage employs the die-in-a-box task presented above.

Table 1 2 x 2 Design of Study 1

Treatment	Focus (stage 1)	Decision Type (stage 2)	Independent observations
SIM-IND	*similarity*	individual decision	110
DIS-IND	*dissimilarity*	individual decision	110
SIM-DYAD	*similarity*	dyad decision	110
DIS-DYAD	*dissimilarity*	dyad decision	110

3.1.1. Similarity induction (stage 1) Research in social cognition demonstrates that how people behave towards others critically depends on how they process information about those others. One important aspect is, for example, how similar people see another person to be to themselves. Humans behave in fundamentally different ways towards those they see as similar to rather than dissimilar from themselves. To unobtrusively vary perceived similarity, participants work on a task (Mussweiler and Damisch 2008) in which they compare two pictures (see Figures 8 and 9 in the Appendix). In doing so, a random half of the participants are asked to list all of the similarities between the two pictures they can find. The remaining participants are asked to list all of the dissimilarities they can find. Extensively focusing on similarities versus dissimilarities during the picture comparison induces a generalized focus on either similarities or dissimilarities that carries over to subsequent tasks. As explained above the task has been shown to influence perceived self-other similarity in subsequent interactions, e.g., participants who focused on similarities (dissimilarities) in the picture comparison task subsequently judged themselves as more similar to (dissimilar from) a given other (Mussweiler 2001). In our experiment, participants who focus on ways in which the pictures were similar would thus subsequently focus on ways in which they and a salient other person are similar. By the same token, participants who focus on ways in which the pictures are dissimilar would focus on ways in which they and a salient other person are dissimilar. The procedure affords a content-free manipulation of self-other similarity that manipulates perceived similarity independent of group identity. Thus, to understand how pure similarity affects cheating behavior, we manipulate perceived similarity by inducing subjects to adopt either a similarity (SIM) or a dissimilarity (DIS) focus in the first stage. To control for session effects we randomly assign both SIM and DIS settings in each of the sessions.

3.1.2. Die-in-a-box (stage 2) The second stage employs the die-in-the-box paradigm described in section 2. In the dyad conditions (DYAD), a subject with role F and a subject with role S can report a variety of outcomes, as discussed above. Each experimental session employs 20 subjects (10 dyads): 10 subjects taking the role of F and 10 subjects taking the role of S. Payoffs Π for a dyad F_i and S_i are provided in equation (1) where x is the vector of all reports by all 10 Fs and 10 Ss and $o(x_{F_k})$ and $o(x_{S_k})$ are the payoffs resulting from reports by F_k and S_k, respectively.

$$\Pi_{F_i}(x) = \Pi_{S_i}(x) = endowment + \min\left[o(x_{F_i}), o(x_{S_i})\right] - \frac{1}{10}\sum_{j=1}^{10} \min\left[o(x_{F_j}), o(x_{S_j})\right];$$
$$o(x_{P_k}) = x_{P_k}, \quad \text{if} \quad x_{P_k} \in \{1, ..., 5\}, \; o(6) = 0 \; with \; P \in \{F, S\} \tag{1}$$

The individual decision conditions (IND) are designed as similar as possible to DYAD. The difference between IND and DYAD is essentially that IND is conducted without the role S that may verify the report of role F. As in DYAD F goes to the cubicle with the box made of acrylic glass and rolls the die. Also the box is locked as in DYAD. However, as there is no S in IND, F also holds the key. Thus, F also removes the die so that the experimenter cannot observe the actual outcome. Ten subjects with role F take part in each experimental session in IND (as in DYAD). Cheating, for example, by reporting 5 after observing 3, increases the individual payoff in IND exactly as in DYAD (in the example: by 2.00 Euro = (5.00 Euro – 3.00 Euro)). Cheating in IND is also efficiency neutral because it not only increases the payoff of one individual but also decreases the payoff of all ten subjects in this experimental session (see equation (2); in the example the payoff of all subjects is additionally decreased by 0.20 Euro each due to the lie). Subjects in IND receive the same endowment of 4.50 Euro as in DYAD. Payoffs Π for an individual F_i are provided in equation where x is the vector of all reports by all 10 Fs and $o(x_{F_k})$ denotes the payoffs resulting from reports by F_k.

$$\begin{aligned}\Pi_{F_i}(x) = endowment + o(x_{F_i}) - \frac{1}{10}\sum_{j=1}^{10} o(x_{F_j});\\ o(x_{F_k}) = x_{F_k}, \quad \text{if} \quad x_{F_k} \in \{1, ..., 5\},\ o(6) = 0\end{aligned} \tag{2}$$

3.1.3. Hypotheses Suppose every subject would report truthfully. Then, a share of about 16.7 percent of subjects would report each number, from 1 to 6. In contrast, a purely self-interested rational subject maximizes the monetary payoff and reports only truthfully if the actual outcome is 5. According to standard theory, all subjects selfishly report 5 in all treatments, independent of the actual outcome they rolled. The literature on lying, however, does not support this extreme view. Typically, there is not only a substantial share of subjects reporting the number that yields the highest monetary payoff but also a substantial share of subjects reporting lower outcomes. In Fischbacher and Föllmi-Heusi (2013), a significant proportion of participants reported the second highest value, more than would be expected if participants were reporting honestly. Such incomplete lies are sometimes explained by assuming a psychological cost people suffer from cheating (Lundquist et al. 2009, Mazar et al. 2008). That is, when deciding about the extent of their lies, people seem to balance the profit generated by cheating with the psychological costs it entails (Shalvi et al. 2011b). Fischbacher and Föllmi-Heusi (2013) reveal that the tendency to cheat in a non-profit maximizing way is robust to e.g., tripling the financial incentive to lie, increasing anonymity by having participants pay themselves out of a sealed envelope, and having participants engage in the task for a second time.

Prior work seems to suggest that cheating is psychologically costly. The underlying assumption so far seems to be that costs of cheating only vary with how cheating affects the monetary payoffs of the different parties. That said, as monetary incentives per individual in our design are kept constant across treatments, allowing for costs of cheating should not lead us to expect differences between the treatments. Furthermore, as the monetary costs imposed on others (i.e., negative externalities) are kept constant across the IND and DIS treatments respectively, they too should not lead to predicting different amounts of cheating between treatments.

Null hypothesis: *The distribution of reported outcomes is the same in all treatments*

From a social cognition perspective, similarity should, however, cause a difference in behavior. To better understand how similarity affects cheating, we vary perceived similarity by employing the procedural manipulation as described above. As shown in psychological research, extensively focusing on similarities versus dissimilarities during the picture comparison task induces a generalized focus on either similarities or dissimilarities that carries over to subsequent tasks (see, for example, Mussweiler (2014)). In our case, the extensive focus from the first stage of the experiment carries over to the die-in-a-box task in the second stage. In the IND conditions, participants are likely to focus their attention on all other participants since there is no one with whom they interact more closely, i.e. who would be more salient, and they are all in the same strategic situation. Participants who are asked to find similarities in the first task (SIM-IND) should therefore focus on similarities between themselves and those other participants. Thus, in the SIM-IND condition participants can be assumed to perceive the other participants as similar to them. Following the above reasoning, these participants should be more inclined to feel empathy with those other participants, they should feel closer to them, and thus harming them should be relatively costly. Therefore, to avoid harming the others by inflicting negative externalities on them, in the SIM-IND condition participants should lie less than in DIS-IND.
In the DYAD conditions, however, effects should be reversed: The primary focus of attention for subjects with role F should be the subject with role S in the same dyad, who observes the true outcome and the report of F. Vice versa, the subject with role F in a dyad should be the primary focus of attention for the subject with role S. This single other person (role F or S) should be salient to participants: He or she assumes a complementary role in obtaining the payoff, and hence is a potential collaborator in cheating. Participants in the SIM-DYAD condition should focus on similarities between them and their respective other in their dyad. Similarity increases trust and increases projection of own norms and potentially selfishly biased perceived entitlements. Thus, participants should project their monetary self-interest on their counterpart in the dyad, and also be more motivated to benefit their counterpart. In sum, similarity should foster cooperation in cheating in the SIM-DYAD condition. Therefore, similarity should increase the proportion of lies

in the SIM-DYAD condition relative to DIS-DYAD. Note that F and S may lie in different ways, F can modify an observed outcome by making up a different one, S can confirm an untruthful report by F. The design allows assessing whether the two types of lies are similarly affected by our experimental manipulations.

Alternative hypothesis: *The distribution of reported outcomes differs between the treatments. Similarity decreases cheating in the IND settings, i.e., from DIS-IND to SIM-IND. However, similarity increases cheating in the DYAD settings, i.e., from DIS-DYAD to SIM-DYAD. This should apply to 1) the report of F, 2) the report of S, and 3) the report of the dyad.*

3.1.4. General Procedures The experiment was conducted in the Cologne Laboratory for Economic Research, a computer laboratory of the University of Cologne. 660 subjects, primarily students of the University of Cologne, were recruited via ORSEE (Greiner 2015) from the lab's subject pool. Each subject was randomly assigned to one of the four treatments and into one role. Subjects received written instructions, a summary was read aloud by the experimenter to ensure common information.[4] After all subjects confirmed the instructions, the experimenter left the laboratory. Doing so should enhance a feeling of privacy and reduce the fear of detection in case of cheating. The experimenter was waiting in a room next to the laboratory so that participants could reach out in case they needed to. As the walls are wafer-thin, the experimenter was still able to detect potential communication inside the laboratory even when physically absent from the laboratory. The experiment was programmed using z-Tree (Fischbacher 2007) and implemented a double-blind payment procedure. Subjects drew a card that determined the computer terminal they were assigned to. Each subject further received a voucher code. At the end of the experiment, subjects were guided to a room located at a different floor from the laboratory in which a person unfamiliar with the details of the experiment handed over a sealed envelope with their earnings, in exchange for the voucher code.

Experimental sessions took place in January 2015 and February 2015, and lasted between 25 and 45 minutes. Subjects received a show-up fee of 2.50 Euro (about a quarter of an hourly student wage, 1.00 Euro = 1.08 US-Dollar at the time of experiment) for attending and could earn an amount from 0.00 Euro up to 12.20 Euro additionally, depending on behavior. Average earnings of the subjects were 8.23 Euro including the show-up fee.

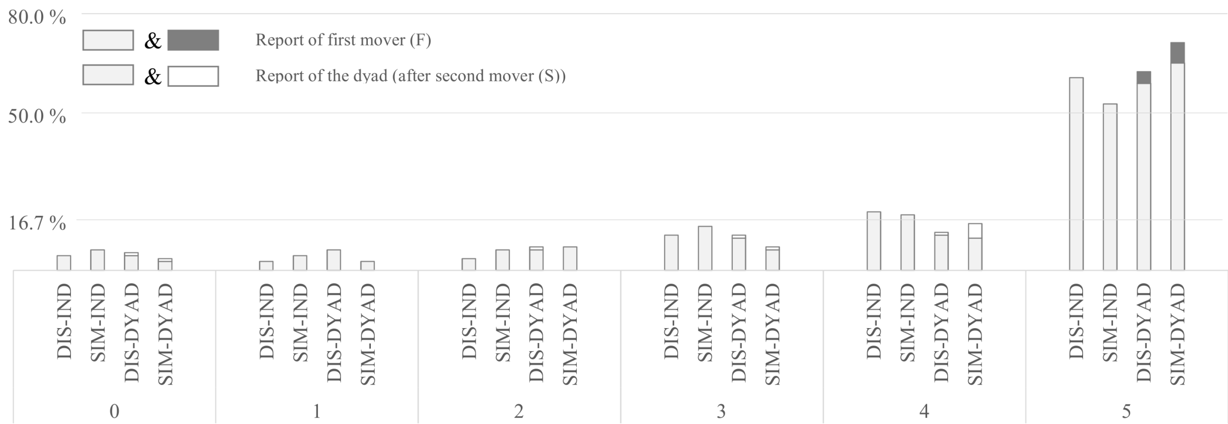

Figure 3 **Distribution of outcomes reported by the first mover (F) and the dyad**

3.2. Results

3.2.1. First movers' reports The distribution of reported outcomes shows a large share of Fs reporting the most profitable outcome, a 5 (see Figure 3). Such pattern clearly indicates cheating as – from a statistical perspective – one should expect that only about 16.7 percent of participants actually observe a 5.[5] Thus, we can reject the hypothesis that Fs report honestly (Mann-Whitney U test, one-sided, $p < 0.001$).[6]

Processing information with a focus on similarities (SIM) changes behavior substantially (see Figures 3 and 4). The direction of how similarity affects cheating, i.e., whether it increases or decreases cheating, depends on whether a situation comprises a collaborative decision or an individual decision. In the IND settings, similarity decreases cheating: The average outcome reported by the Fs decreases from 4.15 in DIS-IND to 3.86 in SIM-IND (Mann-Whitney U test, one-sided, $p = 0.072$). In contrast, similarity led more Fs to lie in DYAD: Similarity increases the average outcome reported by the Fs from 4.02 in DIS-DYAD to 4.31 in SIM-DYAD (Mann-Whitney U test, one-sided, $p = 0.065$). Thus, as Figure 4 shows similarity compared to dissimilarity reduces average cheating by 0.29 in the IND settings, while it increases average cheating by 0.29 in the DYAD settings. The difference in cheating between SIM-IND (average reported outcome 3.86) and SIM-DYAD (average reported outcome 4.31) is significant (Mann-Whitney U test, one-sided,

[4] Complete sets of instructions (for studies 1 and 2) can be found in English in the appendix. Original instructions are in German. They are available from the authors upon request.

[5] In principle it might also be that F lies by reporting a number with a payoff smaller than the payoff of the observed number. But this would yield lower payoffs for F and S than when telling the truth (the negative externalities, however, would be reduced). Although we cannot exclude this we do not assume it to happen. Nobody mentioned such a behavior in the debriefing.

[6] In all our four settings SIM-IND, DIS-IND, SIM-DYAD, DIS-DYAD Fs report outcomes that are significantly different from the uniform distribution of outcomes which would result from truthfully reporting (Mann-Whitney U test, one-sided, $p < 0.001$ each).

Table 2 Study 1: Outcome reported by first mover

Regression model	OLS	Ordered probit	OLS	Ordered probit
Dep. Var.	Rep. outcome	Rep. outcome	Rep. outcome	Rep. outcome
SIM	-0.2909^{*}	-0.2196^{*}	-0.2695^{*}	-0.2170^{*}
	$(p=0.131)$	$(p=0.157)$	$(p=0.153)$	$(p=0.168)$
DYAD	-0.1364	-0.0471	-0.0994	-0.0192
	$(p=0.478)$	$(p=0.765)$	$(p=0.598)$	$(p=0.905)$
SIMxDYAD	0.5818^{**}	0.4800^{**}	0.5568^{**}	0.4925^{**}
	$(p=0.033)$	$(p=0.033)$	$(p=0.037)$	$(p=0.031)$
Age			$-0.0289^{\circledast\circledast}$	$-0.0244^{\circledast\circledast\circledast}$
			$(p=0.010)$	$(p=0.008)$
Male			0.1658	$0.2323^{\circledast}$
			$(p=0.226)$	$(p=0.051)$
BusinessEcon			$0.4326^{\circledast\circledast\circledast}$	$0.4711^{\circledast\circledast\circledast}$
			$(p=0.002)$	$(p=0.001)$
Cons.	$4.1545^{\circledast\circledast\circledast}$		$4.5713^{\circledast\circledast\circledast}$	
	$(p=0.001)$		$(p=0.001)$	
Ind. obs.	440	440	440	440

All reported p-values in the table refer to two-tailed testing. $***$ $p<0.01$ (one-sided); $**$ $p<0.05$ (one-sided); $*$ $p<0.10$ (one-sided) for directional hypotheses; $\circledast\circledast\circledast$ $p<0.01$ (two-sided); $\circledast\circledast$ $p<0.05$ (two-sided); $\circledast$ $p<0.10$ (two-sided) for non-directional hypotheses; Note that our subject pool primarily employs students implying that the variation in the variable "Age" is limited. The variable "BusinessEcon" is binary and indicates that a participant is enrolled in Business Administration, Economics, or a related program.

$p=0.003$).

A regression analysis supports these findings (see Table 2 with DIS-IND as the base; two of the models control for age, gender, and business/econ as field of studies). The coefficients of the variable SIM are weakly significantly negative in all models indicating that similarity reduces cheating in the individual decision situation (comparing DIS-IND and SIM-IND).[7] The coefficients of the variable DYAD turn out not to be significant suggesting that cheating under the dissimilarity focus does not differ between the individual and the dyadic decision situation (comparing DIS-IND and DIS-DYAD). All regression models show a significant interaction effect of SIMxDYAD supporting that the average outcome reported by Fs under the similarity focus

[7] Note that in the regressions in Table 2, p-values indicate two-sided significance levels. Since we employ one-sided hypotheses "$*$" indicate one-sided significances, two-sided significances are indicated by "$\circledast$".

Table 3 Study 1: Outcome reported by second mover

Regression model	OLS	Ordered probit	OLS	Ordered probit
Dep. Var.	Rep. outcome	Rep. outcome	Rep. outcome	Rep. outcome
Report first mover	$0.7154^{\circledast\circledast\circledast}$	$0.7616^{\circledast\circledast\circledast}$	$0.7239^{\circledast\circledast\circledast}$	$0.7921^{\circledast\circledast\circledast}$
	$(p=0.001)$	$(p=0.001)$	$(p=0.001)$	$(p=0.001)$
SIM	$-0.5552^{\circledast}$	-0.5647	$-0.5247^{\circledast}$	-0.5155
	$(p=0.125)$	$(p=0.237)$	$(p=0.150)$	$(p=0.285)$
SIMxReport first mover	0.1185^{*}	0.1264	0.1122^{*}	0.1170
	$(p=0.149)$	$(p=0.286)$	$(p=0.173)$	$(p=0.329)$
Age			-0.0129	-0.0257
			$(p=0.313)$	$(p=0.173)$
Male			0.0214	0.0356
			$(p=0.857)$	$(p=0.850)$
BusinessEcon			-0.1735	$-0.3627^{\circledast}$
			$(p=0.149)$	$(p=0.056)$
Cons.	$1.2164^{\circledast\circledast\circledast}$		$1.5570^{\circledast\circledast\circledast}$	
	$(p=0.001)$		$(p=0.001)$	
Ind. obs.	220	220	220	220

All reported p-values in the table refer to two-tailed testing. $***$ $p<0.01$ (one-sided); $**$ $p<0.05$ (one-sided); $*$ $p<0.10$ (one-sided) for directional hypotheses; $\circledast\circledast\circledast$ $p<0.01$ (two-sided); $\circledast\circledast$ $p<0.05$ (two-sided); $\circledast$ $p<0.10$ (two-sided) for non-directional hypotheses; Note that our subject pool primarily employs students implying that the variation in the variable "Age" is limited. The variable "BusinessEcon" is binary and indicates that a participant is enrolled in Business Administration, Economics, or a related program.

significantly differs between the individual and the dyadic decision situation (comparing SIM-IND and SIM-DYAD). A Wald test reveals that the coefficients SIM and SIMxDYAD are indeed significantly different indicating that the similarity focus has a significant effect also in the dyad setting (comparing DIS-DYAD and SIM-DYAD, Wald test one-sided $p=0.022$).

3.2.2. Second movers' reports An S would have the opportunity to correct a falsely reported outcome by F in the DYAD conditions.[8] Recall that whereas an F is cheating by inventing a different outcome than observed, an S simply can follow a lie by not correcting F's lie which, of course, is a lie since Ss are also asked to truly report the observed outcomes. An S may thus

[8] In both settings SIM-DYAD, DIS-DYAD Ss report outcomes that are significantly different from the uniform distribution of outcomes which would result from truthfully reporting (Mann-Whitney U test, one-sided, $p<0.001$ each).

Table 4 Study 1: Outcome finally reported

Regression model	OLS	Ordered probit	OLS	Ordered probit
Dep. Var.	Rep. outcome	Rep. outcome	Rep. outcome	Rep. outcome
SIM	-0.2909^{*}	-0.2219^{*}	-0.2748^{*}	-0.2236^{*}
	($p = 0.138$)	($p = 0.152$)	($p = 0.154$)	($p = 0.154$)
DYAD	-0.2364	-0.1354	-0.2047	-0.1222
	($p = 0.227$)	($p = 0.387$)	($p = 0.289$)	($p = 0.440$)
SIMxDYAD	0.5727^{**}	0.4325^{**}	0.5533^{**}	0.4448^{**}
	($p = 0.039$)	($p = 0.051$)	($p = 0.043$)	($p = 0.047$)
Age			$-0.0310^{\circledast\circledast\circledast}$	$-0.0253^{\circledast\circledast\circledast}$
			($p = 0.007$)	($p = 0.006$)
Male			0.1198	0.1832
			($p = 0.392$)	($p = 0.115$)
BusinessEcon			$0.3470^{\circledast\circledast}$	$0.3654^{\circledast\circledast\circledast}$
			($p = 0.015$)	($p = 0.002$)
Cons.	$4.1545^{\circledast\circledast\circledast}$		$4.6801^{\circledast\circledast\circledast}$	
	($p = 0.001$)		($p = 0.001$)	
Ind. obs.	440	440	440	440

All reported p-values in the table refer to two-tailed testing. $*** \; p < 0.01$ (one-sided); $** \; p < 0.05$ (one-sided); $* \; p < 0.10$ (one-sided) for directional hypotheses; $\circledast\circledast\circledast \; p < 0.01$ (two-sided); $\circledast\circledast \; p < 0.05$ (two-sided); $\circledast \; p < 0.10$ (two-sided) for non-directional hypotheses; Note that our subject pool primarily employs students implying that the variation in the variable "Age" is limited. The variable "BusinessEcon" is binary and indicates that a participant is enrolled in Business Administration, Economics, or a related program.

simply follow the suggestion of F.[9] This happens quite often. In SIM-DYAD, 70.9 percent of the Fs report a 5 (78/110), with more than 90 percent Ss confirming their reports. In DIS-DYAD, 61.8 percent of the Fs report a 5 (68/110), with more than 90 percent of Ss confirming their reports (see Figure 3).[10] Thus, Ss very often confirm Fs' report even if they are lies. This is true with and

[9] It might also be that an S reports a number that is neither the observed number nor the number reported by F. Recall that S cannot increase F's and his own payoffs (at the cost of higher negative externalities for all participants) if he reports a number higher than the one reported by F since only the number with a lower payoff counts. Reporting a number between the observed number and the number reported by F would dampen the lie of F since it reduces the payoffs of F and S (and also reduces the negative externalities for all participants). But it still would be lie. In principle it might be that S reports a number with a payoff smaller than the payoff of the observed number. But this would yield lower payoffs for F and S than when telling the truth (the negative externalities, however, would be reduced compared to the truth). We do not assume this behavior to occur often. Nobody mentioned such a behavior in the debriefing.

[10] The cases in which S adjusts a number reported by F to a lower number are indicated by black bars (higher number reported by F) and white bars (lower number reported by S) in Figure 3. There are very few cases in which S reports a number which would have been more profitable than the number reported by F.

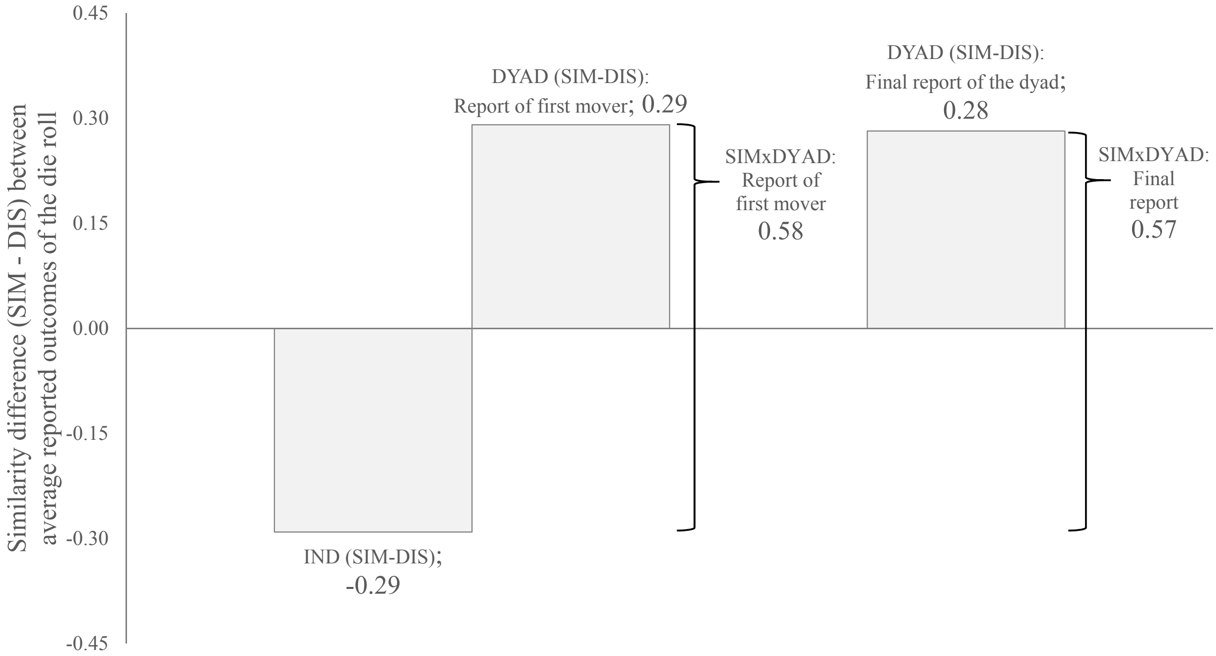

Figure 4 Average outcomes, similarity difference

without a similarity focus. This is also supported in regression analyses shown in Table 3 with two regressions controlling for age, gender and field of studies. The effect of the first mover's report is highly predictive for the outcome reported by the second mover. Interestingly, similarity also seems to influence those Ss who do not confirm a 5. Among those cases where a reported 5 is not confirmed, similarity reduces the difference between the outcomes reported by F and S from -2.75 in DIS-DYAD to -1.71 in SIM-DYAD (Mann-Whitney U test, one-sided, $p = 0.089$, $n = 11$). This suggests that an S who does not want to confirm an F's lie of 5 tends to dampen it to a lesser extent when primed with similarity compared to dissimilarity. [11] The finding is also reflected in the weakly significant coefficients of the interaction variable "SIMxReport first mover" in the OLS regressions reported in Table 3 indicating that the second mover's report increases more with the first mover's report in SIM-DYAD than in DIS-DYAD.

3.2.3. Final reports In the dyad settings the reports of the Fs are very often confirmed by the Ss. Thus, the final reports of the dyads show very similar results and implications as shown

[11] This means that an S in SIM-DYAD adjusts a 5 reported by F to a smaller extent than an S in DIS-DYAD. In fact, in SIM-DYAD more than 70 percent of the Ss who do not confirm a 5 only marginally adjust F's report, i.e., from 5 to 4 (see Figure 3 and - in Appendix - Figure 6). In contrast, in DIS-DYAD an S who does not confirm F's report of 5, tends to report a lower – maybe truly observed – number. (see Figure 3 and – in Appendix – Figure 6). The interpretation of more truthful reports is supported by the fact that in DIS-DYAD the distribution of outcomes reported by Ss who do not confirm a 5 appears to be closer to a uniform distribution than in SIM-DYAD. Thus, it seems that similarity encourages the Ss to lie at least partially.

in the discussion above. Similarity weakly increases the final reports of the dyads on average from 3.92 in DIS-DYAD to 4.20 in SIM-DYAD with an average difference of 0.28 between the two (see Figure 4, Mann-Whitney U test, one-sided, $p = 0.108$). The final reports by the dyads are significantly higher in SIM-DYAD (4.20) than the final reports (which are the Fs' reports) in SIM-IND (3.86) (Mann-Whitney U test, one-sided, $p = 0.028$). Thus, while similarity compared to dissimilarity reduces average cheating by 0.29 in the IND settings it increases total cheating of the dyads by 0.28 in the DYAD settings (see Figure 4). A regression analysis on the final reports (analogous to the one in Table 2 regarding Fs' reports) again supports these findings (see Table 4 with DIS-IND as the base; again two of the models control for age, gender, and business/econ as field of studies). The coefficients of the variable SIM are weakly significantly negative in all models indicating that similarity reduces final cheating in the individual decision situation (comparing DIS-IND and SIM-IND). The coefficients of the variable DYAD turn out not to be significant suggesting that final cheating under the dissimilarity focus does not differ between the individual and the dyadic decision situation (comparing DIS-IND and DIS-DYAD). All regression models show a significant interaction effect of SIMxDYAD supporting that the final average outcome reported under the similarity focus significantly differs between the individual and the dyadic decision situation (comparing SIM-IND and SIM-DYAD). A Wald test reveals that the coefficients SIM and SIMxDYAD are also significantly different indicating that the similarity focus has a significant effect on the final reports in the dyad setting (comparing DIS-DYAD and SIM-DYAD, Wald test one-sided $p = 0.025$).

Result SIMILARITY: *Similarity weakly decreases cheating from DIS-IND to SIM-IND whereas it weakly increases cheating from DIS-DYAD to SIM-DYAD. Results with regards to the dyad settings apply to both, behavior of the first mover and behavior of the entire dyad.*

4. Study 2

Study 1 shows that similarity decreases cheating in the individual setting, in which the focal people suffer negative externalities from the individual person's lie. In contrast, similarity increases cheating in a collaborative setting, in which the collaborator is focal. Organizations, however, like to emphasize collaboration within their organization, but wish to do so without provoking unethical behavior among their employees. Study 2 builds on the results of study 1. It is designed to test an intervention aimed at reducing the adverse unethical effects of similarity in collaborative settings. While study 1 is framed in abstract terms with no reference to organizations or principles laid down in codes of conduct, study 2 explicitly mentions organizations and uses codes that prime on similarity either by making colleagues or people outside the organization focal.

4.1. Experimental Design and Procedures

Whereas in study 1 we vary similarity versus dissimilarity, in study 2 we focus on the effects of similarity by targeting different people as focal. Study 2 focuses on the dyad setting only, as it resembles within-firm collaboration. Two random participants – each randomly assigned one of two roles F and S – are instructed to form an organization, respectively. There are two treatments, each consisting of two stages (see Table 5). In the first stage the similarity task is conducted. The second stage employs the same die-in-a-box task as in the dyad setting of study 1 (see section 2).

Table 5 Design of Study 2

Treatment	Focus (stage 1)	Decision Type (stage 2)	Independent observations
FF	firm focus	dyad decision	105
SF	society focus	dyad decision	105

4.1.1. Similarity induction (stage 1)

In the first stage participants are induced to focus on similarity to different targets. In the treatment firm focus (FF) they are focused on the similarity between oneself and the other member of their dyad. In the treatment society focus (SF) they are focused on the similarity between oneself and one other person not belonging to their dyad. A dyad is framed as an organization – an organization is constituted by one player with role F and one with role S. Participants are asked to consider some principles that are in place for their organization like they are in place for real organizations. The principles applied in different treatments essentially differ in one paragraph. The following sentences are used in the firm focus treatment:

"For your organization, consisting of you and participant ..., a number of principles shall be applied, as is frequently the case in larger companies. The following principles apply to today's entire session and are particularly central:

- *It is our explicit concern to bring to our minds and to consciously direct our attention to the similarities and the unity of all people.*

• *In particular, we want to try to bring to our minds the similarities to that particular person whom we directly work and interact with and whom we are in close contact with ...*

we would like to ask you, based on these principles, to think about which ***similarities there may be between you and the other person whom you will be completing the task in Part 2 with ... Think about in what respect you may be similar to that person****. Please briefly write down your thoughts on the computer screen in front of you."*

In the society focus treatment these sentences are replaced by the following sentences:

"'For your organization, consisting of you and participant ..., a number of principles shall be applied, as is frequently the case in larger companies. The following principles apply to today's entire session and are particularly central:

• *It is our explicit concern to bring to our minds and to consciously direct our attention to the similarities and the unity of all people.*

• *In particular, we want to try to bring to our minds the similarities to those persons, whom we do not directly work and interact with and whom we are not in close contact with ...*

we would like to ask you, based on these principles, to think about which ***similarities there may be between you and one of the other persons whom you will not be completing the task in Part 2 with ... Think about in what respect you may be similar to that person****. Please briefly write down your thoughts on the computer screen in front of you."*

In the first stage of both treatments participants are asked to think of similarities between them and a respective target and to type in corresponding keywords into the computer.

4.1.2. Die-in-a-box (stage 2) The second stage employs the exact same die-in-the-box task used in the dyad settings of study 1. Payoffs are also determined according to equation (1).

4.1.3. Hypotheses The null hypothesis is derived in an analogous way as in study 1. We might expect no difference between the treatments because we keep the monetary incentives constant. The only difference is the target of the similarity focus prior to the die-rolling task. Participants are exposed to a code of conduct framed differently between the treatments, as described above.

Null hypothesis: *The distribution of reported outcomes is the same in both treatments.*

Participants in the FF condition should focus on similarities between them and their respective other in their dyad. As argued above, similarity increases trust and increases projection of own norms and potentially selfishly biased perceived entitlements. Thus, participants should project their monetary self-interest on their counterpart in the dyad, and also be more motivated to benefit their counterpart. In sum, similarity should foster cooperation in cheating in the FF condition and therefore, should increase the proportion of lies in the FF condition. In the SF condition, however, participants focus on similarities between themselves and a participant not part of the own organization who would suffer from own lies. Thus, participants in SF should be more inclined to feel empathy with those other participants, they should feel closer to them, and thus harming them should be relatively costly. Therefore, in the SF condition, participants should lie less than in the FF condition.

Alternative hypothesis: *The distribution of reported outcomes differs between the treatments. Compared to firm focus (FF), society focus (SF) decreases cheating. This should apply to 1) the report of F, 2) the report of S, and 3) the report of the dyad.*

4.1.4. General Procedures Study 2 was also conducted in the Cologne Laboratory for Economic Research. 420 subjects who did not participate in study 1, were randomly recruited from the lab's subject pool according to the same procedure as in study 1. As in the dyad sessions of study 1 a total of 20 participants were invited to the lab in each session. Each subject was randomly assigned to one of the two treatments and into one role. Subjects received written instructions and a summary was read aloud by the experimenter to ensure common information. After all subjects confirmed the instructions, the experimenter left the laboratory and was waiting in a room next to the laboratory. Study 2 was also computerized using basically the same software as in study 1. We also implemented the same double-blind payment procedure as in study 1.

Experimental sessions took place in June 2015 and lasted between 25 and 45 minutes. Subjects received a payment of 2.50 Euro (about a quarter of an hourly student wage, 1.00 Euro = 1.08 US-Dollar at the time of experiment) for attending and could earn an amount from 0.00 Euro up to 12.20 Euro additionally, depending on behavior, with average earnings of 8.40 Euro.

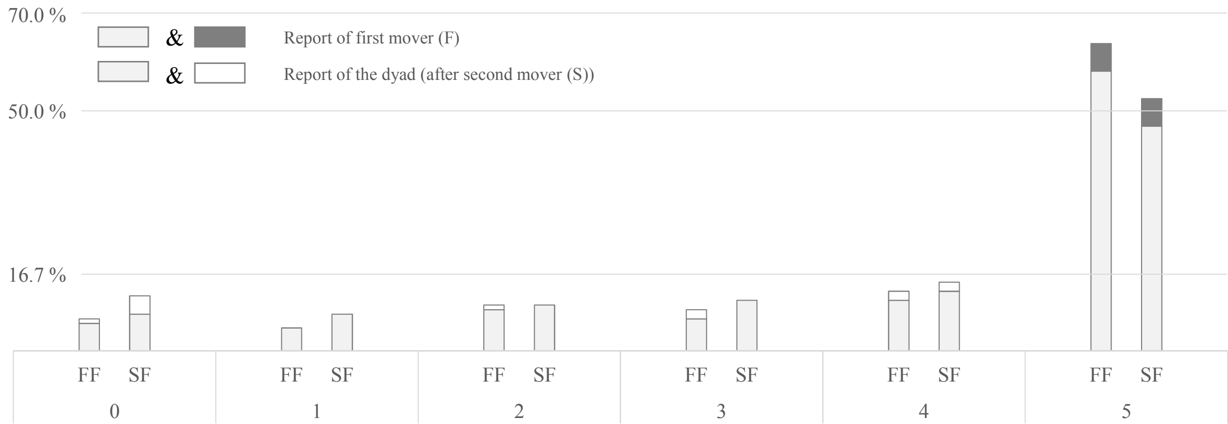

Figure 5 **Distribution of outcomes reported by the first mover (F) and the dyad**

Table 6 **Study 2: Outcome reported by first mover**

Regression model	OLS	Ordered probit	OLS	Ordered probit
Dep. Var.	Rep. outcome	Rep. outcome	Rep. outcome	Rep. outcome
SF	-0.3333^{*}	-0.2567^{*}	-0.3825^{**}	-0.3096^{**}
	$(p = 0.138)$	$(p = 0.109)$	$(p = 0.082)$	$(p = 0.057)$
Age			$-0.0435^{\circledast}$	$-0.0374^{\circledast\circledast}$
			$(p = 0.081)$	$(p = 0.049)$
Male			$0.4293^{\circledast}$	$0.3476^{\circledast\circledast}$
			$(p = 0.058)$	$(p = 0.041)$
BusinessEcon			$0.5474^{\circledast\circledast}$	$0.3996^{\circledast\circledast}$
			$(p = 0.015)$	$(p = 0.016)$
Cons.	$4.0286^{\circledast\circledast\circledast}$		$4.6620^{\circledast\circledast\circledast}$	
	$(p = 0.001)$		$(p = 0.001)$	
Ind. obs.	210	210	210	210

All reported p-values in the table refer to two-tailed testing. $***\ p < 0.01$ (one-sided); $**\ p < 0.05$ (one-sided); $*\ p < 0.10$ (one-sided) for directional hypotheses; $\circledast\circledast\circledast\ p < 0.01$ (two-sided); $\circledast\circledast\ p < 0.05$ (two-sided); $\circledast\ p < 0.10$ (two-sided) for non-directional hypotheses; Note that our subject pool primarily employs students implying that the variation in the variable "Age" is limited. The variable "BusinessEcon" is binary and indicates that a participant is enrolled in Business Administration, Economics, or a related program.

4.2. Results

4.2.1. First movers' reports In firm focus (FF) the code of conduct clearly emphasizes similarity towards other people within the same organization, i.e., the other group member. The

Table 7 Study 2: Outcome reported by second mover

Regression model	OLS	Ordered probit	OLS	Ordered probit
Dep. Var.	Rep. outcome	Rep. outcome	Rep. outcome	Rep. outcome
Report first mover	$0.7690^{⊛⊛⊛}$	$0.7418^{⊛⊛⊛}$	$0.7730^{⊛⊛⊛}$	$0.7534^{⊛⊛⊛}$
	$(p = 0.001)$	$(p = 0.001)$	$(p = 0.001)$	$(p = 0.001)$
SF	-0.3683	-0.2875	-0.3588	-0.2867
	$(p = 0.306)$	$(p = 0.483)$	$(p = 0.326)$	$(p = 0.492)$
SFxReport first mover	0.0608	0.0276	0.0605	0.0311
	$(p = 0.478)$	$(p = 0.795)$	$(p = 0.487)$	$(p = 0.774)$
Age			0.0235	0.0305
			$(p = 0.195)$	$(p = 0.217)$
Male			0.0915	0.1315
			$(p = 0.527)$	$(p = 0.468)$
BusinessEcon			0.0368	0.0579
			$(p = 0.795)$	$(p = 0.747)$
Cons.	$0.9212^{⊛⊛⊛}$		0.2900	
	$(p = 0.001)$		$(p = 0.580)$	
Ind. obs.	210	210	210	210

All reported p-values in the table refer to two-tailed testing. $***$ $p < 0.01$ (one-sided); $**$ $p < 0.05$ (one-sided); $*$ $p < 0.10$ (one-sided) for directional hypotheses; ⊛⊛⊛ $p < 0.01$ (two-sided); ⊛⊛ $p < 0.05$ (two-sided); ⊛ $p < 0.10$ (two-sided) for non-directional hypotheses; Note that our subject pool primarily employs students implying that the variation in the variable "Age" is limited. The variable "BusinessEcon" is binary and indicates that a participant is enrolled in Business Administration, Economics, or a related program.

framing leads to a high degree of cheating of Fs (see Figure 5).[12] In society focus (SF) the code of conduct clearly emphasizes similarity towards one (more distant) member of society, i.e., in the experiment all participants in the session who bear the negative externalities from cheating. Nevertheless, high degree of cheating of Fs is also observed in SF (see Figure 5). Changing the focus from the firm (FF) towards society (SF) reduces Fs' cheating. The average reported outcome decreases from 4.03 in FF to 3.70 in SF (Mann-Whitney U test, one-sided, $p = 0.049$). Table 6 provides regression analyses that control for age, gender and field of studies. The weakly significantly negative coefficients of the variable SF (society focus) indicate that cheating tends to

[12] In both treatments FF and SF reported outcomes of Fs and Ss (and also those of the group) are significantly different from the uniform distribution of outcomes which would result from truthfully reporting (Mann-Whitney U test, one-sided, $p < 0.001$ each).

Table 8 Study 2: Outcome reported by dyad

Regression model	OLS	Ordered probit	OLS	Ordered probit
Dep. Var.	Rep. outcome	Rep. outcome	Rep. outcome	Rep. outcome
SF	-0.4095^{**} ($p = 0.083$)	-0.2831^{**} ($p = 0.070$)	-0.4669^{**} ($p = 0.045$)	-0.3360^{**} ($p = 0.034$)
Age			-0.0282 ($p = 0.282$)	-0.0146 ($p = 0.398$)
Male			0.1797 ($p = 0.450$)	0.0944 ($p = 0.561$)
BusinessEcon			$0.7073^{\circledast\circledast\circledast}$ ($p = 0.003$)	$0.4990^{\circledast\circledast\circledast}$ ($p = 0.002$)
Cons.	$3.8952^{\circledast\circledast\circledast}$ ($p = 0.001$)		$4.1872^{\circledast\circledast\circledast}$ ($p = 0.001$)	
Ind. obs.	210	210	210	210

All reported p-values in the table refer to two-tailed testing. $***$ $p < 0.01$ (one-sided); $**$ $p < 0.05$ (one-sided); $*$ $p < 0.10$ (one-sided) for directional hypotheses; $\circledast\circledast\circledast$ $p < 0.01$ (two-sided); $\circledast\circledast$ $p < 0.05$ (two-sided); $\circledast$ $p < 0.10$ (two-sided) for non-directional hypotheses; Note that our subject pool primarily employs students implying that the variation in the variable “Age” is limited. The variable “BusinessEcon” is binary and indicates that a participant is enrolled in Business Administration, Economics, or a related program.

be lower under the society focus compared to the firm focus.[13]

4.2.2. Second movers’ reports Ss have the opportunity to correct a misreported outcome by Fs. Similar to the pattern observed in study 1, it is thus likely that the Ss very often follow the suggestion of the Fs. In FF, a share of 63.8 percent of the Fs reports 5 (67/105) and about 90 percent of the associated Ss confirm the 5 reported by the Fs (see Figure 5). In SF, a share of 52.4 percent of the Fs reports 5 (55/105) with about 90 percent of the associated Ss confirm the 5 reported by the Fs. Ss tend to confirm the report of Fs in both FF and SF (see Figure 5). This is also evident from the regression analyses reported in Table 7 as the coefficients for the variable “Report first mover” are highly significant. We do not, however, observe a significantly different pattern of Ss’ behavior with regard to firm focus and society focus as the coefficients for the interaction variable “SFxReport first mover” turn out not to be significant. [14] Apparently, the

[13] Note, p-values for the variable SF range between 0.057 and 0.138 depending on the model, two-sided. Since we employ a directed hypothesis this implies p-values between 0.029 and 0.069 one-sided.

[14] The distribution of Ss’ reports after observing a 5 reported by F does not differ between FF and SF (Mann-Whitney U test, one-sided, $p = 0.357$).

influence of the first movers' reports on the second movers is too strong to be influenced by the treatment variation.

4.2.3. Dyads' reports The behavior of the Fs and the Ss determine the behavior of the dyads. Thus, SF also decreases cheating of the dyads. The average outcome reported by the dyads decreases from 3.90 in FF to 3.49 in SF (Mann-Whitney U test, one-sided, $p = 0.039$). This result is also supported by the regression analysis shown in Table 8 as the variable SF turns out to be significant in all four models.

Result SOCIETY versus FIRM FOCUS: *There is less cheating in SF than in FF. Results apply to both, behavior of the first mover and behavior of the entire dyad. There appears to be no difference in cheating behavior of the second mover between SF and FF.*

5. Conclusion

In two experiments we have shown that when a sense of similarity is evoked, people's likelihood to cheat varies as a function of the focal relationship in a given situation. For people placed in a situation in which their relationship with another person (i.e., a collaborator within their organization) is salient, evoking a similarity (versus dissimilarity) mind-set leads them to lie more. In contrast, for people placed in a situation in which their relationship with people who would suffer negative externalities from their dishonesty (i.e., people outside their organization; society at large) is salient, evoking a similarity (versus dissimilarity) mind-set leads them to lie less. Accordingly, directly evoking a society focus rather than a firm focus increases honesty in our sample.

It is important to stress that in our experiments we systematically vary subjects' sense of (dis)similarity towards others, not their sense of group identity (Chen and Li 2009). From a cognitive research perspective similarity is likely to be a more primitive concept than the more complex group identity concept. Given that people may be motivated to help in-group members (Halevy et al. 2008), and in some extreme cases even hurt out-group (Weisel and Böhm 2015), we intentionally avoid evoking such affiliation. Instead, evoking a mind-set of similarity allows us to single out the mechanism nudging people to engage in ethical behavior, when they consider the impact of their behavior on society at large. The results are thus relevant and applicable to a diverse set of contexts – namely, all cases in which organizations make it salient to their employees how similar to one another they are or ought to be.

One clear application to the obtained results is the creation (and adaptation) of organizational codes of ethical conduct. As we mention in the introduction, firms often highlight within firm similarities. In the light of our findings this appears an ineffective (and an even potentially ethically detrimental) approach. In contrast, organizations seeking to boost ethical behavior, should adopt one or both of the following strategies: (i) an outward looking approach – highlighting how similar own employees are to members of fellow organizations, stake holders, clients, and members of society at large, and/or (ii) an inward looking approach – highlighting within organization diversity and richness of views.

The results obtained here open up multiple important questions that still need to be tackled. One clear avenue for future work is to use archival data documenting organizational ethical codes of conduct categorizing them according to the similarity/dissimilarity and inward/outward looking dimensions we proposed. By looking at various success indicators as well as indicators for (un)ethical conduct, it would be great to validate whether the results reported here hold also in companies implementing a variety of codes of conduct. A second avenue to investigate is whether employees in organizations with codes of conduct which could be mapped based on the dimensions highlighted here, indeed report noticing ethical (mis)conduct in the direction we report. Corresponding level estimates would be valuable since they would enable a further refinement of the recommendations made here as to how an effective code of conduct should look like.

Seeking to increase ethical conduct is a timely challenge to organizations, large and small. Gaining better understanding to the effectiveness of commonly adopted approaches aimed at boosting ethical conduct is essential. Especially when some approaches may backfire and lead to more, rather than less, ethical misconduct – as our results suggest. Our results highlight that carefully structuring and subtly focusing employees' relationships with others, and the extent to which they are (dis)similar to those others, seem to go a long way in shaping their ethical conduct. Nudging employees to behave ethically using codes of conduct appears to be possible. But it requires understanding of the cognitive processes underlying employees' behavior. Our results highlight relationship focus and similarity as key processes to consider. As a result, crafting effective codes of ethical conduct promises to be now more possible than before.

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6. Appendix

6.1. Additional Charts

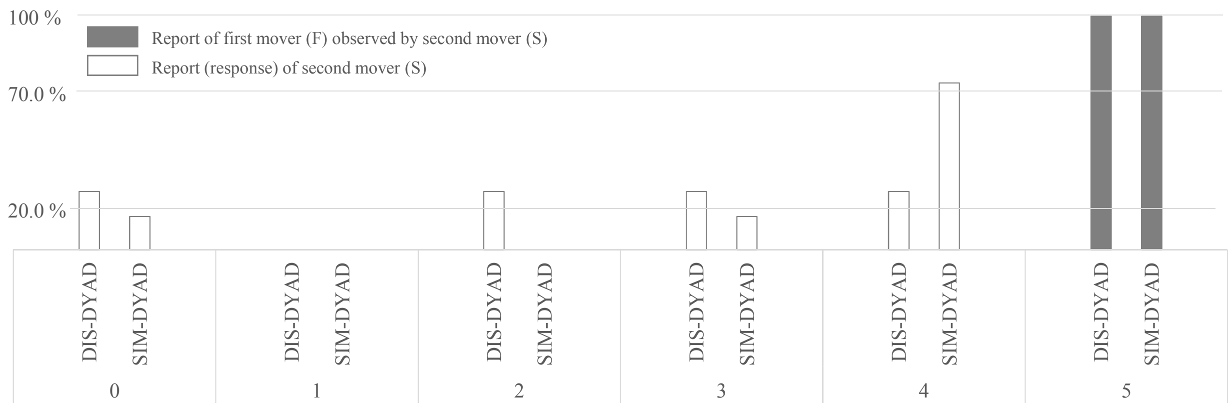

Figure 6 Study 1: Distribution of outcomes (smaller 5) reported by second mover (S) after observing 5 (see Figure 3 for all observations)

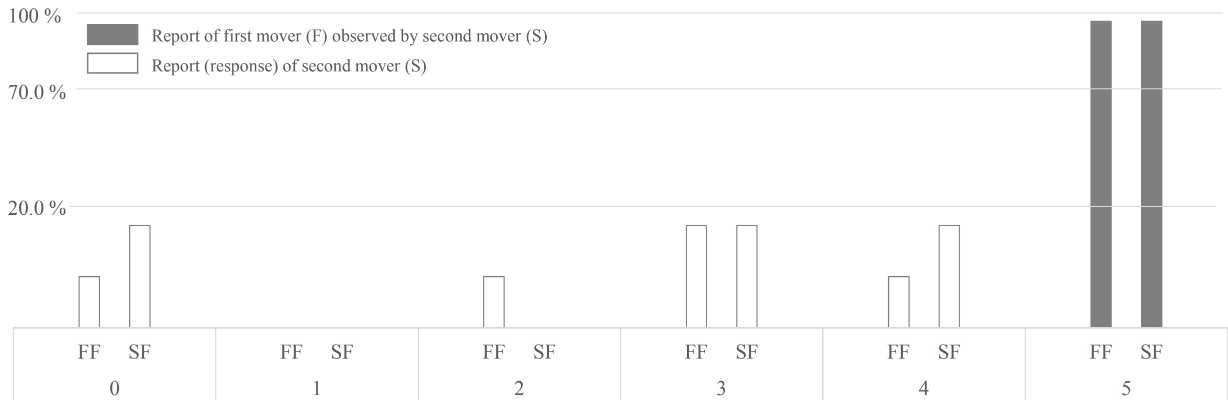

Figure 7 Study 2: Distribution of outcomes (smaller 5) reported by second mover (S) after observing 5 (see Figure 5 for all observations)

7. Supplementary Online Materials: All Experimental Instructions (translated)

7.1. Study 1, General (all subjects)

Welcome to the experiment, thank you for your participation!

The experiment consists of two different parts. Please, work on both tasks carefully. You will receive 2.50 Euro for your participation. You will find the instructions of part 1 on the computer screen in front of you. After you have finished part 1, you will receive further instructions for part 2 on paper and on the screen. Please also read these instructions carefully. You can earn additional money in part 2. Neither other participants nor the experimenters will get to know how much money you have earned. Hence, you will receive the amount of money that you have earned in a sealed envelope at the end of experiment. You will be informed about the end of the experiment. Then please go immediately to WISO-Modulbau, seminar room 1. There you will receive, in exchange for your payment code, an envelope with your payment. The person that will hand over the envelope does not know the experiment.
Your decisions are anonymous. You and the other participants will not know with whom they have played.

Please ask any question before you confirm the instructions of part 2 on the computer. The experimenters will leave the laboratory after all participants confirmed the instructions of part 2 on the computer with the "Next" button. The experimenters enter the laboratory only after the end of the experiment and will then ask you to collect your payment.

Please note:
To guarantee the independence of the decisions, communication between the participants is not allowed during the entire experiment. In case you have questions, please raise your hand. Your question is then immediately answered at your place. Please ask any question early on because after the experimenters have left the laboratory you are not able to ask any more questions.

You will receive further instructions soon on the computer screen.

7.2. Study 1, Part 1: SIM

Please have a close look at the two pictures below. Try and determine in what way the two pictures resemble each other and write down as many similarities as possible in the text boxes provided. In doing so it is important that you compare the pictures as accurately as possible and that you name as many similarities as possible. Please take a few minutes for this comparison.

You will find the remaining processing time in seconds in the upper right corner. After five minutes, you will be transferred to the next screen automatically.
Please type in every *similarity* in a separate text box and confirm your input by clicking on the "send" button before the processing time expires. Otherwise your data cannot be used properly.

What similarities between the two pictures were you able to find?

Figure 8 Pictures shown on the computer screen.

7.3. Study 1, Part 1: DIS

Please have a close look at the two pictures below. Try and determine in what way the two pictures differ from each other and write down as many differences as possible in the text boxes provided. In doing so it is important that you compare the pictures as accurately as possible and that you name as many differences as possible. Please take a few minutes for this comparison.

You will find the remaining processing time in seconds in the upper right corner. After five minutes, you will be transferred to the next screen automatically.
Please type in every difference in a separate text box and confirm your input by clicking on the "send" button before the processing time expires. Otherwise your data cannot be used properly.

What differences between the two pictures were you able to find?

Figure 9 Pictures shown on the computer screen.

7.4. Study 1, Part 2: IND (role F)

10 persons take part in this experiment in total.

You will receive a **flat payment** of **4.50 Euro** for part 2. You can earn additional money, dependent on your decisions and dependent on the decisions of the other participants. The potential choices are described in the following.

You will be asked to go **to another seat** that is randomly assigned to you. The number of this cubicle is shown on your screen for that purpose. Please **take** the card of the cubicle where you are currently sitting and the **key with you**. Communication is still not allowed on your way to and in the assigned cubicle.

You will find a box made of acrylic glass and a six-sided die next to the box in the cubicle to which you will go soon (see figures with an example).

Please sit down on the assigned seat and **roll the die twice on the table** in front of you to test the die. Afterwards, please remove the cover from the box.

Then, **roll the die** so that the die touches down **in the box**, please. Throw the die through the hole in the box and **remember** the **outcome of this cast**, i.e. the number on the upper side of the die.

After you have remembered the outcome of the die, open the box with the key. Please **remove the die**, lock the box, and take the die and and the key. Then, please cover the box with the sheet, again. At the end of the experiment, you will return die and key. Nobody - except for you - will get to know the outcome of your die.

Afterwards, please, **go back to your seat** where you are currently sitting according to your card of cubicle and take the die and the key with you. **Type in** the number **diced in the box** at this computer **here**.

You will receive a **direct payment**, according to the table listed at the bottom of this page. In addition to that, an amount of money is subtracted from every participant of the experiment (this includes you), according to the table listed at the bottom.

Besides you, there are **nine other participants**. **Payment** for each of these participants is calculated **analogous** to your payment, i.e. on the basis of the reported number. Potential deductions for all participants are also computed as in your case.

Your payment (for part 2) = 4.50 Euro + Direct payment - Deductions

Please ask any question before you confirm the instructions by clicking on the "next" button on the screen. The experimenters leave the laboratory after all participants have confirmed. The experimenters return to the laboratory only at the end of the experiment and they will ask you to collect your payment. Please **take** your **payment code**, the **die**, and the **key** with you. Otherwise you cannot receive your envelope with your payment. However, please leave the card of your cubicle in your cubicle at the end of the experiment.

Overview of the payments

	1	**2**	**3**	**4**	**5**	**6**
Your direct payment	**1.00 Euro**	**2.00 Euro**	**3.00 Euro**	**4.00 Euro**	**5.00 Euro**	**0.00 Euro**
Deduction for every participant	0.10 Euro	0.20 Euro	0.30 Euro	0.40 Euro	0.50 Euro	0.00 Euro

7.5. Study 1, Part 2: DYAD (role F)

All participants of the experiment are randomly assigned to one of two roles: Role A and role B. **Role A** is assigned to you and you will be matched with another participant with role B ("participant B" in the following). Participant B and you form a **group**.
20 persons take part in this experiment in total. Hence, besides your group, there are nine other groups, each with one participant A and one participant B.

Part 2 of the experiment consists of two steps. You will receive a **flat payment** of **4.50 Euro** for part 2. You can earn additional money, dependent on your decisions and dependent on the decisions of the other participants. The potential choices are described in the following.

Step 1

You will be asked to go **to another seat** that is randomly assigned to you. The number of this cubicle is shown on your screen for that purpose. Please take the card of the cubicle where you are currently sitting with you. Communication is still not allowed on your way to and in the assigned cubicle.

You will find a box made of acrylic glass and a six-sided die next to the box in the cubicle to which you will go soon (see figures with an example).

Please sit down on the assigned seat and **roll the die twice on the table** in front of you to test the die. Afterwards, please remove the cover from the box.

Then, **roll the die** so that the die touches down **in the box**, please. Throw the die through the hole in the box and **remember** the **outcome of this cast**, i.e. the number on the upper side of the die. Then, please cover the box with the sheet, again.

Afterwards, please, **go back to your seat** where you are currently sitting according to your card of cubicle. **Type in** the number **diced in the box** at this computer **here** to transfer this number anonymously to participant B.

Step 2

Participant B's computer shows your input to participant B. This participant will then go to the cubicle where you rolled the die and will be asked to verify the outcome of the die in the box.

Participant B has the key for the locked box. After participant B checked the outcome of your die, participant B opens the box and removes the die. This participant B returns the die and the key at the end of the experiment. Nobody - except for participant B and you - will get to know the outcome of your die.

Participant B will be asked to also **type in** the **outcome** of the die on the computer, after checking your die.
In case **participant B confirms** your input, you and this participant B will receive a **direct payment** each, according to the table listed at the bottom of this page. In addition to that, an amount of money is subtracted from every participant of the experiment (this includes you and the participant B that is assigned to you), according to the table listed at the bottom.

However, **participant B** is also able to **object** against the number you have reported by reporting a number different from yours. In this case, the **number** that yields the **lower payment** is **utilized**. For example when you type in number 2 and participant B types in number 4, number 2 applies. In this case, participant B and you receive 2.00 Euro each. In addition 0.20 Euro is subtracted from every participant's payment each, so from all of the 20 participants.

Overview of the payments

	1	**2**	**3**	**4**	**5**	**6**
Your direct payment	**1.00 Euro**	**2.00 Euro**	**3.00 Euro**	**4.00 Euro**	**5.00 Euro**	**0.00 Euro**
Direct payment to participant B	1.00 Euro	2.00 Euro	3.00 Euro	4.00 Euro	5.00 Euro	0.00 Euro
Deduction for every participant	0.10 Euro	0.20 Euro	0.30 Euro	0.40 Euro	0.50 Euro	0.00 Euro

Besides your group, there are **nine other groups** with one participant A and one participant B. **Payment** in every of these groups is calculated **analogous** to your group , i.e. on the basis of the reported number of participant A and participant B. Potential deductions for all participants are also computed as in your group.

Your payment (for part 2) = 4.50 Euro + Direct payment - Deductions

Please ask any question before you confirm the instructions by clicking on the "next" button on the screen. The experimenters leave the laboratory after all participants have confirmed. The experimenters return to the laboratory only at the end of the experiment and they will ask you to collect your payment. Please **take** your **payment code** with you. Otherwise you cannot receive your envelope with your payment. However, please leave the card of your cubicle in your cubicle at the end of the experiment.

7.6. Study 1, Part 2: DYAD (role S)

All participants of the experiment are randomly assigned to one of two roles: Role A and role B. **Role B** is assigned to you and you will be matched with another participant with role A ("participant A" in the following). Participant A and you form a **group**.
20 persons take part in this experiment in total. Hence, besides your group, there are nine other groups, each with one participant A and one participant B.

Part 2 of the experiment consists of two steps. You will receive a **flat payment** of **4.50 Euro** for part 2. You can earn additional money, dependent on your decisions and dependent on the decisions of the other participants. The potential choices are described in the following.

Step 1

Participant A will be asked via computer to go **to another seat** that is randomly assigned to participant A.

Participant A will find a box made of acrylic glass and a six-sided die next to the box in the cubicle to which participant A will go soon (see figures with an example).

Participant A rolls the die three times in total, first twice on the table in front of participant A. Afterwards, **participant A** once **rolls the die** so that the die touches down **in the box**. Participant A throws the die through the hole in the box. It not possible to manipulate the outcome because the box is locked.

Then, participant A covers the box and goes **back to participant A's original seat**. Participant A will be asked to **type in** the number **diced in the box** at this computer **here** to transfer this number anonymously to you.

Step 2

The number reported by participant A appears on your screen. Please, **remember this number**. Then, please go to the cubicle where participant a rolled the die. The number of this cubicle is shown on your screen for that purpose. Please take the card of the cubicle where you are currently sitting and the key with you. Communication is still not allowed on your way to and in the assigned cubicle.

Please sit down on the assigned seat and remove the cover from the box. **Check the outcome** of the die **in the box**. **Remember** the **outcome of this cast**, i.e. the number on the upper side of the die.

After you have remembered the outcome of the die, open the box with the key. Please **remove the die**, lock the box, and take the die and and the key. Then, please cover the box with the sheet, again. At the end of the experiment, you will return die and key. Nobody - except for participant A and you - will get to know the outcome of your die.

Afterwards, please, **go back to your seat** where you are currently sitting according to your card of cubicle and take the die and the key with you. **Type in** the number **diced in the box** at this computer **here**.

In case **you confirm** participant A's input, you and this participant A will receive a **direct payment** each, according to the table listed at the bottom of this page. In addition to that, an amount of money is subtracted from every participant of the experiment (this also includes you and the participant A that is assigned to you), according to the table listed at the bottom.

However, **you** are also able to **object** against the number participant A has reported by reporting a number different from that. In this case, the **number** that yields the **lower payment** is **utilized**. For example when you type in number 2 and participant A types in number 4, number 2 applies. In this case, participant A and you receive 2.00 Euro each. In addition 0.20 Euro is subtracted from every participant's payment each, so from all of the 20 participants.

Overview of the payments

	1	**2**	**3**	**4**	**5**	**6**
Your direct payment	**1.00 Euro**	**2.00 Euro**	**3.00 Euro**	**4.00 Euro**	**5.00 Euro**	**0.00 Euro**
Direct payment to participant A	1.00 Euro	2.00 Euro	3.00 Euro	4.00 Euro	5.00 Euro	0.00 Euro
Deduction for every participant	0.10 Euro	0.20 Euro	0.30 Euro	0.40 Euro	0.50 Euro	0.00 Euro

Besides your group, there are **nine other groups** with one participant A and one participant B. **Payment** in every of these groups is calculated **analogous** to your group , i.e. on the basis of the reported number of participant A and participant B. Potential deductions for all participants are also computed as in your group.

Your payment (for part 2) = 4.50 Euro + Direct payment - Deductions

Please ask any question before you confirm the instructions by clicking on the "next" button on the screen. The experimenters leave the laboratory after all participants have confirmed. The experimenters return to the laboratory only at the end of the experiment and they will ask you to collect your payment. Please **take** your **payment code**, the **die**, and the **key** with you. Otherwise you cannot receive your envelope with your payment. However, please leave the card of your cubicle in your cubicle at the end of the experiment.

7.7. Study 2, General (all subjects)

Welcome to the experiment, thank you very much for participating!

The experiment consists of two different parts. Please, work on both tasks carefully. You will receive 2.50 Euro for your participation. On the next page, you will find the instructions for Part 1. After you have finished part 1, you will receive further instructions for part 2 on paper and on the screen. Please also read these instructions carefully. You can earn additional money in part 2. Hence, you will receive the amount of money that you have earned in a sealed envelope at the end of experiment. You will be informed about the end of the experiment. Then please go immediately to WISO-Modulbau, seminar room 1. There you will receive, in exchange for your payment code, an envelope with your payment. The person that will hand over the envelope does not know the experiment.

Your decisions are anonymous. You and the other participants will not know with whom they have played.

Please ask any question before you confirm the instructions of part 2 on the computer. The experimenters will leave the laboratory after all participants confirmed the instructions of part 2 on the computer with the "Next" button. The experimenters enter the laboratory only after the end of the experiment and will then ask you to collect your payment.

Please note:

To guarantee the independence of the decisions, communication between the participants is not allowed during the entire experiment. In case you have questions, please raise your hand. Your question is then immediately answered at your place. Please ask any question early on because after the experimenters have left the laboratory you are not able to ask any more questions.

You will receive further instructions soon on the computer screen.

7.8. Study 2, Part 1: FF (role F)

All participants of the experiment are randomly assigned to one of two roles: Role A and role B. **Role A** is assigned to you and you will be matched with another participant with role B ("participant B" in the following). Participant B and you form an **organization**.
20 persons take part in this experiment in total. Hence, besides your group, there are nine other groups, each with one participant A and one participant B.

Please picture all participants in this experiments to be persons who can be affected by the activities of your organizations, for example as clients or as inhabitants of the city where your organization is active. However, apart from the single participant who forms an organization with you, all other participants belong to other organizations. For your organization, consisting of you and Participant B, a number of principles shall be applied, as is frequently the case in larger companies.

The following **principles** apply to today's entire session and are particularly central:

• It is our explicit concern to bring to our minds and to consciously direct our attention to the **similarities and the unity** of all people.
• In particular, we want to try to bring to our minds the **similarities** to that particular person **whom we directly work and interact with and whom we are in close contact with**. (This person may be a direct colleague or another employee within an organization).

In Part 1 of the experiment we would like to ask you, based on these principles, to think about which **similarities** there may be between you **and the other person whom you will be completing the task in Part 2 with** (Participant B from your organization). Think about in what respect you may be **similar** to that person. Please briefly write down your thoughts on the computer screen in front of you.

7.9. Study 2, Part 1: FF (role S)

All participants of the experiment are randomly assigned to one of two roles: Role A and role B. **Role B** is assigned to you and you will be matched with another participant with role A ("participant A" in the following). Participant A and you form an **organization**.
20 persons take part in this experiment in total. Hence, besides your group, there are nine other groups, each with one participant A and one participant B.

Please picture all participants in this experiments to be persons who can be affected by the activities of your organizations, for example as clients or as inhabitants of the city where your organization is active. However, apart from the single participant who forms an organization with you, all other participants belong to other organizations. For your organization, consisting of you and Participant A, a number of principles shall be applied, as is frequently the case in larger companies.

The following **principles** apply to today's entire session and are particularly central:

- It is our explicit concern to bring to our minds and to consciously direct our attention to the **similarities and the unity** of all people.
- In particular, we want to try to bring to our minds the **similarities** to that particular person **whom we directly work and interact with and whom we are in close contact with**. (This person may be a direct colleague or another employee within an organization).

In Part 1 of the experiment we would like to ask you, based on these principles, to think about which **similarities** there may be between you **and the other person whom you will be completing the task in Part 2 with** (Participant A from your organization). Think about in what respect you may be **similar** to that person. Please briefly write down your thoughts on the computer screen in front of you.

7.10. Study 2, Part 1: SF (role F)

All participants of the experiment are randomly assigned to one of two roles: Role A and role B. **Role A** is assigned to you and you will be matched with another participant with role B ("participant B" in the following). Participant B and you form an **organization**.
20 persons take part in this experiment in total. Hence, besides your group, there are nine other groups, each with one participant A and one participant B.

Please picture all participants in this experiments to be persons who can be affected by the activities of your organizations, for example as clients or as inhabitants of the city where your organization is active. However, apart from the single participant who forms an organization with you, all other participants belong to other organizations. For your organization, consisting of you and Participant B, a number of principles shall be applied, as is frequently the case in larger companies.

The following **principles** apply to today's entire session and are particularly central:

• It is our explicit concern to bring to our minds and to consciously direct our attention to the **similarities and the unity** of all people.
• In particular, we want to try to bring to our minds the **similarities** to those persons, **whom we do not directly work and interact with and whom we are not in close contact with**. (These may be persons who do not belong to our organization, but who may be affected by our decisions, e.g. clients or inhabitants of the city where our organization is active.)

In Part 1 of the experiment we would like to ask you, based on these principles, to think about which **similarities** there may be between you **and one of the other persons whom you will not be completing the task in Part 2 with** (a participant from another organization). Think about in what respect you may be **similar** to that person. Please briefly write down your thoughts on the computer screen in front of you.

7.11. Study 2, Part 1: SF (role S)

All participants of the experiment are randomly assigned to one of two roles: Role A and role B. **Role B** is assigned to you and you will be matched with another participant with role A ("participant A" in the following). Participant A and you form an **organization**.
20 persons take part in this experiment in total. Hence, besides your group, there are nine other groups, each with one participant A and one participant B.

Please picture all participants in this experiments to be persons who can be affected by the activities of your organizations, for example as clients or as inhabitants of the city where your organization is active. However, apart from the single participant who forms an organization with you, all other participants belong to other organizations. For your organization, consisting of you and Participant A, a number of principles shall be applied, as is frequently the case in larger companies.

The following **principles** apply to today's entire session and are particularly central:

- It is our explicit concern to bring to our minds and to consciously direct our attention to the **similarities and the unity** of all people.
- In particular, we want to try to bring to our minds the **similarities** to those persons, **whom we do not directly work and interact with and whom we are not in close contact with**. (These may be persons who do not belong to our organization, but who may be affected by our decisions, e.g. clients or inhabitants of the city where our organization is active.)

In Part 1 of the experiment we would like to ask you, based on these principles, to think about which **similarities** there may be between you **and one of the other persons whom you will not be completing the task in Part 2 with** (a participant from another organization). Think about in what respect you may be **similar** to that person. Please briefly write down your thoughts on the computer screen in front of you.

7.12. Study 2, Part 2 (role F)

20 persons take part in this experiment in total. Hence, besides your group, there are nine other groups, each with one participant A and one participant B.

Part 2 of the experiment consists of two steps. You will receive a **flat payment** of **4.50 Euro** for part 2. You can earn additional money, dependent on your decisions and dependent on the decisions of the other participants. The potential choices are described in the following.

Step 1

You will be asked to go **to another seat** that is randomly assigned to you. The number of this cubicle is shown on your screen for that purpose. Please take the card of the cubicle where you are currently sitting with you. Communication is still not allowed on your way to and in the assigned cubicle.

You will find a box made of acrylic glass and a six-sided die next to the box in the cubicle to which you will go soon (see figures with an example).

Please sit down on the assigned seat and **roll the die twice on the table** in front of you to test the die. Afterwards, please remove the cover from the box.

Then, **roll the die** so that the die touches down **in the box**, please. Throw the die through the hole in the box and **remember** the **outcome of this cast**, i.e. the number on the upper side of the die. Then, please cover the box with the sheet, again.

Afterwards, please, **go back to your seat** where you are currently sitting according to your card of cubicle. **Type in** the number **diced in the box** at this computer **here** to transfer this number anonymously to participant B.

Step 2

Participant B's computer shows your input to participant B. This participant will then go to the cubicle where you rolled the die and will be asked to verify the outcome of the die in the box.

Participant B has the key for the locked box. After participant B checked the outcome of your die, participant B opens the box and removes the die. This participant B returns the die and the key at the end of the experiment. Nobody - except for participant B and you - will get to know the outcome of your die.

Participant B will be asked to also **type in** the **outcome** of the die on the computer, after checking your die.
In case **participant B confirms** your input, you and this participant B will receive a **direct payment** each, according to the table listed at the bottom of this page. In addition to that, an amount of money is subtracted from every participant of the experiment (this includes you and the participant B that is assigned to you), according to the table listed at the bottom.

However, **participant B** is also able to **object** against the number you have reported by reporting a number different from yours. In this case, the **number** that yields the **lower payment** is **utilized**. For example when you type in number 2 and participant B types in number 4, number 2 applies. In this case, participant B and you receive 2.00 Euro each. In addition 0.20 Euro is subtracted from every participant's payment each, so from all of the 20 participants.

Overview of the payments

	1	**2**	**3**	**4**	**5**	**6**
Your direct payment	**1.00 Euro**	**2.00 Euro**	**3.00 Euro**	**4.00 Euro**	**5.00 Euro**	**0.00 Euro**
Direct payment to participant B	1.00 Euro	2.00 Euro	3.00 Euro	4.00 Euro	5.00 Euro	0.00 Euro
Deduction for every participant	0.10 Euro	0.20 Euro	0.30 Euro	0.40 Euro	0.50 Euro	0.00 Euro

Besides your group, there are **nine other groups** with one participant A and one participant B. **Payment** in every of these groups is calculated **analogous** to your group , i.e. on the basis of the reported number of participant A and participant B. Potential deductions for all participants are also computed as in your group.

Your payment (for part 2) = 4.50 Euro + Direct payment - Deductions

Please ask any question before you confirm the instructions by clicking on the "next" button on the screen. The experimenters leave the laboratory after all participants have confirmed. The experimenters return to the laboratory only at the end of the experiment and they will ask you to collect your payment. Please **take** your **payment code** with you. Otherwise you cannot receive your envelope with your payment. However, please leave the card of your cubicle in your cubicle at the end of the experiment.

7.13. Study 2, Part 2 (role S)

20 persons take part in this experiment in total. Hence, besides your group, there are nine other groups, each with one participant A and one participant B.

Part 2 of the experiment consists of two steps. You will receive a **flat payment** of **4.50 Euro** for part 2. You can earn additional money, dependent on your decisions and dependent on the decisions of the other participants. The potential choices are described in the following.

Step 1

Participant A will be asked via computer to go **to another seat** that is randomly assigned to participant A.

Participant A will find a box made of acrylic glass and a six-sided die next to the box in the cubicle to which participant A will go soon (see figures with an example).

Participant A rolls the die three times in total, first twice on the table in front of participant A. Afterwards, **participant A** once **rolls the die** so that the die touches down **in the box**. Participant A throws the die through the hole in the box. It not possible to manipulate the outcome because the box is locked.

Then, participant A covers the box and goes **back to participant A's original seat**. Participant A will be asked to **type in** the number **diced in the box** at this computer **here** to transfer this number anonymously to you.

Step 2

The number reported by participant A appears on your screen. Please, **remember this number**. Then, please go to the cubicle where participant a rolled the die. The number of this cubicle is shown on your screen for that purpose. Please take the card of the cubicle where you are currently sitting and the key with you. Communication is still not allowed on your way to and in the assigned cubicle.

Please sit down on the assigned seat and remove the cover from the box. **Check the outcome** of the die **in the box**. **Remember** the **outcome of this cast**, i.e. the number on the upper side of the die.

After you have remembered the outcome of the die, open the box with the key. Please **remove the die**, lock the box, and take the die and and the key. Then, please cover the box with the sheet, again. At the end of the experiment, you will return die and key. Nobody - except for participant A and you - will get to know the outcome of your die.

Afterwards, please, **go back to your seat** where you are currently sitting according to your card of cubicle and take the die and the key with you. **Type in** the number **diced in the box** at this computer **here**.

In case **you confirm** participant A's input, you and this participant A will receive a **direct payment** each, according to the table listed at the bottom of this page. In addition to that, an amount of money is subtracted from every participant of the experiment (this also includes you and the participant A that is assigned to you), according to the table listed at the bottom.

However, **you** are also able to **object** against the number participant A has reported by reporting a number different from that. In this case, the **number** that yields the **lower payment** is **utilized**. For example when you type in number 2 and participant A types in number 4, number 2 applies. In this case, participant A and you receive 2.00 Euro each. In addition 0.20 Euro is subtracted from every participant's payment each, so from all of the 20 participants.

Overview of the payments

	1	**2**	**3**	**4**	**5**	**6**
Your direct payment	**1.00 Euro**	**2.00 Euro**	**3.00 Euro**	**4.00 Euro**	**5.00 Euro**	**0.00 Euro**
Direct payment to participant A	1.00 Euro	2.00 Euro	3.00 Euro	4.00 Euro	5.00 Euro	0.00 Euro
Deduction for every participant	0.10 Euro	0.20 Euro	0.30 Euro	0.40 Euro	0.50 Euro	0.00 Euro

Besides your group, there are **nine other groups** with one participant A and one participant B. **Payment** in every of these groups is calculated **analogous** to your group , i.e. on the basis of the reported number of participant A and participant B. Potential deductions for all participants are also computed as in your group.

Your payment (for part 2) = 4.50 Euro + Direct payment - Deductions

Please ask any question before you confirm the instructions by clicking on the "next" button on the screen. The experimenters leave the laboratory after all participants have confirmed. The experimenters return to the laboratory only at the end of the experiment and they will ask you to collect your payment. Please **take** your **payment code**, the **die**, and the **key** with you. Otherwise you cannot receive your envelope with your payment. However, please leave the card of your cubicle in your cubicle at the end of the experiment.