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2019

Working Paper No: 1906



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Self-serving invocations of shared and asymmetric history in negotiations

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Last updated on March 29th, 2019

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Abstract

The existence of an asymmetric history between bargaining partners can trigger self-serving beliefs about the fair settlement of a subsequent dispute, ultimately leading to bargaining impasse. In a two-stage bargaining experiment, we demonstrate that dyads who share a history that produced wealth asymmetries between them are less likely to settle in a subsequent negotiation than when the same wealth asymmetry stems from partners' independent histories. When partners share an asymmetric history, the individual who previously lost out in the first stage believes that s/he deserves compensation in the second-stage, but the individual who prevailed in the first stage believes that compensation is not called for. These divergent, self-serving, views about a fair settlement – and the resulting irreconcilable demands – lead to bargaining impasse. We find, further, that unbiased spectators side with the losers in the first stage; they believe that it is fair for them to be compensated in the second stage. Indeed, this is true albeit to a lesser extent, even if the winner and loser had not directly interacted with one-another – i.e., if the history is not shared.

Keywords: history; asymmetry; self-serving beliefs; fairness; bargaining impasse

JEL Classification codes: C78; D91

1. Introduction

Examples of a dispute in which one party self-servingly invokes the past – for example, that one put in a lot of overtime to meet a recent project deadline and thus deserves some “late mornings” – are easy to call to mind. These situations are not just unique to individuals. On the international stage, politicians often invoke history to justify demands that conflict with those of other countries. In discussions of European refugee quotas, for example, some argued that their country did not benefit from colonization of the country from which refugees originated, and therefore they should bear a smaller fraction of the burden of the refugee quota. Needless to say, such claims were rejected by leaders of the countries that had participated in, and likely benefited from, such colonization. Differences in the relevance of historical carbon emissions between developed and developing countries likewise complicates climate change negotiations over different countries’ fair burden in reducing greenhouse emissions.

These are examples of a large spectrum of disputes that are intensified by, and in some cases specifically revolving around, self-serving views about the implications of the past for a current situation. At issue is whether and to what extent one party’s prior outcome should have a bearing on the fair division of current resources. We are specifically interested in situations in which one party (the “loser”) lost to another party (the “winner”) in a previous allocation of resources. We ask whether, when the same parties enter a new negotiation, each party views compensation for the prior loss as fair, and the extent to which divergent views about the implication of the past for the fair settlement of the current dispute is associated with increased likelihood of impasse.

Although the history of interactions between players has been examined in prior game-theoretical research, the focus has been on strategic behavior to build reputation (e.g., Roth and Schoumaker 1983). Our interest in history, in contrast, focuses on whether and how different

sequences of prior outcomes affect subsequent negotiations (e.g., Dezsó et al. 2015). We argue, and experimentally demonstrate, that a self-serving invocation of an asymmetric history which leads to impasse, depends on whether partners' wealth asymmetry stems from their *shared* (i.e., *interdependent*) or *independent* history.

By a shared asymmetric history, we mean a situation in which the winner specifically won out over the loser. In such situations, the disadvantaged party may feel that the advantaged party benefited at his/her expense. By contrast, when there is asymmetry from independent histories, one party was the winner and the other party the loser in a prior interaction, but this interaction was not between the two individuals currently negotiating. For example, if two countries, A and B, were negotiating and had asymmetric histories in which A, the winner, obtained some advantage in the past and B, the loser, lost out in the past, then a shared history would mean that A won at the expense of B, while an independent history would mean that A won at the expense of C, and B lost out to country D.

Results of our bargaining experiment demonstrate that when partners' ex-ante asymmetry is due to their interdependent histories, the loser believes that s/he deserves compensation from the winner, but that the winner rejects this perspective. This divergence of partners' beliefs about the fair solution increases the likelihood that they will fail to settle the subsequent negotiation. In contrast, when the winner's and loser's histories are independent, they are both likely to hold more convergent views of fairness and be more likely to settle the current dispute.

To obtain an impartial view of fairness, unencumbered by self-serving bias, we recruited an independent sample of subjects to provide an unbiased perspective on the fair solution to the dispute in the two asymmetric conditions – i.e., in which the history between the parties is shared or independent. As predicted, we find that the amount of compensation seen by these impartial

judges as fair is greater for losers when the asymmetry stems from partners' interdependent histories versus independent histories.

Comparing players' beliefs to those of the unbiased spectators, we find that when the negotiators share an asymmetric history, the fairness views of both winners and losers gives the loser party less than the amount judged as fair by the impartial judges; however, the losers' fairness judgments are closer to the impartial judges than the winners' judgments. When the histories are independent, on the other hand, winners' views of fairness coincide with the views of unbiased spectators, but losers believe they should be entitled to more compensation than do the impartial judges.

In what follows, we briefly summarize relevant literature to motivate our study. Then, we present the framework of the bargaining experiment and our predictions. These are followed by a detailed description of the methods. Next, we present results of the experiment. We conclude with discussion and conclusions.

2. Related literature

According to equity theory, people prefer outcomes of joint activities to be equitable. People experience inequity in a distribution if they perceive rewards and inputs as disproportionate, and, according to the theory, will engage in efforts at restoring equity (Adams, 1966; Homans, 1974). Equity theory is supported by empirical evidence; people who perceive themselves as having been treated inequitably are more likely to lie and cheat in an effort to restore equity (in psychology, e.g., Gino and Pierce (2009); Greenberg (1993); John et al. (2014); Sharma et al. (2014); in economics, see, Fehr et al. (1993); Houser et al. (2012)). Greenberg (1993), for instance, reports that workers compensate themselves by stealing from a company's inventory if

they feel unfairly underpaid. Houser et al. (2012) finds that people who received an inferior allocation in a dictator game from a human rather than a random device, are more likely to lie in a subsequent task if doing so increases their experimental earnings.

In situations in which partners jointly created to-be-divided resources and the individual contributions are known, division proportional to contribution is typically the salient norm, consistent with equity theory (Cappelen et al. 2017, 2013a, 2007; Karagözoglu and Riedl, 2014; Konow, 2000). There are, however, complex situations in which unequal contributions are due to uncontrollable factors such as bad luck. The question of what constitutes equity arises here and sets the stage for context-dependent views on a fair division (Konow, 2001). One solution is to compensate the disadvantaged party through redistribution to the extent that her/his lower contribution is caused by uncontrollable factors (Cappelen et al. 2013b; Fong, 2001; Konow, 2001). The degree of freedom in deciding whether and how the asymmetry should be dealt with, however, leads to the emergence of multiple fair solutions even among neutral spectators with no scope of personal interest in the distribution (Cappelen et al. 2007).

This complexity can be and often is exploited when partners have a stake in negotiating the division of joint proceeds. If partners' claims are mutually incompatible, bargaining inefficiencies such as prolonged negotiations or impasses are likely to result. For instance, in asymmetries due to bad luck, the disadvantaged party will typically claim compensation which is resisted by the advantaged party (e.g., Roth et al. 1981; Weg et al. 1990).

As long as partners are flexible in their claims, agreement is likely to occur. There are, however, situations in which claims are fueled by inflexible beliefs about the fair settlement. When a fairness view is *selfishly biased*, settlement is likely to occur as partners are willing to flex on their beliefs to avoid costly inefficiencies (Birkeland and Tungodden, 2014; Camerer,

2003). Selfishly biased partners acknowledge that what they believe to be the fair solution does not necessarily coincide with the objective fairness and hence, they are ready to adjust their claims for the sake of settlement (Konow, 2005). By contrast, when notions about the fair solution are *self-servingly biased*, people are convinced that their view of a fair settlement coincides with the objectively fair solution and they refuse to compromise (Babcock et al. 1995; Birkeland and Tungodden, 2014; Konow, 2005; Kriss et al., Thompson and Loewenstein, 1992).

This central role of fairness beliefs in negotiations has been advanced in a theoretical framework proposed by Birkeland and Tungodden (2014) that incorporates fairness motives and the weights that people attach to them and generates predictions of bargaining outcomes under various specifications. Here, we focus on their proposition regarding *principled disagreement*, which occurs when partners share incompatible beliefs about the fair settlement and insist on these beliefs to the point where they reach stalemate.

In this paper, we combine the research on compensation-seeking after experiencing a loss and the key role of beliefs in negotiations. We ask whether a prior asymmetric distributive outcome between bargaining partners would be more likely to lead to incompatible beliefs about the fairness of compensation in a subsequent negotiation. Further, we ask whether this leads to impasse when the asymmetry is due to an allocation schema in which partners' outcomes were interdependent than when their outcomes were independent. Rather than creating asymmetries between partners via lopsided potential contributions to the to-be-divided proceeds (as done, for instance, by Cappelen et al. (2013a)), we establish the asymmetry between partners with respect to their initial wealth levels. That is, partners are subject to a lopsided allocation of proceeds generated through a real-effort task in a prior distributive situation, and we test if this history spills over onto their bargaining behavior.

We view asymmetries in the bargainers' prior outcomes as a context for the focal negotiation in which the interpretation of the significance of the prior outcomes can be systematically and self-servingly exploited between them. The loser is likely to believe that the prior outcome has a bearing on the fair distribution, and that s/he is entitled to compensation. By contrast, the winner is likely to believe that the past is irrelevant to the present and that the shares should be proportional only to contributions to the resources to be divided in the second, focal, negotiation.

To our knowledge, only two previous studies address the impact of ex-ante asymmetries on bargaining behavior. The first is a lab study from Camerer and Loewenstein (1993, Study 1 - Appleton-Baker). They demonstrated increased likelihood of impasse between buyers and sellers who had the opportunity to renegotiate a sales transaction after their BATNAs (best alternatives to negotiated settlement) were revealed. These BATNAs were treatment variables, randomly assigned to bargaining partners at the beginning of the experiment and subjects were not allowed to reveal them during the initial negotiation. After partners first negotiated the sales prices, their BATNAs were revealed and they were prompted to renegotiate the price. Here, the ex-ante asymmetry between partners arose from one party benefiting more than the other from the initial sales transaction in the light of the revealed BATNAs.

The authors' key finding is that pairs with greater ex-ante asymmetries were more likely to reach impasse in the renegotiation. Those subjects who realized that they made a disadvantageous initial deal upon BATNAs becoming public knowledge tried to get compensation in the renegotiation. However, their claims were unwelcomed by their partners who made advantageous initial deals. The authors speculated that this is because partners hold self-serving views about the implication of their sales histories on the current bargaining. Importantly, in this study, the ex-ante asymmetry was not randomly assigned but rather was

partly the outcome of the initial bargaining, raising the issue of selecting for weak and strong bargaining skills. Therefore, it could not be determined if the bargaining impasse was due to the initial asymmetry, or rather to a factor that was associated with creating the asymmetry in the first place. In other words, it is possible that the same characteristic accounts for weak negotiating skills that put someone in an inferior position after the initial sales transaction and later claiming compensation upon learning how bad of a deal one made. Moreover, as the authors did not elicit beliefs about the unbiased fair solution, one cannot tell whether and to what extent stalemates were driven by divergent and potentially self-serving beliefs about fair compensation for the person who lost out in the initial transaction.

The second relevant study is Experiment 2 reported by Dezső et al. (2015). Here, the authors did manipulate prior asymmetries between bargaining partners and found that when negotiating partners' asymmetric histories are linked together, they are more likely to reach an impasse than when the prior asymmetries are due to a prior interaction with another party. In this earlier study, as in the current study, bargaining partners arrived at the table with asymmetric wealth levels due to a previous, lopsided distribution of their joint proceeds. In stage one, participants jointly created proceeds, but one party, the winner, was granted the entire sum *because he contributed more*. Then, in stage two, in the same-partner condition winners and losers remained paired. However, in the different-partner condition, winners and losers were paired with someone else – always ensuring winner-loser pairs. In both conditions, the asymmetry was due to the winner having benefited at the expense of a loser, but, in the different-partner condition, the winner benefited at the expense of a different loser than of his/her stage two pair.

The key finding from this study was that impasse was more likely in the same- than different-partner condition. The authors speculate that this is because losers and winners in the same-

partner condition held incompatible views about the fair compensation to the loser. This, however, could not be addressed because partners' beliefs about the fair division was not elicited, so it was unclear whether and to what extent impasses were driven by self-serving beliefs.

Furthermore, partners in the Dezsó et al. (2015) study were uninformed about their actual stage one and two contributions, obscuring whether they sought shares according the proportionality rule. Additionally, allocations in the first stage were not random, but were determined by relative contributions, so there was, as in Camerer and Loewenstein, a connection between the personal characteristics of the disputants (specifically, their skill at the task) and the outcomes they experienced. Moreover, at beginning of stage one, subjects were uninformed about the forthcoming unfair allocation schema, which calls into question the extent to which frustration, surprise and relief systematically influenced the observed bargaining behavior. Finally, as unbiased fair divisions were not elicited from neutral judges, it is unclear if redistribution is generally viewed as a fair solution between bargaining partners with asymmetric histories.

In addition to addressing limitations of these previous two studies, we examine the nature and role of beliefs about the fair settlement in bargaining between partners with asymmetric history. To disentangle the effect of asymmetry from interdependency (i.e., losing to a beneficiary), we manipulate whether asymmetric prior wealth levels between bargaining dyads are due to histories that were shared, such that only one party could win at the expense of the other, or independent, such that both could have won or lost (in the event that one won and the other lost, the winner did not win at the expense of the loser). We call the former the “shared asymmetric history condition” and the latter the “independent asymmetric history condition.”

We suspect that losers in the shared asymmetric history condition view it as fair to obtain compensation from the winner, but that compensation will be less of an issue in the independent asymmetric history condition.

To investigate whether the unbiased fair solution involves compensating the loser for his/her prior loss, we employed a preliminary survey. Here we elicited judgments from a sample of subjects drawn from the same population as those recruited for the actual experiment. We described the experiment to them and asked them to take the position of a neutral judge and to provide their views about what would be a fair division of hypothetical joint proceeds that could arise in the first stage of the experiment. These judgments allow us to examine the magnitude of the self-serving bias by the parties in the experiment (winners and losers) and to obtain impartial judgments about whether and how history should play a role in the situation created by the experiment.

3. General considerations of the bargaining experiment

In stage one of the bargaining experiment, we manipulated pairs' histories by means of a random allocation of proceeds generated in a real-effort task. In the task, subjects completed a trivial image-labeling task that required no specific knowledge or skill. Upon a successful completion, subjects were individually remunerated a fixed lump-sum.

In the shared history condition, *one single coin flip* for each pair of subjects determined which of the two individuals received remuneration for the task. Partners' outcomes were therefore interdependent, as only one party (the winner) received his/her stage 1 earnings, while the other (the loser) did not get paid for completing the task. As a result of this stage one

manipulation regime, we solely obtained shared asymmetric (winner-loser) history pairs in the shared asymmetric history condition.

In the independent history condition, *one coin was flipped for each player*, which determined whether the player received his/her stage 1 earnings (and became a winner or loser). Depending on the outcomes of these coin flips, we realized three different types of pairs in the independent history condition. Independent asymmetric history pairs consisted of a winner and a loser and are comparable in material outcomes from the first round to pairs in the shared asymmetric history condition. Independent symmetric history loser-loser pairs consisted of two losers and, independent symmetric history winner-winner pairs consisted of two winners. Note, that our research questions only pertain to asymmetric (shared and independent) history pairs. The two independent symmetric history conditions are just realizations of the stage 1 manipulations which are uninformative for testing our hypothesis and are not included in the section testing predictions, although we do report implications from the outcomes in those conditions. In a similar vein, although we also elicited fair divisions of joint proceeds from spectators for both types of independent symmetric history pairs, we do not investigate these divisions in the hypothesis testing section.

At the beginning of stage two, players in both conditions were reminded about their and their partners' stage one outcomes. In this stage, players completed a ten-item knowledge quiz remunerated in a piece-rate fashion (for a similar approach see, e.g., Ball et al. (2001); Clark (1998); Gächter and Riedl (2006); Hoffman et al. (1994)). Dyads in both conditions individually worked on a knowledge quiz that paid into a pooled fund. After both finished working on the knowledge quiz, they learned their own and their partner's individual earnings and the pooled earnings. Then, they bargained over how to split their pooled earnings. Before the negotiation

began, players stated their beliefs about their own fair share of the earnings. Subjects were incentivized to provide unbiased views by comparing their beliefs to those of impartial judges whose judgments about a fair division had already been elicited via the aforementioned survey, administered two months prior to the experiment on a demographically matched sample (for a similar approach to eliciting unbiased views in a prior survey see Babcock et al. (1995) and Gächter and Riedl (2005)).

The purpose of the real effort tasks in both stages of the experiment was to create a sense of entitlement on the part of the subjects (Birkeland, 2013; Cherry et al. 2002). This had particular significance in stage two, because we expected that knowing one's own and one's partner's individual contributions to the joint proceeds would reduce the tendency of equal-split claims and make splitting in proportion to each player's contribution a salient fair division (e.g., Gächter and Riedl, 2006; Ochs and Roth, 1989). This design feature also allows us to define compensation. By compensation we mean giving to the loser beyond his/her contribution to the stage two joint proceed – i.e., compensating the loser at the winner partner's expense.

4. Predictions

Our key behavioral prediction is that impasse will be more likely to occur in the shared than in the independent asymmetric history condition. We anticipated that partners in the shared asymmetric history condition would form divergent, settlement-hindering beliefs about the fair settlement, while these beliefs would converge more and facilitate settlement between partners in the independent asymmetric history condition.

More specifically, we predicted that losers in the shared asymmetric history condition would perceive larger amount of compensation as fair than losers in the independent asymmetric history

condition or winners in any condition. Relatedly, we predicted that losers in the shared asymmetric history condition would believe that they were entitled to compensation, relative to the proportion-to-input settlement, while winners would believe that compensation was not called for.

We also expected that spectators would perceive compensation as fair for losers in both asymmetric history conditions, but that this would be greater for losers in the shared than in the independent asymmetric history conditions. We had no specific predictions about how much players' and spectators' views of fair compensation would overlap, nor about whether winners' or losers' perspectives would deviate more from those of the unbiased spectators.

5. Methods

The two-stage bargaining experiment was programmed in oTree (Chen et al. 2016) and conducted in twenty-eight sessions. One session lasted for approximately fifteen minutes, and participants received a 300 HUF¹ show-up fee. Experimental screenshots in the original language and their English translations can be found in Appendix A.

5.1. Procedure

Subjects were recruited from the Corvinus University of Budapest, Hungary. After arriving at the lab facilities at the university, they read and signed the informed consent form and were seated at one computer arranged so that subjects could not see others' screens. Assistants welcomed the subjects and informed them that they could discontinue the experiment at any point, in which case they would only be paid their show-up fee. Subjects were also informed that if they had any questions, they should raise their hand and address the experimenter privately. Then, they clicked on a link which started the experiment.

¹ Hungarian Forints. At the time of the experiment, 1 EUR = 317 HUF.

In the first stage of the experiment, paired subjects (henceforth, *players*) were randomly assigned to either the shared or the independent history pair-level condition. After answering basic demographic questions, they were given a real-effort task entailing labeling five simple images. For example, if an image of a spoon was presented, they had to type the word “spoon.” Players in both pair-level conditions were truthfully informed before they began the image-labeling task that, after they labeled all five images, one image would be randomly selected for each player in a pair. If both parties within a pair correctly typed in the name of this image, they both individually earn 1500 HUF. Pairs in which at least one party failed at successfully completing the image-labeling task stopped the experiment after this stage and were only paid a show-up fee.

Players were also told that, upon successfully completing the image-labeling task, a random device would decide whether they would be paid their 1500 HUF remuneration. At this point, they were only told about these earnings and they were actually paid out at the end of the experiment (this procedure was truthfully described in detail to the players). To establish the shared history manipulation in the shared history condition, *one coin was flipped for each pair*. That is, players’ outcomes were interdependent since only one of them could in fact receive her/his 1500 HUF earnings for the image-labeling task. The player favored by the coin flip (i.e., winner) received his 1500 HUF earnings, whereas the player not favored by the coin flip (i.e., loser) did not receive his earnings of 1500 HUF for completing the image-labeling task, but instead received 0 HUF.

To establish the independent history manipulation in the independent history conditions, *one coin was flipped individually for each player* in the pair. That is, two coins were flipped simultaneously for each pair creating independence between the players’ outcomes. The

outcomes of these two coin flips individually and independently determined for each player whether s/he in fact receives the 1500 HUF earnings from the image-labeling task – i.e., was a winner or a loser. The outcomes of these two coin flips created three different independent history conditions.

When one of the two coin flips favored one player (i.e., winner) but the other coin flip did not favor the other player (i.e., loser), as in the independent asymmetric history condition, the winner received his/her 1500 HUF earnings while the loser did not receive her/his 1500 HUF earnings. When the two coin flips favored both players, as in the independent symmetric history winner-winner condition, they both received their 1500 HUF earnings for completing the image-labeling task. When the two coin flips favored neither party, as in the independent symmetric history loser-loser condition, neither player received his/her 1500 HUF earnings for completing the image-labeling task and instead, they received 0 HUF.

At the end of stage one, the coins were flipped and players learned the outcomes of the coin flips corresponding to their and their partner's earnings. That is, players in all conditions were not only informed about whether they received their 1500 HUF but also whether their partner received his/her 1500 HUF for completing the image-labeling task.

In the second stage, partner pairings were kept the same as in stage one. At the beginning of this stage, partners were reminded about their own and their partner's stage one history – i.e., the partner's coin flip outcome and earnings – and then were given instructions for stage two. Next, they individually worked on the same ten-item trivia quiz for which each correct answer yielded 150 HUF for each of them. Once quizzes were completed, they learned their own score on the quiz (i.e., how many correct answers they gave), their individual earnings in HUF, their partner's quiz correct and earnings in HUF and their joint quiz earnings in HUF.

Next, they were asked to state their beliefs about their unbiased fair share of their pooled stage two trivia quiz proceeds. This belief elicitation procedure was incentivized in the following way: Players were told, truthfully, that five neutral spectators, who had been informed about both partners' stage 1 history and both partners' individual contribution to the joint stage 2 quiz earnings, had judged fair splits of their joint proceeds. Each player who answered within 10% of the mean of these judgments received an extra 300 HUF. To avoid wealth effects, however, they only learned whether they had earned this bonus at the end of the experiment. The beliefs were then compared to results from a preliminary spectator survey.

In this preliminary spectator survey, we elicited five fair divisions for every possible combination of pooled trivia earnings between players in all four pair-level conditions. Each combination was judged by five different spectators, and these judgments were averaged, creating a large table of means that was used in the main experiment. Appendix A provides a detailed description of this preliminary spectator survey in which fully informed neutral spectators proposed fair splits between players.

After participants stated their beliefs about their fair share, they entered the bargaining phase, in which they were given three rounds to agree on how to divide their joint quiz proceeds. Partners simultaneously submitted their offers (i.e., how much they would like to take for themselves) and then learned how much their partner claimed. If offers summed up to the joint proceeds, they agreed and received as much as they claimed. If their offers summed to less than the joint proceeds, they received their claims and the leftover was equally split between them. If offers summed to more than joint proceeds, then they entered the next round. If they failed to agree in the third round, the amount to be divided shrank by 20% and was randomly (with every division equally likely) distributed between partners.

Once players were done with the bargaining (either settled or reached impasse), they learned how much they had earned in the bargaining phase. Next, they responded to a seven-item survey presented in two-clusters. In the first cluster, which was two items, one item asked them how much they agree with the statement that it is fair to compensate from the joint quiz earnings the party who did not get paid for the image-labeling task. The other item asked them how much they agree with the statement that how much someone earned from the image-labeling task should have a bearing on the fair division of the joint quiz earnings. In the second cluster, which was five items, players' answered questions about their satisfaction with and feelings about their bargaining outcomes. Finally, they learned how much they earned in the experiment in total and were paid.

5.2. Sample

Subjects in the bargaining experiment and respondents to the spectator survey were recruited from the Corvinus University of Budapest, Hungary, spanning a wide variety of study fields such marketing, sociology, international relations, economics, applied economics and business administration. Those who participated in the preliminary spectator survey were not allowed to participate in the bargaining experiment. There were no other exclusion criteria for participation.

Five-hundred and twenty-two subjects (261 pairs) participated in the bargaining experiment, but eight players failed to pass the image labeling task (by chance, all in the independent symmetric history loser-loser condition). The final sample consisted of 514 players (257 pairs), 91 pairs in the shared asymmetric history, 75 pairs in the independent asymmetric history, 45 pairs in the independent symmetric history loser-loser and 46 pairs in the independent symmetric history winner-winner condition.

Additionally, between the four survey conditions mimicking the four pair-level experimental conditions, we had 109 participants in the preliminary survey, 23 in the shared and 26 in the independent asymmetric history conditions, 32 in the independent symmetric history loser-loser and 28 in the independent symmetric history winner-winner conditions.²

When comparing mean players' age in years between the six individual-level treatments, we find that age statistically differs. The only difference in age is that winners in the shared asymmetric history condition are younger (Mean (SD) = 20.74 (1.51)) than winners in the independent history treatment (Mean (SD) = 22.17 (4.59)), $p \leq .05$. In other respects, there are no differences in players' demographic characteristics between the six individual-level treatments. Comparing survey participants' (*spectators*') and players' demographic characteristics, we find that mean age in years is significantly higher among spectators (Mean (SD) = 23.07 (4.25)) than players (Mean (SD) = 21.39 (2.84)), $F(1, 617) = 25.66, p \leq .001$. In other aspects, there are no differences between players' and spectators' demographic characteristics. Detailed demographics are presented in Appendix Table B.1 for players and in Tables B.2 and B.3 for spectators.

6. Results

First, we present descriptive results in which we include results from all four pair-level treatments. Then, we continue with testing predictions on the restricted sample of shared asymmetric history and independent symmetric history treatments.

6.1. Descriptive results

² Here, we only report responses of those combinations that occurred in the experiment and the corresponding survey respondents' demographics.

The upper panel of Table 1 presents descriptive results of players in the bargaining experiment. From the first row one can see, consistent with the random assignment to winning or losing in stage one, and to one of the history conditions, that there is no significant difference across individual-level conditions in players' contributions to the stage-two pooled quiz earnings. Players in a pair contributed, on average, 50% of the to-be-divided joint earnings, suggesting that the stage one manipulation did not impact their stage 2 effort levels. The marginal mean (SD) is 1044.75 (223.54) HUF which corresponds to a mean (SD) of 6.95 (1.49) correctly answered quiz questions. Note, there is also no difference in the stage-two pooled earnings between the four level treatments, $F(3, 253) = 0.29, ns$. The mean (SD) for all players is 2089.49 (323.77) HUF. The mean experimental earnings in HUF (excluding the show-up fee) differs across individual-level treatments, mostly due to the stage one loser-winner manipulation. In general, winners earned more than losers in the experiment.

Players' beliefs about their fair share expressed proportional to their stage 2 quiz earnings (i.e., how much the player stated that s/he should get in HUF according to an unbiased fairness divided by her/his individual stage 2 quiz earnings in HUF) are presented in the second row of Table 1. Results show that losers in both asymmetric history conditions believe they are entitled to a greater share than their winner partners believe they are entitled to. Losers in the shared asymmetric history condition believe they are entitled to a greater share than losers in the independent asymmetric history condition. Losers in both asymmetric history conditions believe that they are entitled to more than their contributions (their 95% CIs are above 1), whereas winners, on average, believe that they are entitled to no more than their contribution (95% CIs include 1).

The lower panel of Table 1 presents spectators' views about players' fair share expressed as a proportion of stage 2 joint earnings. Two findings emerge here. First, in both asymmetric history conditions spectators think it is fair to give a larger share to losers than to winners. Second, they believe that losers in both asymmetric history conditions are entitled to more than their contributions in the second stage. This amount is, however, larger for losers in the shared than in the independent asymmetric history treatment.

Although spectators' views of fairness in the two symmetric conditions were mainly solicited to determine fair shares for subjects in these conditions, these judgments do address the question of whether the spectators believed that, absent asymmetries, players should be paid in proportion to their earnings. The answer is that they do hold this view: On average, spectators believe that losers and winners in the two symmetric history treatments are entitled to their contributions.

When comparing the 95% CIs of the means of players' beliefs (second row of first panel) and spectators' views (first row of second panel) about players' fair shares, we observe that these views overlap between players and spectators in every individual cell except for winners in the shared asymmetric history treatments. These winners believe that fairness does not dictate granting losers beyond their contribution to the stage 2 task; but spectators do believe that such additional compensation was fair.

Further details about stage two joint quiz earnings in HUF, players' individual stage two quiz and experimental earnings in HUF and spectators' views in HUF are presented in Table B.4 in Appendix B.

Table 1
Summary descriptive table of key experimental and survey variables. Mean (SD) and 95% CIs.

Players from the experiment	Shared asymmetric history			Independent asymmetric history			Independent symmetric history loser-loser $n_{\text{indiv}} = 90$	Independent symmetric history winner-winner $n_{\text{indiv}} = 92$	Test of statistical differences between the six individual-level treatments
	loser $n_{\text{indiv}} = 91$	winner $n_{\text{indiv}} = 91$	Test of statistical difference between loser and winner	loser $n_{\text{indiv}} = 75$	winner $n_{\text{indiv}} = 75$	Test of statistical difference between loser and winner			
Individual stage 2 quiz earnings expressed as proportion of stage 2 joint earnings	0.49 (0.09) [0.47, 0.51]	0.51 (0.09) [0.49, 0.52]	$F(1, 180) = 0.89, ns$	0.50 (0.08) [0.48, 0.51]	0.50 (0.08) [0.48, 0.52]	$F(1, 148) = 0.17, ns$	0.50 (0.87) [0.48, 0.52]	0.50 (0.78) [0.48, 0.52]	$F(5, 508) = 0.23, ns$
Players' beliefs about their fair share expressed as proportion of stage 2 quiz earnings	1.35 (0.31) [1.29, 1.42]	1.01 (0.29) [0.95, 1.07]	$W(1, 179) = 59.89 ***$	1.14 (0.26) [1.08, 1.20]	0.98 (0.24) [0.93, 1.04]	$F(1, 148) = 14.99 ***$	1.0004 (0.07) [0.99, 1.02]	1.004 (0.12) [0.98, 1.02]	$W(5, 218) = 25.64 ***$
Spectators from the survey	loser $n_{\text{spectators}} = 23$	winner $n_{\text{spectators}} = 23$	Test of statistical difference between loser and winner	losers $n_{\text{spectators}} = 26$	winner $n_{\text{spectators}} = 26$	Test of statistical difference between loser and winner	losers $n_{\text{spectators}} = 32$	winner $n_{\text{spectators}} = 28$	Test of statistical differences between the six individual-level treatments
Players' fair shares expressed as proportion of their stage 2 quiz earnings as proposed by spectators	1.54 (0.32) [1.40, 1.67]	0.57 (0.14) [0.51, 0.63]	$W(1, 44) = 179.72 ***$	1.06 (0.09) [1.03, 1.10]	0.96 (0.05) [0.94, 0.98]	$F(1, 50) = 28.04 ***$	1.02 (0.07) [0.99, 1.05]	1.00 (0.06) [0.98, 1.02]	$W(5, 67) = 61.00 ***$

Note. ¹ We report Welch-statistics to account for unequal variances. We only report responses of those spectators whose responses were presented in the experiment. This explains why ns are different in the spectator panel. *** $p \leq .001$

The main results of the experiment are presented in Figure 1. Looking first at settlement versus non-settlement (right-hand bar in each figure), the distribution of impasse differs between the four pair-level treatments, $\chi^2(3, N_{pair} = 257) = 14.68, p \leq .01$ in the fashion that was predicted. Specifically, impasse is more likely in the shared asymmetric history treatment (22%) than in the independent asymmetric history treatment, where it was only 7%; $\chi^2(1, N_{pair} = 166) = 7.53, p \leq .01$. Comparison of the independent asymmetric history treatment to those in the two symmetric history treatments shows that impasse rates are similar across these three treatments, $\chi^2(2, N_{pair} = 166) = 0.32, ns$. However, the pattern of settlement does differ between these three treatments. Specifically, pairs seemed to settle more quickly in the the two independent symmetric history treatments than in the independent asymmetric condition. Finally, we find no difference in the likelihood of impasse within the two independent symmetric treatments, $\chi^2(1, N_{pair} = 91) = 0.24, ns$.

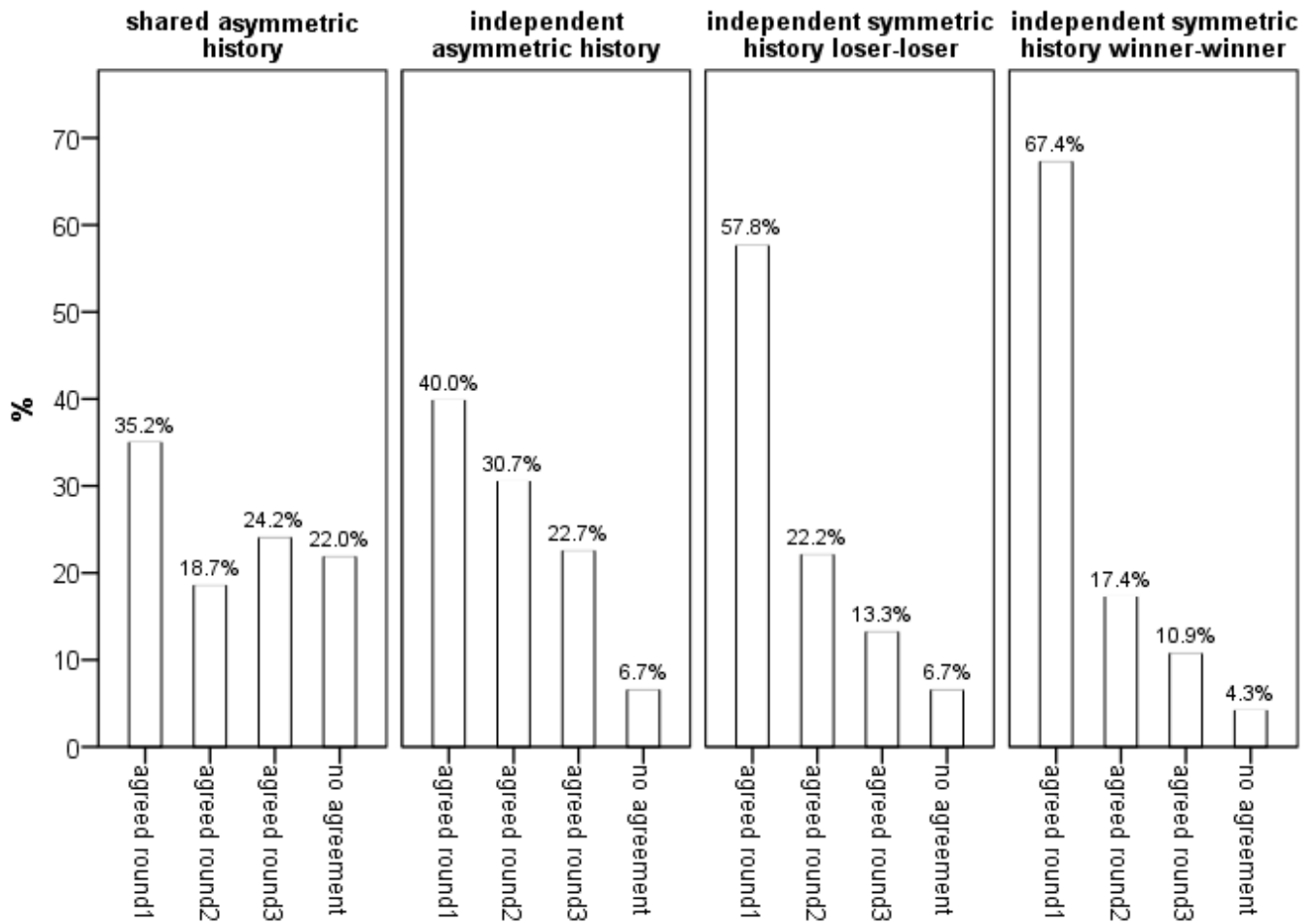


Figure 1

The distribution of bargaining outcomes in the four pair-level conditions. $N_{pair} = 257$.

Note. The distribution of bargaining outcomes differs between the four pair-level treatments, $\chi^2(9, N_{pair} = 257) = 29.14, p \leq .001$. We also find a difference between these two distributions between the shared and independent asymmetric history treatments, $\chi^2(3, N_{pair} = 166) = 9.15, p \leq .05$. Comparing the distributions of bargaining outcomes between the three independent history treatments, we observe no difference, $\chi^2(9, N_{pair} = 166) = 9.72, p > .01$. Finally, distribution of bargaining outcomes is also similar between the two independent symmetric treatments, $\chi^2(9, N_{pair} = 91) = 0.94, ns$.

6.2. Tests of predictions involving fairness perceptions

To specifically test our predictions about the differential impact of shared and independent histories on asymmetric pairs, we restrict the sample to the shared and independent asymmetric history treatments ($N_{\text{individual}} = 332$). To simplify comprehension and analysis, we express players' beliefs and spectators' views about the fair solution in terms of *loser's share*, which facilitates interpreting results from the perspective of compensation given to loser.

The loser's share is defined as the difference between the stated beliefs (players' or spectators') about the amount the loser should receive, and the amount contributed by the loser, scaled by the joint stage 2 quiz earnings.

Loser's share = (amount in HUF loser should get – amount in HUF loser contributed)/pooled quiz earnings in HUF.

This form is commensurable within and between pairs and between players and spectators. Additionally, it highlights whether the loser's share that is perceived as fair is more than his/her contribution to the pooled stage 2 quiz earnings, indicating the presence of compensation for the loser at the winner's expense. Using this formula, we first calculate, and present in Figure 2, the mean players' belief about the loser's fair share in each individual-level condition.

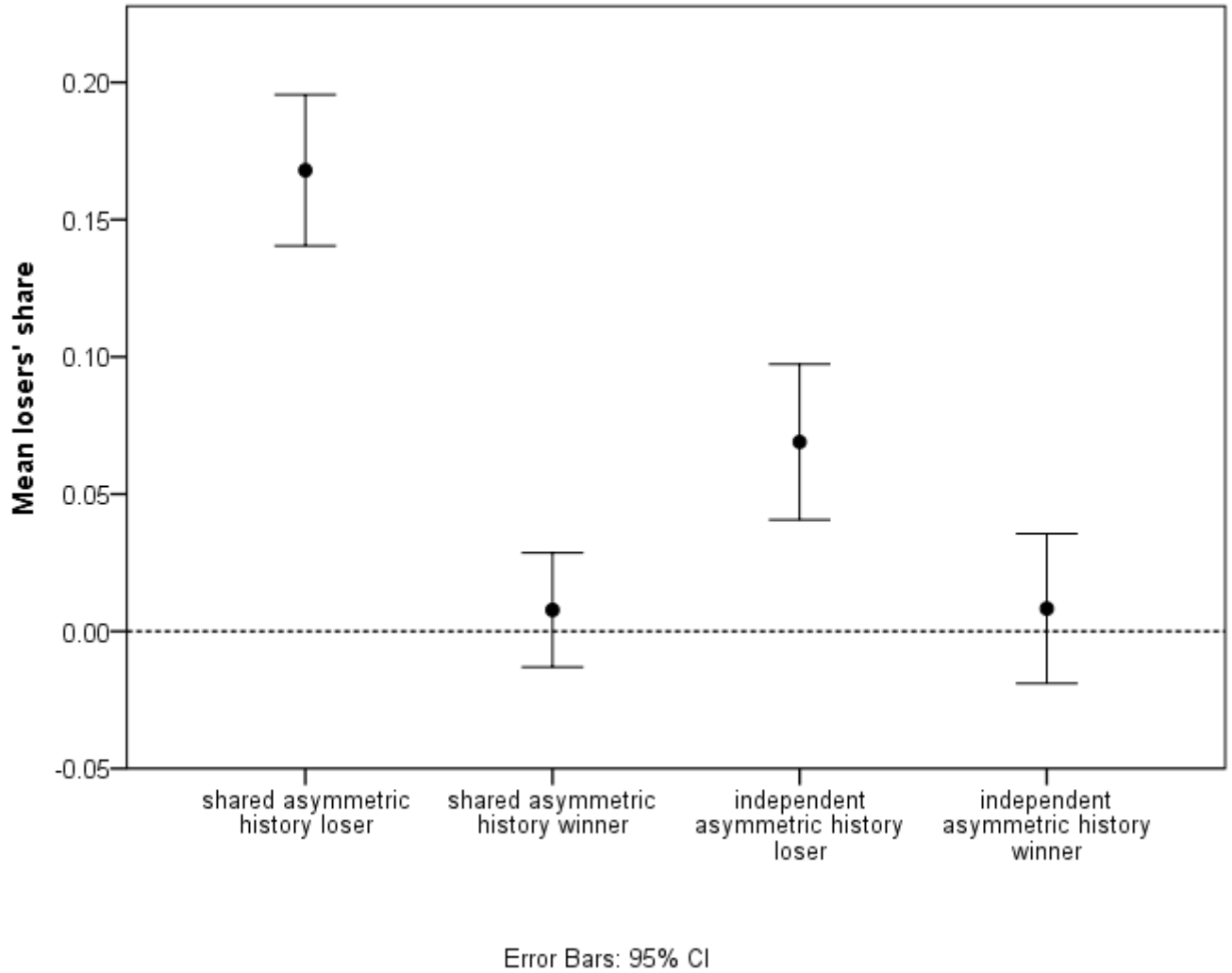


Figure 2

Players' beliefs about the losers' fair share in the shared and independent asymmetric history conditions.

$N_{\text{individual}} = 332$.

Note. Players' beliefs about the loser's fair share are expressed as deviation from dividing according to contribution. Dotted reference line is displayed at mean = 0.

Three important findings emerge from the 95% CIs of the means. First, winners in the shared and independent asymmetric history conditions believe that splitting according to contribution is the fair settlement, as the 95% CIs of mean beliefs include zero. Second, losers in both pair-level condition believe that the fair settlement includes giving more to losers than their contribution, as the 95% CIs include only positive numbers. In other words, losers in both conditions believe that their fair share includes compensation from their winner partners. Third, losers in the shared asymmetric history condition believe that a greater share is fair than losers in the independent condition or winners in any condition.

The psychology suggested by this pattern receives further support from responses to the second item from the short survey administered at the end of the experiment: “How much someone earned from the image-labeling task, has a bearing on what is the fair division of the joint earnings.” Losers (Mean (SD) = 2.92 (0.92) in the shared asymmetric history condition agree more than their winner partners (Mean (SD) = 2.56 (0.90)) with this statement $F(1, 180) = 7.23, p \leq .01$. They also agree more than losers in the independent asymmetric history condition (Mean (SD) = 2.55 (0.79)), $F(1, 164) = 7.76, p \leq .01$. At the same time, there is no loser and winner difference within the independent history condition. These responses should be treated with caution, however, since they were not incentivized and could just be justifications of behavior displayed at the experiment rather than true motives.

The statistical significance of the third finding is confirmed by the history-by-loser interaction in Model I of Table 2, which regresses players’ beliefs about the loser’s fair share on history (shared asymmetric = 1 vs. independent asymmetric = 0) and role (loser = 1 vs. winner = 0).

Table 2
 Summary of OLS regressions (with robust standard errors) of players' beliefs about the losers' fair share on experimental factors. Individual-level analysis.

	I
Intercept	0.01 (0.01)
History = 1 (Shared)	- 0.001 (0.02)
Role = 1 (Loser)	0.06 ** (0.02)
History X Role	0.10 *** (0.03)
Likelihood-ratio χ^2	93.33 ***
df	3
N	332

Note. Standard errors are in parenthesis

** $p \leq 0.01$, *** $p \leq .001$

Next, we calculate the difference between partners' beliefs about the loser's fair share (i.e., loser's - winner's beliefs about loser's fair share; see its distribution in Figure 3 in the two pair-level asymmetric history conditions). Gächter and Riedl (2005) refer to this difference as 'tension' between the individuals. As is evident from the figure, the distribution of tension differs between the two conditions, Kolmogorov-Smirnov $Z = 2.55$, $p \leq .001$. Most notably, the bulk of the tension is centered around zero in the independent asymmetric history condition, while it spreads in the positive domain in the shared asymmetric history condition.

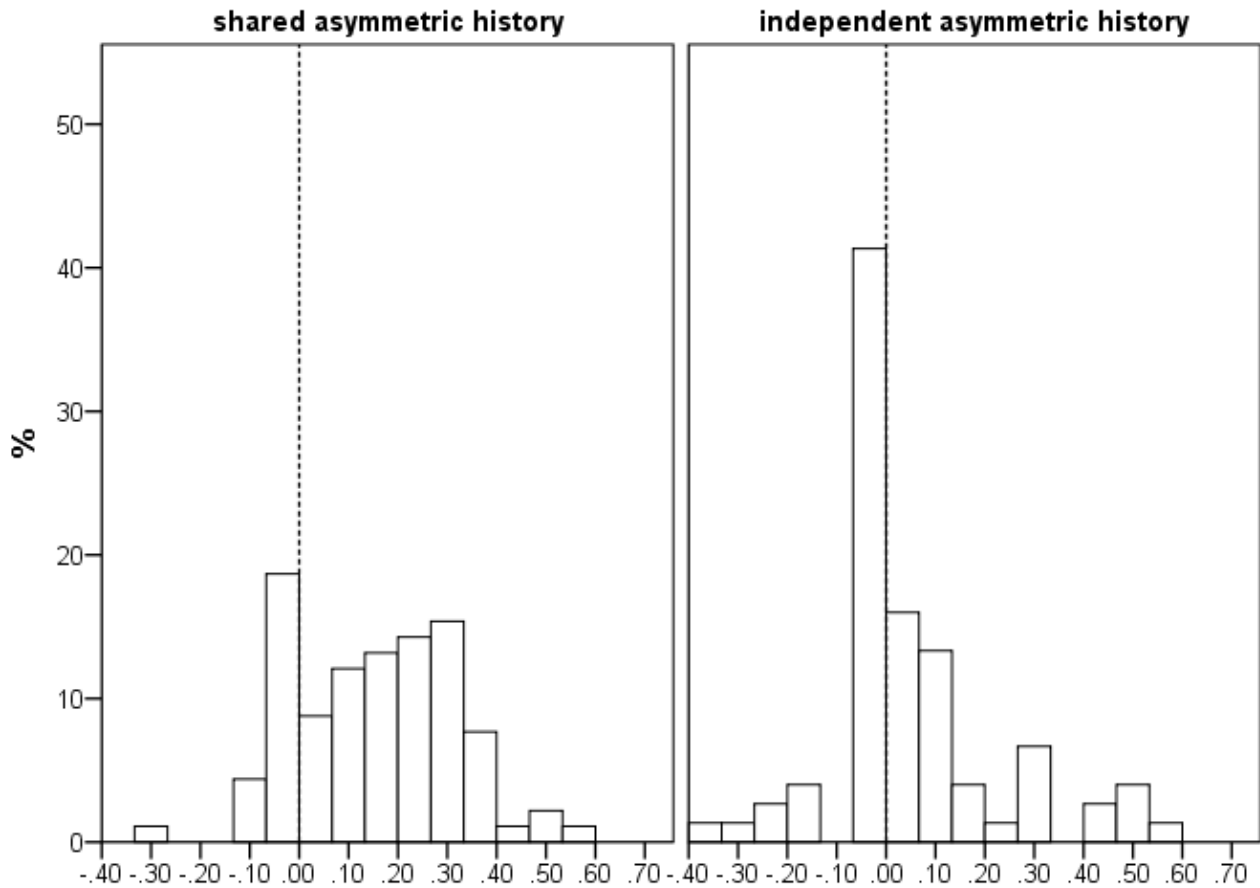


Figure 3

Distribution of tension in the shared and independent asymmetric history conditions. Pair-level analysis. $N_{pair} = 166$.

Note. Tension is the difference between partners' beliefs about the loser's fair share (i.e., loser's beliefs minus winner's beliefs). Dotted reference line is displayed at a difference of zero.

Mean tension is greater among pairs in the shared asymmetric history (M (SD) = 0.16 (0.16), 95% CI [0.13, 0.19]) than in the independent symmetric history condition (M (SD) = 0.06 (0.17), 95% CI [0.02, 0.10]), $F(1, 164) = 14.33$, $p \leq .001$. In fact, as one can see from the 95% CIs,

tension is greater than zero in both pair-level treatments, indicating that players in both treatments hold incompatible beliefs about the loser's fair share, though beliefs are more discordant between players in the shared than in the independent asymmetric history condition.

We perform a series of binary logistic regressions to test the effect of shared history on impasse (Model I), then we add tension (Model II), see Table 3 for results summary. From Model I, we learn that impasse is approximately four times more likely in the shared than in the independent asymmetric history condition. Adding tension, in Model II, we find that an increase from mean (0.16) to maximum (0.60) in the shared asymmetric history condition results in a change in expected probability of impasse from 20.5% to 56.3%. The equivalent increase from the mean (0.06) to the maximum (0.58) in observed tension in the independent asymmetric history condition also results in an increase in the expected probability of impasse, but a smaller one, from 5.3% to 32.6%. In Table B.5 in Appendix B we also show that the effects history and tension are robust after controlling for the difference between players' age and effort levels (i.e., stage 2 quiz earned) within a pair and the gender composition of a pair.

Table 3
Summary of binary logistic regressions of reaching impasse under different specifications. Pair-level analysis.

	I	II
Intercept	- 2.64 *** (0.46)	- 3.09 *** (0.53)
History = 1 (Shared)	1.37 ** (0.53)	1.10 * (0.53)
Tension		3.89 ** (1.34)
Likelihood-ratio χ^2	8.10 **	16.59 ***
df	1	2
N	166	166
BIC	18.23	112.49

Note. Coefficients are on the logit scale and standard errors are in parenthesis.

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

One may wonder if there is a difference between settled and not-settled pairs in the shared asymmetric history condition with respect to their stage 2 quiz effort levels. Restricting the sample to this condition ($N_{\text{pair}} = 91$), we find no difference between non-settled and settled pairs with respect to the difference between losers' and winners' effort levels relative to the stage 2 pooled proceeds. The mean (SD) and 95% CI of quiz correct signed difference for settled-pairs are - 0.03 (0.17) [- 0.07, 0.01] and for non-settled pairs are 0.03 (0.19) [- 0.05, 0.13], $F(1, 89) = 0.19$, *ns*. Similarly, the distribution of quiz correct signed difference does not differ between settled and non-settled pairs in the shared history condition, Kolmogorov-Smirnov $Z = 0.83$, *ns*.

Results of a causal mediation analysis using the method proposed by Imai et al. (2010a) and Imai et al. (2010b) provide evidence that 28.1% of the effect of shared asymmetric history on

impasse is mediated by tension. This mediation results in an expected increase of 0.04, $p \leq .001$ in the probability of impasse. These results are robust to the presence of unobserved pre-treatment confounders which are correlated with both tension and impasse, for correlations $r < 0.30$. In other words, it is not only the shared history per se, but also the increased divergence between players' beliefs about the loser's fair share, which were associated with increased likelihood of not settling.

Next, we examine spectators' views about the loser's fair share. Recall that spectator's views are in reference to a pair and are from the preliminary survey of those loser-winner quiz earnings combinations (23 in shared and 26 in independent asymmetric history) that occurred in the two asymmetric history conditions of the bargaining experiment. The distribution of spectators' views in the two pair-level treatments are plotted on Figure 4, which reveals a difference between the two distributions, Kolmogorov-Smirnov $Z = 2.33$, $p \leq .001$. Perhaps the most striking result is that, while in 80% of the independent asymmetric history cases spectators would not give beyond contribution to losers, in 80% of the cases in the shared asymmetric history treatment spectators *would* grant shares to losers that surpass their contribution to the second stage task.

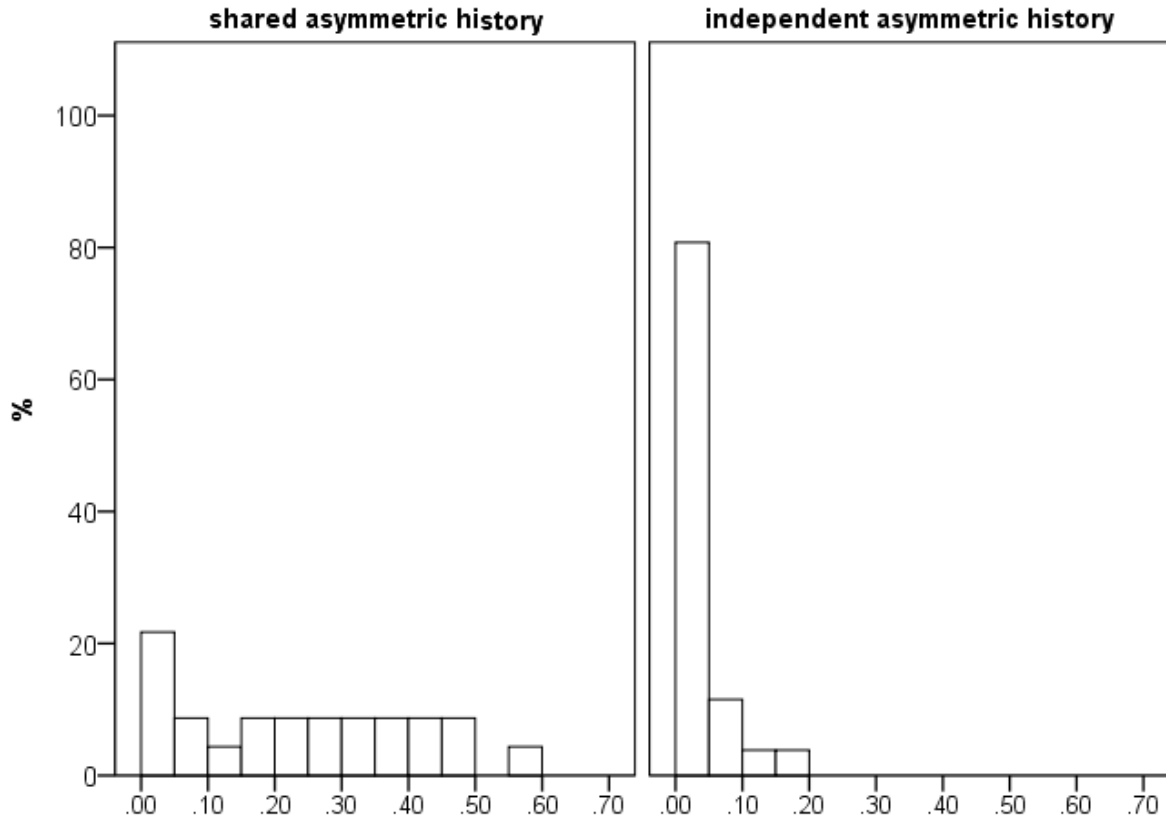


Figure 4

The distribution of spectators' views about the loser's share in the shared and independent asymmetric history conditions. $N_{shared} = 26$ and $N_{independent} = 23$.

Note. Only those combinations of joint stage 2 quiz earning which occurred in the bargaining experiment are included.

In Table 4, we summarize the results of regressing spectators' views of the loser's fair share on history (shared asymmetric = 1 vs. independent asymmetric = 0). Spectators grant, on average, 21 percentage-points more to losers in the shared asymmetric than in the independent asymmetric history condition, though they also grant compensation to losers in the independent asymmetric history treatment as well.

Table 4
 Summary of OLS regressions (with robust standard errors) of spectators' views about the losers' fair share.

	I
Intercept	0.02 * (0.01)
History = 1 (Shared)	0.21 *** (0.04)
Likelihood-ratio χ^2	25.76 ***
df	1
N	49

Note. Standard errors are in parenthesis.
 Spectators' views are reference to a pair.
 * $p \leq .05$, *** $p \leq .001$

Finally, we determine the difference between players' and spectators' beliefs about the loser's fair share (i.e., each player's stated beliefs minus the mean spectators view for the corresponding joint earnings case) and regress these differences on history (shared asymmetric = 1 vs. independent asymmetric = 0) and role (loser = 1 vs. winner = 0). As one can see from the significant history by role interaction in Table 5, which is evident also in Figure 5, in absolute terms, winners' beliefs in the shared asymmetric history condition deviate the most from spectators' views in a way that benefits them (i.e., giving beyond their contribution to losers is unnecessary). Their loser partners, however, believe themselves to be entitled to slightly *less* than the amount that spectators believe is fair. The pattern is almost flipped for players in the independent asymmetric history condition. On average, losers here believe that they are entitled to more than spectators would give them, while their winner partners formed concordant beliefs with the spectator view.

Table 5

Summary of regressions (OLS with robust standard errors) of the difference between players' beliefs and spectators' views about the losers' fair share. Individual-level analysis.

	I
Intercept	- 0.01 (0.01)
History = 1 (Shared)	- 0.20 *** (0.02)
Role = 1 (Loser)	0.06 * (0.02)
History * Role	0.10 *** (0.03)
Likelihood-ratio χ^2	146.62 ***
df	3
N	332

Note. Standard errors are in parenthesis.

** $p \leq .01$, *** $p \leq .001$

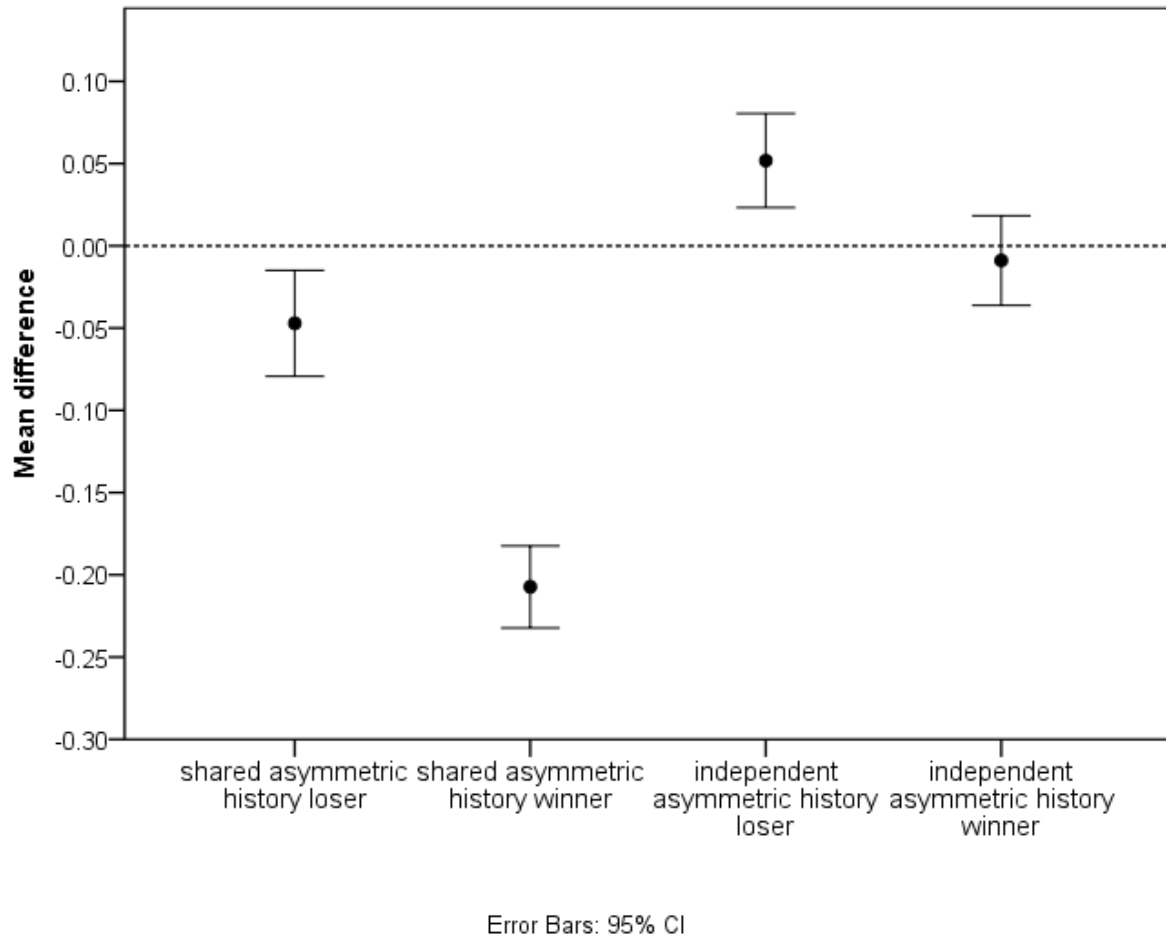


Figure 5

Mean difference between players' beliefs and spectators' views about the loser's fair share in the shared and independent asymmetric history conditions. $N_{\text{individual}} = 332$.

Note. Dotted reference line is displayed at mean difference = 0.

7. Discussion

We introduced two types of prior wealth asymmetry between bargaining partners and demonstrated that when the asymmetry is due to partners' shared or interdependent history, it is more likely to cause impasse than when it is due to partners' individual or independent history. This result is consistent with key findings of Camerer and Loewenstein (1993) and Dezsó and

co-authors' (2015) about the pernicious potential of asymmetric history in negotiations. Though the conclusions of these papers are similar to ours, in the former paper asymmetry was not experimentally manipulated, whereas in the latter paper, asymmetry and interdependency were not disentangled. To remedy these issues, we experimentally manipulated asymmetry and isolated the effect of asymmetry from interdependent history. We showed that it is not the asymmetry per se but the allocation schema by which it occurs that leads to elevated rates of impasse. The finding that sharedness and not asymmetry is the key issue between partners is also supported with the lack of difference between the likelihood of settlement between independent asymmetric and symmetric treatments.

We argue, and demonstrated empirically, that these stalemates are due, in large part, to partners' divergent and self-serving beliefs about the fair settlement. Losers in both asymmetric history conditions believed that they deserve more than their contribution from the joint proceeds, indicating that they believed that the fair solution prescribes compensating them for their prior loss. Nonetheless, losers with shared histories believed they were entitled to a greater share than losers with independent history.

On the other hand, winners with shared asymmetric history did not believe that the loser should get more than his/her contribution, which caused a significant divergence between losers' and winners' beliefs about the fair settlement in the shared asymmetric history treatment. By contrast, divergence between losers' and winners' beliefs about the loser's share were much smaller in the independent asymmetric history treatments, even though winners here also did not believe that giving to the loser beyond his/her contribution was necessary from the vantage point of fairness.

All in all, players in all conditions self-servingly selected the fair solution that was the most beneficial for them, which lead to a discordance between them on the issue of compensating the loser. The divergence of these beliefs were, however, smaller for pairs in the independent asymmetric history condition and hence, hindered settlement to lesser extent. This prime role of beliefs confirms Camerer and Loewenstein (1993) and Dezső and co-authors' (2015) speculations about the self-serving potential of asymmetric history, though beliefs about the fair settlements were not elicited in either of these papers.

The finding that partners' relatively extreme perceptions of a fair settlement drove impasse, provides empirical support for the proposition of Birkeland and Tungodden (2014) regarding principled disagreement. When partners arrive at the negotiation with highly incompatible beliefs, they insist on them even at the cost of reaching impasse.

The results of spectators' views demonstrated that, from the vantage point of a neutral judge, the past does have implications on the present. In other words, redistribution seems to be the fair solution when players with asymmetric histories negotiate, but less so when partners have independent histories. In other words, the winner who benefited at the expense of the loser should compensate his/her loser partner with a greater amount than when winner did not benefit at anyone's expense as in the independent history condition. Unbiased spectators believe that fairness dictates compensation for those who received the short end of the stick in a prior division.

When we compared players' beliefs about the losers' fair share to those of unbiased spectators', an interesting pattern emerged. On one hand, only independent history winners' beliefs overlapped with the unbiased fair solution. Their loser partners believed they were entitled to more than the spectator's judgments prescribed. On the other hand, asymmetric

history winners' views of fair compensation to losers fell below the spectators' unbiased judgments of the losers' fair share, while the losers believed the winners were entitled to less than the amount deemed fair by the spectators.

7.1. An alternative interpretation

A potential alternative interpretation of our key findings that impasse is highest in the shared asymmetric history condition is that, rather than self-serving bias leading to divergent perspectives on fairness by losers and winners, the shared asymmetric history may have ignited a motivation to compete in losers when the field was leveled and they finally had the opportunity to take action to restore their fair share. This interpretation does not seem incompatible with our own; it is an alternative, related, mechanism that could produce a desire for compensation on the part of the loser, with no commensurate willingness to provide such compensation on the part of the winner. Note, however, that this interpretation would not predict the difference in perspectives on fairness that the self-serving interpretation of fairness account predicts, and that we in fact found.

7.2. Conclusions

We believe that these, and prior related, results help to shed light on the prevalence of conflict between parties with a history, such as business partners seeking a dissolution of the partnership, divorcing spouses, and competing countries. Our experiment suggests that the effects of self-serving bias in these situations will be worst when one party's history is less favorable than the other's, and, more specifically, when one of those parties gained at the other party's expense.

Research on climate change negotiation reveals similar tendencies in countries' argumentations on the burden of emissions' reductions. Due to the complexity of this issue,

multiple fair solutions arise, each corresponding to different sharing rules and different costs being imposed on countries (Kriss et al. 2011; Ringius et al. 2002). One element of this complexity which is self-servingly invoked is the interpretation of historical emissions on the sharing of current costs (Cazorla and Toman, 2000). Decades of unrestricted greenhouse gas emissions strongly contributed to the economic prosperity of many developed countries. Current developing countries would now like their turn at industrialization, and restricting emissions seriously constrains their economic growth prospects. Due to their asymmetric histories of pollution and economic growth, rich and poor countries self-servingly invoke or ignore emission history. Poorer countries argue that richer countries must take a lead in accepting greater abatement costs because they are more responsible for the current high level of greenhouse gases and they have already benefited from polluting activities (Lange et al. 2010). By contrast, richer countries claim that the fair solution is “cleaning the slate” and splitting the burdens, independent of emission history.

Given the subtlety of the shared/independent manipulation, it is remarkable that it had such a strong effect. After all, the two people were paired together, and could have viewed the gain of one and loss of the other as relevant. In the real world, such asymmetric independent histories might have a smaller impact.

A potential threat, however, is that leaders will use the effects revealed in the experiment to manipulate constituencies; leaders may attempt to instill in people who are in an inferior wealth positions the view that their misfortune stems from a shared asymmetric history with other groups, such as immigrants. Creating such a narrative, the current research suggests, may instill and invoke self-serving interpretations among those feeling they are in a disadvantaged position. The unfortunate consequence is, as demonstrated in our experiment, a further discord between

these people and, perhaps, a breeding ground for a lingering desire to even the score with those who previously benefited.

There is, however, a small silver lining to our research. An important property of self-serving perspectives on fairness is that people generally believe that impartial judges will share their own biased views. Since both parties genuinely believe that their perspective on fairness will be shared, they should both be open to arbitration.

In conclusion, a shared, asymmetric history can lead to discord between parties, due to individuals' self-serving interpretations of the implication of history. Whether one adopts the view "let bygones be bygones," or sees the past as relevant to the future depends on how one fared in the past, and on the degree to which the other party was responsible. Disputes between overworked employees are examples of relatively innocuous consequences of the downsides of history, but these are also evident in high-stakes situations, such as disputes on fulfilling refugee quotas in Europe or bearing the costs of reducing greenhouse gas emissions all over the world. Divergent, self-serving invocations of history hamper agreement on how to share sacrifices for the greater good and may also contribute to further undermine international cooperation on issues from which we would all gain from settling. Identifying the motivations ignited after being wronged is an important link to understanding how interacting parties' shared and asymmetric history could spill over into subsequent disputes. These conflicts may range from the mundane to crucial international debates, including the creation and maintenance of well-balanced power structures and, most importantly, saving our planet.

Acknowledgements

This paper updates and replaces earlier versions titled “Self-serving invocations of history in negotiations” posted in November 2017. We are thankful to Johannes Sauter and Jonathan Steinhart for helpful comments on the experimental design and to Alexander K. Wagner for suggestions on improving the manuscript. We are also thankful for Dániel B. Kalotai and Lőrinc Szánthó for their excellent research assistance in conducting the experiments.

Dezső appreciates funding from the Back to Research Grant from the University of Vienna and the Hertha Firnberg Fellowship (#T-1047-G27) while working on this paper and funding subjects’ payments. Additionally, Dezső gratefully acknowledges funding from the Verein für Wirtschaftspsychologie which partially funded subjects’ payments.

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Appendix A

1. Study materials

First, we present materials (screenshots) from the bargaining experiment in the original Hungarian along with an English translation. Then we present a detailed description of the preliminary spectator survey. Finally, we present survey material from the preliminary spectator survey in Hungarian and English.

1.1. Experimental material of the bargaining experiment

SCREEN #1 – WELCOME AND GENERAL INSTRUCTIONS

All conditions

Általános instrukciók

Üdvözljük az Interaktív Döntés III. kísérletünkben.

A kísérlet kb. 15 percig tart. Megjelenéséért biztosan kap 300 Ft -ot kap. Ezen felüli várható (átlagos) keresete 2100 Ft, amely a szerencsén és a teljesítményétől függ. A kísérlet végén készpénzben kapja fizetését.

A kísérlet teljesen anonim. Válaszait nem tudjuk személyéhez kötni. Tilos a böngészőben a vissza gombra kattintani.

A kísérleti azonosítója: **gbvjvfj**.

Ezt az betűsort most írja fel az Ön előtt található cetlire.

Ha kérdése van most tegye fel. Ezutánól csak kézfelnyújtással jelezheti kérdését, és odamegyünk Önhöz. A kísérlet során tilos beszélni, zavarni a többieket. Amennyiben mindenki készen van, és nincsen kérdés kattintson a Tovább gombra és csinálja végig a kísérletet.

Tovább

General instructions

Welcome to our experiment, called Interactive Decision Making III.

The experiment will last for approximately 15 minutes. You will receive a show-up fee of 300 HUF.

Your additional earnings depend on your performance and your luck. The expected earnings are around 2100 HUF. You will receive all your earnings at the end of the experiment in cash.

The experiment is anonymous: we cannot connect your identity to your responses.

Your experimental ID is: **gbvjvfj**

Please write down this ID on the piece of paper in front of you.

After this point, you are only allowed to ask questions privately from the experimenters. You are not allowed to talk or disturb the others during the experiment. If everyone is ready and there are no questions, please click on Continue and complete the experiment.

SCREEN #2 – DEMOGRAPHICS QUESTIONS

All conditions

Kezdjük néhány demográfiai kérdéssel!

Születési éve:

Neme:

Legmagasabb iskolai végzettsége:

Hova sorolja saját vagy családja (ha nem önfenntartó) jövedelmi helyzetét a magyar társadalomban?

Tovább

Let's begin with a few demographic questions!

1. The year when you were born: ...
2. Your gender:
 - Male
 - Female
3. Your highest level of education:
 - Elementary school
 - High school or equivalent
 - BA/BSc or college
 - MA/MSc/Diploma
 - Advanced/PhD
 - Other
4. Your (or your family's) income level in the population:
 - In the lowest 25%
 - In the second lowest 25%
 - In the third 25%
 - In the top 25%

SCREEN # 3 – INSTRUCTIONS FOR THE IMAGE LABELING TASKAll three independent history conditions**Instrukciók a képelnevezés-feladathoz**

Összekapcsoltuk valakivel a teremből, de senki sem tudja, ki ez a személy. Ez a személy az Ön párja.

Következőkben párja és Ön ugyanazon a feladaton fognak dolgozni, de a munkát külön-külön végzik.

Mindketten 5 képet fognak kapni (mindketten ugyanazon 5 képet), és a feladat az lesz, hogy a kép alatt lévő mezőbe önállóan írja be a képen látható tárgy nevét.

A képek legáltalánosabb nevét írja be és az ékezeteket akár el is elhagyhatja.

Miután mindketten elkészültek, mindkettejük számára egy képet véletlenszerűen kiválaszt a program, és ellenőrzi, hogy Ön és a párja helyesen írták-e be a kiválasztott képen lévő tárgy nevét.

Amennyiben mindketten helyesen írták be a kiválasztott tárgy nevét, fejenként 1500 Ft -ot kerestek.

Ezután mindkettejük számára egy-egy pénzfeldobás dönti el, hogy megkapják-e az 1500 Ft -ot. Azaz mindkettejüknek fejenként, egymástól függetlenül 50% esélye van, hogy megkapja az 1500 Ft - os keresetet. A lehetséges kimenetek szerint vagy mindkettejük megkapja, vagy csak egyikőjük kapja meg, vagy egyikőjük sem kapja meg az 1500 Ft - os keresetet.

Tájékoztatjuk, hogy amennyiben párja vagy Ön hibásan írta be a tárgy nevét, nem folytatják a kísérletet és nem keresnek pénzt. Ebben az esetben csak a megjelenéséért járó 300 Ft-ot kapja meg.

Ha kérdése van nyújtsa fel a kezét. Ha nincs kérdése, akkor kattinson a Továbbra!

[Tovább](#)

Image labeling

You are paired with another person in the lab. Nobody knows who this person is. He/she is your partner.

In what follows, you and your partner will individually work on the same the task.

You will both receive the same five images. Your task will be to type the name of the object in the image into the field below the image. Type in the most generic name of the object and you can also omit accents.

After you have both completed the task, one object for each of you will be randomly selected and tested to see whether you correctly typed in its name.

If you have both correctly typed in the name, you will each receive a 1500 HUF remuneration.

Next, one coin will be flipped for each of you. The outcomes of these coin flips will determine whether you and your partner will receive your 1500 HUF earnings for the image labeling task. This means that, independently from each other, you have 50% of receiving your earnings of 1500 HUF. According to the possible outcomes, you might both receive the 1500 HUF, one of you might receive it while the other does not receive the 1500 HUF or neither of you might receive the 1500 HUF earnings for the image labeling task.

We would also like to inform you that if you or your partner incorrectly typed in the name of the selected image, you will not earn any extra money. In this case, you will only receive your show up fee of 300 HUF.

Raise your hand if you have questions. If you have no question, click on Continue.

Shared history condition**Instrukciók a képelnevezés-feladathoz**

Összekapcsoltuk valakivel a teremből, de senki sem tudja, ki ez a személy. Ez a személy az Ön párja.

Következőkben párja és Ön ugyanazon a feladaton fognak dolgozni, de a munkát külön-külön végzik.

Mindketten 5 képet fognak kapni (mindketten ugyanazon 5 képet), és a feladat az lesz, hogy a kép alatt lévő mezőbe önállóan írja be a képen látható tárgy nevét.

A képek legáltalánosabb nevét írja be és az ékezeteket akár el is elhagyhatja.

Miután mindketten elkészültek, mindkettejük számára egy képet véletlenszerűen kiválaszt a program, és ellenőrzi, hogy Ön és a párja helyesen írták-e be a kiválasztott képen lévő tárgy nevét.

Amennyiben mindketten helyesen írták be a kiválasztott tárgy nevét, fejenként 1500 Ft -ot kerestek.

Ezután egy pénzfeldobás dönti el, hogy melyikük kapja meg az 1500 Ft - ot, míg a másik nem kap semmit. Azaz mindkettejüknek fejenként 50% esélye van arra, hogy megkapja az 1500 Ft - os kerestet, de csak egyikük kaphatja meg. A lehetséges kimentelek szerint tehát vagy Ön vagy párja kapja meg az 1500 Ft - os kerestet.

Tájékoztatjuk, hogy amennyiben párja vagy Ön hibásan írta be a tárgy nevét, nem folytatják a kísérletet és nem keresnek pénzt. Ebben az esetben csak a megjelenéséért járó 300 Ft-ot kapja meg.

Ha kérdése van nyújtsa fel a kezét. Ha nincs kérdése, akkor kattinson a Továbbra!

Tovább

Image labeling

You are paired with another person in the lab. Nobody knows who this person is. He/she is your partner.

In what follows, you and your partner will individually work on the same the task.

You will both receive the same five images. Your task will be to type the name of the object in the image into the field below the image. Type in the most generic name of the object and you can also omit accents.

After you both completed the task, one object for each of you will be randomly selected and tested to see whether you correctly typed in its name.

If you both correctly typed in the name, you will each receive a 1500 HUF remuneration.

Next, one coin will be flipped for the two of you. The outcome of this coin flip will determine whether you or your partner receives the 1500 HUF earnings for the image labeling task. This means that you and your partner have a 50% probability of receiving the earnings of 1500 HUF, but your outcomes are interdependent. According to the possible outcomes, either you or your partner receives the 1500 HUF earnings.

We would also like to inform you that if you or your partner incorrectly typed in the name of the selected image, you will not earn any extra money. In this case, you will only receive your show up fee of 300 HUF.

Raise your hand if you have questions. If you have no question, click on Continue.

Írja a képen látható tárgy nevét a mezőbe (1/5)!



Írja be a tárgy nevét. Az ékezeteket elhagyhatja. Ha készen van, kattintson a Továbbra.

Tovább

Írja a képen látható tárgy nevét a mezőbe (2/5)!



Írja be a tárgy nevét. Az ékezeteket elhagyhatja. Ha készen van, kattintson a Továbbra.

Tovább

Írja a képen látható tárgy nevét a mezőbe (3/5)!



Írja be a tárgy nevét. Az ékezeteket elhagyhatja. Ha készen van, kattintson a Továbbra.

Tovább

Írja a képen látható tárgy nevét a mezőbe (4/5)!



Írja be a tárgy nevét. Az ékezeteket elhagyhatja. Ha készen van, kattintson a Továbbra.

Tovább

Írja a képen látható tárgy nevét a mezőbe (5/5)!



Írja be a tárgy nevét. Az ékezeteket elhagyhatja. Ha készen van, kattintson a Továbbra.

Tovább

Type in the name of the object presented on the picture (1...5/5)

IMAGE INSERTED HERE

Type in the name of the object. You can omit accents. Click on continue when you are ready.

.....

SCREEN #5 – RESULTS OF THE IMAGE LABELING TASK

Failed on image labeling in all conditions

Eredmény

Ön vagy partnere helytelenül írta be a kiválasztott kép nevét. Ennek következménye, hogy Önök számára vége van a kísérletnek. Csak a megjelenésért járó 300 Ft - ot kapják meg.

Ezen keresetet és az alábbi kísérleti azonosítóját: **t3aozi48** írja fel az Ön előtt lévő cetlire.

Zárja be a böngészőt, majd ne nyúljon mostantól a számítógéphez.

Várjon a helyén türelemmel, amíg a többiek készen vannak. Ne álljon fel, és ne kezdjen el beszélni.

Results

You or your partner failed to pass the image labeling task. Consequently, the experiment is over for the two of you. Your only payment will be the 300 HUF show-up fee.

Please write down this earning and your experimental ID: **t3aozi48** on the sticky note at your desk.

Please close the browser and do not touch the computers further.

Remain seated and wait until the others are ready. Do not stand up or start talking.

Successful on image labeling in all independenthistory condition**Eredmény**

Ön és partnere sikeresen teljesítették a képelnevezés-feladatot, és fejenként 1500 Ft-ot kerestek

Most mindkettejük számára egy-egy pénzfeldobás dönti el, hogy megkapja-e az 1500 Ft-ot. Azaz mindkettőjük számára feldobásra kerül egy pénzérme, és egymástól függetlenül 50% esélyük van arra, hogy megkapják az 1500 Ft-os keresetüket. A lehetséges kimenetek szerint vagy mindketten, vagy egyikük sem vagy csak egyikük kapja meg az 1500 Ft-os keresetét.

Ha készen áll, kattintson a Tovább-ra.

Tovább

Results

You and your partner successfully completed the image labeling task. This means that each of you are remunerated 1500 HUF.

Now for each of you one coin will be flipped which decides whether you and your partner receive your 1500 HUF. This means, that one coin will be flipped for each of you. So, independently from each other, you have a 50% chance to get your 1500 HUF remuneration. According to the possible outcomes, you can both receive the 1500 HUF, one of you receives while the other does not receive the 1500 HUF or neither of you receive the 1500 HUF earnings for the image-labeling task.

Click on Continue if you are ready.

Successful on image labeling in the shared history condition

Eredmény

Ön és partnere sikeresen teljesítették a képelnevezés-feladatot, és fejenként 1500 Ft-ot kerestek.

Most egy pénzfeldobás dönti el, hogy melyikőjük kapja meg az 1500 Ft-ot. Azaz egy pénzérme feldobásra kerül, és fejenként 50% esélyük van arra, hogy megkapják az 1500 Ft-os keresetüket. A pénzt azonban csak egyikük kaphatja meg.

Ha készen áll, kattintson a Tovább-ra.

Tovább

Results

You and your partner successfully completed the image labeling task. This means that each of you are remunerated 1500 HUF.

Now one coin will be flipped for the two of you. The outcome of this coin flip will determine whether you or your partner receives the 1500 HUF earnings for the image labeling task. This means that you both have a 50% chance to get the earnings of 1500 HUF, but your outcomes are interdependent. According to the possible outcomes, either you or your partner receives the 1500 HUF earnings.

Click on Continue if you are ready.

SCREEN # 6 – ESTABLISHING THE INDIVIDUAL LEVEL MANIPULATIONS

Independent history conditions

Winner-Winner manipulation

Jövedelem

A pénzfeldobás kedvezően alakult Önnek.

Ez azt jelenti, hogy **Ön megkapja** a képelnevezés-feladaton keresett 1500 Ft-ot.

Partnere számára is kedvezett a pénzfeldobás és megkapja a a képelnevezés-feladaton keresett 1500 Ft -ot.

A folytatáshoz kattintson a Tovább-ra.

Tovább

Income

The coin flip was favorable to you.
This means that **you get** your 1500 HUF earnings from the image labeling task.

The coin flip was also favorable to your partner and he/she gets his/her 1500 HUF earnings from the image labeling task.

Click on Continue.

Loser-Loser manipulation

Jövedelem

A pénzfeldobás kedvezőtlenül alakult Önnek.

Ez azt jelenti, hogy **Ön nem kapja meg** keresetét a képelnevezéses feladatból, azaz 0 Ft-ot kap.

Partnere számára sem kedvezett a pénzfeldobás és ő sem kapja meg keresetét a képelnevezéses feladatból, azaz 0 Ft-ot kap.

A folytatáshoz kattintson a Tovább-ra.

Tovább

Income

The coin flip was unfavorable to you.

This means that **you do not get** your earnings from the image labeling task, and you get 0 HUF.

The coin flip was also unfavorable to your partner and he/she does not get his/her earnings from the image labeling task, and so s/he gets 0 HUF.

Click on Continue.

Winner-Loser manipulation

Jövedelem

A pénzfeldobás kedvezően alakult Önnek.

Ez azt jelenti, hogy **Ön megkapja** a képelnevezéses-feladaton keresett 1500 Ft-ot.

Partnere számára azonban nem kedvezett a pénzfeldobás és nem kapja meg keresetét a képelnevezéses-feladatból, azaz 0 Ft-ot kap.

A folytatáshoz kattintson a Tovább-ra.

Tovább

Income

The coin flip was favorable to you.

This means that **you get** your 1500 HUF earnings from the image labeling task.

The coin flip, however, was unfavorable to your partner and he/she does not get his/her earnings from the image labeling task, and s/he gets 0 HUF.

Click on Continue.

*Loser-Winner
manipulation*

Jövedelem

A pénzfeldobás kedvezőtlenül alakult Önnek.

Ez azt jelenti, hogy **Ön nem kapja meg** keresetét a képelnevezéses feladatból, azaz 0 Ft-ot kap.

Partnere számára azonban kedvezett a pénzfeldobás és megkapja a képelnevezéses-feladaton keresett 1500 Ft -ot.

A folytatáshoz kattintson a Tovább-ra.

Tovább

Income

The coin flip was unfavorable to you.

This means that **you do not get** your earnings from the image labeling task, and you get 0 HUF.

The coin flip, however, was favorable to your partner and so he/she gets his/her 1500 HUF earnings from the image labeling task.

Click on Continue.

Shared history condition

Winner manipulation (with Loser)

Jövedelem

A pénzfeldobás kedvezően alakult Önnek, míg párjának kedvezőtlenül alakult.

Ez azt jelenti, hogy **Ön megkapja** a képelnevezéses-feladaton keresett 1500 Ft-ot.

Partnere számára nem kedvezett a pénzfeldobás és nem kapja meg keresetét a képelnevezéses feladatból, azaz 0 Ft -ot kap.

A folytatáshoz kattintson a Tovább-ra.

Tovább

Income

The coin flip was favorable to you and not your partner.

This means that **you get your** 1500 HUF earnings from the image labeling task. **The coin flip, however, did not favor your partner and he does not get his/her earnings** from the image labeling task, and he/she gets 0 HUF.

Click on Continue

Loser manipulation (with Winner)

Jövedelem

A pénzfeldobás kedvezőtlenül alakult Önnek, míg párjának kedvezően alakult.

Ez azt jelenti, hogy **Őn nem kapja meg** keresetét a képelnevezéses-feladatból, azaz 0 Ft-ot kap.

Partnere számára kedvezett a pénzfeldobás és megkapja a képelnevezéses-feladaton keresett 1500 Ft -ot.

A folytatáshoz kattintson a Tovább-ra.

[Tovább](#)

Income

The coin flip was not favorable to you but instead favored your partner.

This means that **you do not get** your earnings from the image labeling task, and you get 0 HUF.

Your partner, however, was favored by the coin flip and gets his/her 1500 HUF earnings from the image labeling task.

Click on Continue.

SCREEN # 7 – INFORMING/REMINDING ABOUT THE PARTNERS' HISTORY AND TRIVIA INSTRUCTIONS

Independent history conditions*Independent asymmetric history**For Winner (with Loser)***Műveltségi kvíz**

A most következő feladatban továbbra is össze van kapcsolva párjával.

Emlékeztetjük, hogy Önnek kedvezett a pénzfeldobás és megkapta a képelnevezéses-feladaton keresett keresetét, azaz 1500 Ft - ot keresett. Párjának azonban nem kedvezett a pénzfeldobás, és semmit sem keresett a képelnevezéses-feladaton, azaz 0 Ft - ot keresett.

A következőkben Ön és párja egy tíz kérdéses műveltségi kvízt kap. Mindketten **egyéni**leg fognak ugyanazon a tíz kérdésen dolgozni, ahol minden helyes válaszuk **egyéni**leg 150 Ft-ot ér.

Miután kitöltötték a kvízt a számítógép kiszámolja, hogy **egyéni**leg és **összesen (párjukkal együtt)** hány helyes választ adtak. Ha például Ön 3, míg partnere 2 helyes választ adott, akkor **-----** helyes válaszuk van, és ketten együtt $5 * 150$ Ft = 750 Ft-t kerestek.

Miután megtudták, hogy egyénileg és összesen mennyi pénzt kerestek a kvízen, egy alkudozás során meg kell egyezniük arról, hogyan osszák el a pénzt.

Kattintson a Tovább-ra, ha megértette a feladatot.

[Tovább](#)

Knowledge quiz

For the next tasks, you are still paired with the same person as before.

Recall that your coin flip favored you and you received your 1500 HUF earnings from the image labeling task. Your partner's coin flip, however, did not favor him/her, and she/he did not earn anything on the image-labeling task, hence, he/she earned 0 HUF.

In what follows, you and your partner will get a ten-item trivia knowledge quiz. You will both work on the same ten questions, and each correct answer is individually remunerated with 150 HUF.

Once you and your partner have completed the trivia quiz, the computer will determine how many correct answers you gave **individually** and **jointly with your partner**.

If you, for example, made 3 and your partner made 2 correct answers, then your joint correct is 5 and you jointly made $5 * 150$ HUF=750 HUF.

After you have learned your individual and joint earnings, you will have to negotiate about how to divide the joint earnings between you and your partner.

Click on Continue if you understood the task.

*Independent asymmetric history**For Loser (with Winner)*

Műveltségi kvíz

A most következő feladatban továbbra is össze van kapcsolva párjával.

Emlékeztetjük, hogy Önnek nem kedvezett a pénzfeldobás és semmit keresett a képelnevezéses-feladaton, azaz 0 Ft -ot keresett. Párjának azonban kedvezett a pénzfeldobás, és megkapta a képelnevezéses-feladaton keresett keresetét, azaz 1500 Ft - ot keresett.

A következőkben Ön és párja egy tíz kérdéses műveltségi kvízt kap. Mindketten **egyéni**leg fognak ugyanazon a tíz kérdésen dolgozni, ahol minden helyes válaszuk **egyéni**leg 150 Ft-ot ér.

Miután kitöltötték a kvízt a számítógép kiszámolja, hogy **egyéni**leg és **összesen (párjukkal együtt)** hány helyes választ adtak. Ha például Ön 3, míg partnere 2 helyes választ adott, akkor összesen 5 helyes válaszuk van, és ketten együtt $5 * 150 \text{ Ft} = 750 \text{ Ft}$ -t kerestek.

Miután megtudták, hogy egyénileg és összesen mennyi pénzt kerestek a kvízen, egy alkudozás során meg kell egyezniük arról, hogyan osszák el a pénzt.

Kattintson a Tovább-ra, ha megértette a feladatot.

Tovább

Knowledge quiz

For the next tasks, you are still paired with the same person as before.

Recall that your coin flip did not favor you and you did not earn anything from the image labeling task, hence you earned 0 HUF. Your partner's coin flip, however, did favor him/her, and she/he received his/her earnings of 1500 HUF from the image-labeling task.

In what follows, you and your partner will get a ten-item trivia knowledge quiz. You will both work on the same ten questions, and each correct answer is individually remunerated with 150 HUF.

Once you and your partner have completed the trivia quiz, the computer will determine how many correct answers you gave **individually** and **jointly with your partner**.

If you, for example, made 3 and your partner made 2 correct answers, then your joint correct is 5 and you jointly made $5 * 150 \text{ HUF} = 750 \text{ HUF}$.

After you have learned your individual and joint earnings, you will have to negotiate about how to divide the joint earnings between you and your partner.

Click on Continue if you understood the task.

Independent symmetric winner-winner history

For Winner (with Winner)

Műveltségi kvíz

A most következő feladatban továbbra is össze van kapcsolva párjával.

Emlékeztetjük, hogy Önnek kedvezett a pénzfeldobás és megkapta a képelnevezéses-feladaton keresett kerestetét, azaz 1500 Ft-ot keresett. Párjának is kedvezett a pénzfeldobás, és megkapta a képelnevezéses-feladaton keresett kerestetét, azaz 1500 Ft - ot keresett.

A következőkben Ön és párja egy tíz kérdéses műveltségi kvízt kap. Mindketten **egyéni**leg fognak ugyanazon a tíz kérdésen dolgozni, ahol minden helyes válaszuk **egyéni**leg 150 Ft-ot ér.

Miután kitöltötték a kvízt a számítógép kiszámolja, hogy **egyéni**leg és **összesen (párjukkal együtt)** hány helyes választ adtak. Ha például Ön 3, míg partnere 2 helyes választ adott, akkor összesen 5 helyes válaszuk van, és ketten együtt $5 * 150$ Ft = 750 Ft-t kerestek.

Miután megtudták, hogy egyénileg és összesen mennyi pénzt kerestek a kvízen, egy alkudozás során meg kell egyezniük arról, hogyan osszák el a pénzt.

Kattintson a Tovább-ra, ha megértette a feladatot.

Tovább

Knowledge quiz

For the next tasks, you are still paired with the same person as before.

Recall that your coin flip favored you and you received your 1500 HUF earnings from the image labeling task. Your partner's coin flip also favored your partner, and she/he received his 1500 HUF earnings from the image labeling task.

In what follows, you and your partner will get a ten-item trivia knowledge quiz. You will both work on the same ten questions, and each correct answer is individually remunerated with 150 HUF.

Once you and your partner have completed the trivia quiz, the computer will determine how many correct answers you gave **individually** and **jointly with your partner**.

If you, for example, made 3 and your partner made 2 correct answers, then your joint correct is 5 and you jointly made $5 * 150$ HUF = 750 HUF.

After you have learned your individual and joint earnings, you will have to negotiate about how to divide the joint earnings between you and your partner.

Click on Continue if you understood the task.

*Independent symmetric loser-loser history**For Loser (with Loser)***Műveltségi kvíz**

A most következő feladatban továbbra is össze van kapcsolva párjával.

Emlékeztetjük, hogy Önnek nem kedvezett a pénzfeldobás és semmit keresett a képelnevezéses-feladaton, azaz 0 Ft -ot keresett. Párjának sem kedvezett a pénzfeldobás, és semmit sem keresett a képelnevezéses-feladaton, azaz 0 Ft -ot keresett.

A következőkben Ön és párja egy tíz kérdéses műveltségi kvízt kap. Mindketten **egyénilég** fognak ugyanazon a tíz kérdésen dolgozni, ahol minden helyes válaszuk **egyénilég** 150 Ft-ot ér.

Miután kitöltötték a kvízt a számítógép kiszámolja, hogy **egyénilég** és **összesen (párjukkal együtt)** hány helyes választ adtak. Ha például Ön 3, míg partnere 2 helyes választ adott, akkor összesen 5 helyes válaszuk van, és ketten együtt $5 * 150$ Ft = 750 Ft-t kerestek.

Miután megtudták, hogy egyénilég és összesen mennyi pénzt kerestek a kvízen, egy alkudozás során meg kell egyezniük arról, hogyan osszák el a pénzt.

Kattintson a Tovább-ra, ha megértette a feladatot.

Tovább

Knowledge quiz

For the next tasks, you are still paired with the same person as before.

Recall that your coin flip did not favor you and you did not earn anything from the image labeling task, hence, you earned 0 HUF. Your partner's coin flip also did not favor your partner, and she/he did not earn anything on the image-labeling task, hence he/she earned 0 HUF

In what follows, you and your partner will get a ten-item trivia knowledge quiz. You will both work on the same ten questions, and each correct answer is individually remunerated with 150 HUF.

Once you and your partner have completed the trivia quiz, the computer will determine how many correct answers you gave **individually** and **jointly with your partner**.

If you, for example, made 3 and your partner made 2 correct answers, then your joint correct is 5 and you jointly made $5 * 150$ HUF=750 HUF.

After you have learned your individual and joint earnings, you will have to negotiate about how to divide the joint earnings between you and your partner.

Click on Continue if you understood the task.

For Winner (with Loser)

Műveltségi kvíz

A most következő feladatban továbbra is össze van kapcsolva párjával.

Emlékeztetjük, hogy Önnek kedvezett a pénzfeldobás és megkapta a képelnevezéses-feladaton keresett keresetét, azaz 1500 Ft - ot keresett. Párjának azonban nem kedvezett a pénzfeldobás, és semmit sem keresett a képelnevezéses-feladaton, azaz 0 Ft - ot keresett.

A következőkben Ön és párja egy tíz kérdéses műveltségi kvízt kap. Mindketten **egyénileg** fognak ugyanazon a tíz kérdésen dolgozni, ahol minden helyes válaszuk **egyénileg** 150 Ft-ot ér.

Miután kitöltötték a kvízt a számítógép kiszámolja, hogy **egyénileg** és **összesen (párjukkal együtt)** hány helyes választ adtak. Ha például Ön 3, míg partnere 2 helyes választ adott, akkor **egyénileg** 3 helyes válaszuk van, és ketten együtt $5 * 150$ Ft = 750 Ft-t kerestek.

Miután megtudták, hogy egyénileg és összesen mennyi pénzt kerestek a kvízen, egy alkudozás során meg kell egyezniük arról, hogyan osszák el a pénzt.

Kattintson a Tovább-ra, ha megértette a feladatot.

[Tovább](#)

Knowledge quiz

For the next tasks, you are still paired with the same person as before.

Recall that the coin flip favored you and you received your 1500 HUF earnings from the image labeling task. The coin flip, however, did not favor your partner, and she/he did not earn anything on the image-labeling task, hence he/she earned 0 HUF.

In what follows, you and your partner will get a ten-item trivia knowledge quiz. You will both work on the same ten questions, and each correct answer is individually remunerated with 150 HUF.

Once you and your partner have completed the trivia quiz, the computer will determine how many correct answers you gave **individually** and **jointly with your partner**.

If you, for example, made 3 and your partner made 2 correct answers, then your joint correct is 5 and you jointly made $5 * 150$ HUF = 750 HUF.

After you have learned your individual and joint earnings, you will have to negotiate about how to divide the joint earnings between you and your partner.

Click on Continue if you understood the task.

Műveltségi kvíz

A most következő feladatban továbbra is össze van kapcsolva párjával.

Emlékeztetjük, hogy Önnek nem kedvezett a pénzfeldobás és semmit keresett a képelnevezéses-feladaton, azaz 0 Ft -ot keresett. Párjának azonban kedvezett a pénzfeldobás, és megkapta a képelnevezéses-feladaton keresett keresetét, azaz 1500 Ft - ot keresett.

A következőkben Ön és párja egy tíz kérdéses műveltségi kvízt kap. Mindketten **egyéni**leg fognak ugyanazon a tíz kérdésen dolgozni, ahol minden helyes válaszuk **egyéni**leg 150 Ft-ot ér.

Miután kitöltötték a kvízt a számítógép kiszámolja, hogy **egyéni**leg és **összesen (párjukkal együtt)** hány helyes választ adtak. Ha például Ön 3, míg partnere 2 helyes választ adott, akkor összesen 5 helyes válaszuk van, és ketten együtt $5 * 150 \text{ Ft} = 750 \text{ Ft}$ -t kerestek.

Miután megtudták, hogy egyénileg és összesen mennyi pénzt kerestek a kvízen, egy alkudozás során meg kell egyezniük arról, hogyan osszák el a pénzt.

Kattintson a Tovább-ra, ha megértette a feladatot.

Tovább

Knowledge quiz

For the next tasks, you are still paired with the same person as before.

Recall that the coin flip did not favor you and you did not earn anything from the image labeling task, hence you earned 0 HUF. The coin flip, however, did favor your partner, and she/he received her/his earning of 1500 HUF from the image-labeling task.

In what follows, you and your partner will get a ten-item trivia knowledge quiz. You will both work on the same ten questions, and each correct answer is individually remunerated with 150 HUF.

Once you and your partner have completed the trivia quiz, the computer will determine how many correct answers you gave **individually** and **jointly with your partner**.

If you, for example, made 3 and your partner made 2 correct answers, then your joint correct is 5 and you jointly made $5 * 150 \text{ HUF} = 750 \text{ HUF}$.

After you have learned your individual and joint earnings, you will have to negotiate about how to divide the joint earnings between you and your partner.

Click on Continue if you understood the task.

SCREEN # 8 – TRIVIA QUIZ

All conditions**Kattintson a helyes válaszra. Ha nem tudja helyes választ tippeljen.**

Melyik költő halt meg a szabadságharcban?

- Petőfi Sándor
- Babits Mihály
- Vörösmarty Mihály
- József Attila

Melyik a fotoszintézis része?

- sötét-szakasz
- glikolízis
- átalakulás
- hidrogenizáció

Melyik ország fővárosa Peking?

- Japán
- Tájvan
- Kína
- Észak-Korea

Mikor volt kint VB-én utoljára a felnőtt férfi magyar foci válogatott?

- 2007
- 1992
- 1986
- 1967

Mikor volt az augsburgi vallás béke?

- 1655
- 1555
- 1456
- 1222

Mikor mondták ki a tankötelezettséget Magyarországon?

- 1723
- 1848
- 1777
- 1989

Melyik városnál szenvedett véglegesen vereséget Napoleon?

- Párizs
- Nándorfehérvár
- Mohács
- Waterloo

2007-ben melyik országnak volt nagyobb a lakossága?

- Ausztrália
- Madagaszkár
- Románia
- Belgium

Melyik országnak a legnagyobb a területe?

- Kanada
- Oroszország
- Dánia
- Kína

Budapest egyesülésénél melyik három város egyesült? Buda, Pest és ...?

- Óbuda
- Ópest
- Kispest
- Újpest

[Tovább](#)

Provide the correct answer or your best guess on the following ten questions.

Which poet died in the freedom war?

- Petőfi Sándor
- Babits Mihály
- Vörösmarty Mihály
- József Attila

Which of the following is part of photosynthesis?

- Dark-section
- Glycolysis
- Transformation
- Hydrogenation

Which country's capital is Beijing?

- Japan
- Taiwan
- China
- North-Korea

In which year was the Hungarian adult soccer team on the World-Cup?

- 2007
- 1992
- 1986
- 1967

In which year was the Augsburg Settlement signed?

- 1655
- 1555
- 1456
- 1222

In which year did they issue compulsory elementary education in Hungary?

- 1723
- 1848
- 1777
- 1989

At which city was Napoleon defeated?

- Paris
- Nandorfehervar
- Mohacs
- Waterloo

Which country is the largest from the list in terms of surface area?

- Canada
- Russia
- Denmark
- China

Besides Buda and Pest, which of the following list joined Budapest when it was created?

- Obuda
- Opest
- Kispest
- Ujpest

SCREEN # 9 - FEEDBACK ON TRIVIA PERFORMANCE AND STATING BELIEFS ABOUT ONE'S FAIR SHAREAll conditions:**Egyéni eredmény és kettejük összkeresete**

Ön és partnere összesen 1500 Ft-t keresett a kvízen.

Az összkereset így áll össze:

Ön 450 Ft-t tett bele (mert 3 helyes kvíz válasza volt),
Partnere pedig 1050 Ft-t tette bele, (mert 7 helyes kvíz válasza volt).

Öt pártatlan bírót, akik tudják, mi történt Ön és párja képelnevezéses-feladaton keresett jóvedelmével, javaslatot tettek arra, miként igazságos a elosztani a kvízen szerzett összkeresetüket, a 1500 Ft-ot .

Kérjük, hogy az alábbi mezőbe írja be, hogy egy pártatlan bírót szemszögéből, az objektív igazságosság szerint, mennyi jár Önnek ebből az összkeresetből.

Ha az Ön által megadott összeg beleesik a pártatlan bírók javaslatának plusz/minusz tíz százalékos tartományába, akkor Ön a kísérlet végén további 300 Ft-ot kap.
Ennek eredményét azonban csak a kísérlet végén tudja meg.

Egy objektív bírót szerint ennyi jár nekem (csak egész számot adhat meg). Ha készen van kattintson a Továbbra.

 Ft

Tovább

Results of the trivia quiz, Individual and joint earnings**Your and your partner's joint earnings from the knowledge quiz: 1500 HUF.**

Your joint earnings are broken down as follows:

You contributed 450 HUF (because you made 3 correct answers on the quiz)

Your partner contributed 1050 HUF (because he/she made 7 correct answers on the quiz).

Five neutral judges, who are fully informed about your and your partner's outcome from the image-labelling task, proposed a fair division between you and your partner of your joint trivia earnings.

Indicate in the field below, what you believe is your fair share from the joint quiz earnings from the vantage point of a neutral judge.

You will get an extra 300 HUF if you get your share within the range of +/- 10% of the mean of the neutral judges' divisions. You will only learn whether you made money from this task at the end of the experiment.

From the vantage point of an unbiased judge, I should get this much from the joint earnings (only integers are allowed). Click on Continue if you are ready.

SCREEN # 10 - BARGAINING INSTRUCTIONSAll conditions:**Alkudozás - Most ki kell alkudnia párjával az összkereset elosztását.**

Most **maximum 3 kör** áll rendelkezésére arra, hogy párjával megegyezzenek a kvízes összkereset elosztásáról. Ha nem tudnak a 3 körben megegyezni, akkor összkeresetük 20%-kal lecsökken és a számítógép véletlenszerűen (ahol minden elosztás azonos valószínűségű) osztja szét kettejük 20%-kal csökkentett összkeresetét.

Az alkudozás a számítógépen keresztül zajlik, az alábbi szabályokkal:

Először mindkettőn, egyszerre elküldik, hogy mennyi pénzt akarnak az összkeresetből.

Ha a kettejük által kért pénz összege kisebb az összkeresetnél, akkor megegyeztek. Ekkor mindkettőn megkapják a kért összeget, és a fennmaradó összeg elfelezésre kerül Önök között.

Ha a kettejük által kért pénz összege egyenlő az összkeresettel, akkor megegyeztek. Ekkor mindkettőn megkapják a kért összeget.

Ha a kettejük által kért pénz összege nagyobb az összkeresetnél, akkor nem egyeztek meg. Ilyenkor még két (majd egy) kör maradt megegyezni.

Ne feledje, hogy összesen **3 körük** van kialakulni az összkereset elosztását!

Kattintson a Továbbra, ha megértette a feladatot és készen áll az alkudozásra.

Tovább

Bargaining – Now, you will have to negotiate how to divide the joint earnings with your partner

Now, you have **three rounds** to negotiate and reach an agreement on how to divide your joint earnings. If you fail to agree in three rounds, your joint earnings will shrink by 20% and the computer will randomly divide them between you (where every division is equally possible).

The bargaining is done via this computer interface with the following rules.

First, you and your partner simultaneously submit how much you want to get from the joint earnings.

If the sum of your claims is less than the joint earnings, you have agreed. In this case, you get how much you claimed plus half of any amount left over.

If the sum of your claims adds up to the joint earnings, you agreed. You get what you claimed.

If the sum of your claims adds up to more than the joint earnings you failed to agree and thus enter the next negotiation round. You will have two/one more round(s) to agree then.

Don't forget that in total you have **three rounds** to agree.

Click on Continue if you understood the task and ready to proceed to the bargaining.

SCREEN # 11 - BARGAINING ROUND 1 – SUBMITTING CLAIM 1

All conditions:

Alkudozás: 3 -ból 1. kör

Összkeresetük **1650 Ft.**
Ön ennyit adott bele: **750 Ft.**
Párja ennyit adott bele: **900 Ft.**

Írja be mennyit akar kapni az összekeresetből. Csak egész számot adhat meg, ami nem nagyobb összekeresetnél.

Ha készen van és el akarja küldeni, akkor kattintson a Továbbra.

Ennyit kérek:

 Ft

Tovább

Bargaining: 1st from 3 rounds

Joint earnings are **1650 HUF**
You contributed: **750 HUF.**
Your partner contributed: **900 HUF.**

Indicate how much you want to get from the joint earnings (only integers are allowed).

Click on Continue if you are ready to submit your claim.

My claim:

.....

SCREEN # 12 - BARGAINING ROUND 2 – SUBMITTING CLAIM 2All conditions:**Alkudozás: 3 -ból 2. kör**

Összkeresetük **1650 Ft.**
 Ön ennyit adott bele: **750 Ft.**
 Párja ennyit adott bele: **900 Ft.**

Az előző körben nem tudtak megegyezni.

Ön az előző körben ennyit kért: 950 Ft.
 Partnere az előző körben ennyit kért: 1000 Ft.

Írja be mennyit akar kapni az összekeresetből. Csak egész számot adhat meg, ami nem nagyobb összekeresetnél.

Ha készen van és el akarja küldeni, akkor kattintson a Továbbra.

Ennyit kérek:

 Ft

Bargaining: 2nd from 3 rounds

Joint earnings are **1650 HUF**
 You contributed: **750 HUF.**
 Your partner contributed: **900 HUF.**

You failed to agree on the previous round.

Your previous claim was 950 HUF.
 Your partner's previous claim was 1000 HUF.

Indicate how much you want to get from the joint earnings (only integers are allowed).

Click on Continue if you are ready to submit your claim.

My claim:

.....

SCREEN # 13 - BARGAINING ROUND 3 – SUBMITTING CLAIM 3

All conditions:

Alkudozás: 3 -ból 3. kör

Összesen: **1650 Ft.**
Ön ennyit adott bele: **750 Ft.**
Párja ennyit adott bele: **900 Ft.**

Az előző körben nem tudtak megegyezni.

Ön az előző körben ennyit kért: 998 Ft.
Partnere az előző körben ennyit kért: 965 Ft.

Írja be mennyit akar kapni az összesítésből. Csak egész számot adhat meg, ami nem nagyobb az összesítésnél.

Ha készen van és el akarja küldeni, akkor kattintson a Továbbra.

Ennyit kérek:

 Ft

Tovább

Bargaining: 3rd from 3 rounds

Joint earnings are **1650 HUF**
You contributed: **750 HUF**.
Your partner contributed: **900 HUF**.

You failed to agree on the previous round.

Your previous claim was 998 HUF.

Your partner's previous claim was 965 HUF.

Indicate how much you want to get from the joint earnings (only integers are allowed).

Click on Continue if you are ready to submit your claim.

My claim:

.....

SCREEN # 14 - BARGAINING OUTCOMES

All conditions:

Settlement reached

Az alkudozás eredménye

Önök sikeresen megegyeztek az összkereset elosztásáról. Kattintson a Továbbra.

Tovább

Bargaining outcome

You and your partner successfully reached an agreement. Click on Continue.

Impasse

Az alkudozás eredménye

Önök nem tudtak megegyezni az összkereset elosztásáról. Kattintson a Továbbra.

Tovább

Bargaining outcome

You and your partner failed to reach an agreement. Click on Continue.

SCREEN # 15 – QUIZ EARNINGS

All conditions:

Kvíz kereset

Az alkudozás eredménye alapján Ön 752 Ft - t keresett az kvízen.

Kattintson a Tovább-ra.

[Tovább](#)

Quiz earnings

In the bargaining, you earned 752 HUF from the trivia quiz.

Click on Continue.

SCREEN # 16 – MINI SURVEY 1All conditions**Válaszoljon a következő kérdésekre**

Igazságos kompenzálni a kvíz összeresetből azt, aki a képelnevezéses-feladat teljesítéséért nem kapott semmit.

Az, hogy valaki mennyit keresett a képelnevezéses-feladaton hatással van arra, miképpen igazságos a kvízből származó jövedelemet elosztani.

[Tovább](#)**Please answer the following questions.**

It is fair to compensate the party from the joint quiz earnings, who did not get paid from the image-labeling task.

- Absolutely disagree
- Disagree
- Agree
- Absolutely agree

How much someone earned from the image-labeling task, has a bearing on what is the fair division of the joint earnings.

- Absolutely disagree
- Disagree
- Agree
- Absolutely agree

SCREEN # 17 – MINI SURVEY 2

All conditions**Végezetül**

Mennyire elégedett az alkudozáson szerzett jövedelmével?

Mérges, ha az alkudozás eredményére gondol?

Csalódott, ha az alkudozás eredményére gondol?

Örül, ha az alkudozás eredményére gondol?

Mégkönnyebbült, ha az alkudozás eredményére gondol?

[Tovább](#)**Finally**

How satisfied are you with your earnings from the bargaining?

- Absolutely unsatisfied
- Unsatisfied
- Satisfied
- Absolutely satisfied

Do you feel angry if you think about the bargaining?

- No
- Little bit
- Very much

Do you feel disappointed if you think about the bargaining?

- No
- Little bit
- Very much

Are you happy if you think about the bargaining?

- No
- Little bit
- Very much

Do you feel relieved if you think about the bargaining?

- No

- Little bit
- Very much

SCREEN # 18 – FINAL EARNINGSAll conditions**Összkereset - Ennyit keresett a kísérleten.**

Megjelenéséért 300 Ft -t kap.

A képnevezéses-feladatban 1500 Ft - ot keresett.

Az igazságos elosztás megbecslésével 0 Ft - ot keresett.

Az alkudozásban 752 Ft - ot keresett.

Az egész kísérleten tehát 2552 Ft -ot keresett.

A kísérleti azonosítója: **gbvjvzfj**.

A kísérleti azonosítóját és az összkeresetét mindenképpen írja fel a cetlire. Másként nem tudunk Önnek fizetni.

[Tovább](#)

Final earnings – This is how much you earned on the experiment

You received 300 HUF for showing up.

You earned 1500 HUF on the image labeling task.

You made 0 HUF on estimating the fair division.

You made 752 HUF on the bargaining.

In total, you earned 2552 HUF.

Your experimental ID is **gbvjvzfj**

Please write your earnings and experimental ID on the sticky note or else we cannot pay you.

SCREEN # 19 – GOOD BYE

All conditions

Köszönjük a részvételt.

Kérjük, zárják be a böngészőt és cetlijüket magukkal hozva álljanak sorba, hogy megkapják a pénzüket.

Thanks for your participation.

Please close the browser, bring your sticky when lining up to get paid.

2. Detailed description of the preliminary spectator survey

The survey prompted participants to stand in the shoes of an impartial spectator and asked them to propose the fair splits of jointly-created proceeds between two disputants in five different situations.

Participation was voluntary. Respondents were recruited from various universities in Budapest, Hungary, and were paid a fixed fee of 500 HUF for completion. Participants first read the instructions, which were also read aloud by experimenters. Any questions were addressed privately to the experimenters.

Participants (henceforth, *spectators*) were randomly assigned to one of the four survey conditions which mimicked the four pair-level experimental conditions. In all four survey conditions, spectators first read about disputing partners' histories (i.e., what partners did and what happened to them in stage 1), then were given a detailed description of the five different situations and were asked to propose fair splits

between partners for each situation. It was emphasized though that disputant pairs are different people in each of the five situations.

In the *shared asymmetric history survey* condition partners' history arose from one single coin flip which determined which partner gets his/her earnings of 1500 HUF from successfully completing the stage 1 image labeling task. The party favored by the coin flip (i.e., winner) received his earnings of 1500 HUF, while the other party did not receive his earnings (i.e., loser) and received 0 HUF for completing the image labeling task.

There were three versions of the *independent history survey* condition. In all three independent history survey conditions, partners' history arose from two coin flips which were individually flipped for partners and which each separately determined whether the focal person (i.e., whose coin was flipped) in the pair will get his earnings of 1500 HUF from the image-labeling task. The *independent asymmetric history survey* condition consisted of one party (i.e., loser) who was not favored by the coin flip and received nothing (0 HUF) for completing the stage 1 image labeling task, and another party (i.e., winner) who was favored by the coin flip and received his earnings of 1500 HUF for completing the stage 1 image labeling task. The *independent symmetric history winner-winner* survey condition consisted of two parties who were both favored by the coin flips (i.e., winners) and each received his 1500 HUF earnings for completing the image labeling task. The *independent symmetric history loser-loser* survey condition consisted of two parties who were both not favored by the coin flips (i.e., losers) and did not receive their earnings of 1500 HUF from completing the image-labeling task.

Each situation in which spectators were asked to propose the objectively fair split between disputants, consisted of information about the to-be-divided joint proceeds in HUF and specified each partner's exact contributions in HUF and described how these proceeds were generated. Each situation was evaluated by five different spectators. The groupings of five situations (each one of which was administered to a single respondent) were identical across all survey conditions, and so the conditions differed only in the survey conditions to which spectators were assigned.

In all four survey conditions, spectators first answered basic demographic questions and were then prompted to imagine that they were neutral judges in the five situations which would follow, where they would be asked to propose a fair split between two bargaining partners, players A and B. For each of the five situations, spectators were first informed about players' stage 1 histories and were then prompted to propose fair divisions between partners. After completion, spectators got paid 500 HUF in cash.

2.1. One example of the survey in Hungarian and English

Hungarian

Everyone

A következőkben egy rövid kérdőív kitöltésére kérjük. A projekt vezetője xxxx (blanked for blind review) A kitöltés teljesen anonim, válaszait nem tudjuk személyéhez kötni.

Elsőként néhány demográfiai adatot kérünk.

Ezt követően egy pártatlan bíró szemszögét fogja felvenni és öt egymástól független helyzetben javaslatot fog tenni arra, hogyan igazságos két ember (A és B személyek) között a közösen megtermelt jövedelmet elosztani. Ez a két személy azon vitatkozott össze, miként igazságos elosztani közösen keresett jövedelmüket, és Önt kéri fel arra, hogy objektív bírói szemmel javaslatot tegyen az igazságos elosztásra.

Kérdés, észrevétel vagy panasz esetén írjon xxxx (blanked for blind review). A kitöltésért 500 Ft-ot kap készpénzben.

Először néhány demográfiai kérdés

1. Melyik évben született:
2. Neme:
 - Nő
 - Férfi
3. Legmagasabb iskolai végzettsége
 - Általános iskola
 - Középiskola
 - BA/BSc/Főiskola
 - MA/MSc/Egyetem
 - PhD
 - Egyéb
4. Az Ön (vagy családja) jövedelmi helyzete a magyar lakosságon belül
 - Legalacsonyabb 25%
 - Második 25%

- Harmadik 25%
- Legmagasabb 25%

Most képzelje magát egy pártatlan bíró szerepébe, akihez öt egymással vitában álló pár azért fordult, hogy tegyen igazságot köztük. Azaz, minden pár között külön-külön kell igazságot tennie.

A következő oldalon előbb elolvassa a vita előzményének részleteit. Minden pár esetében azonos a vita előzménye, de a párok minden esetben mások. Röviden arról van szó, hogy korábban mindketten dolgoztak egy munkán, amelyet egyénileg el is végeztek.

Shared and independent asymmetric history conditions

E munkájukért jogosult fizetés azonban csak az egyik személy jutott hozzá, míg a másik személy nem jutott a fizetéséhez.

Independent symmetric history loser-loser condition

E munkájukért jogosult fizetéshez azonban egyikük sem jutott hozzá.

Independent symmetric history winner-winner condition

E munkájukért jogosult fizetést mindketten megkapták

Everyone

Ezután megismeri a jelenlegi vita részleteit. Röviden arról van szó, hogy a párok egy második munkán is dolgoztak. Itt is külön-külön végezték el a feladatukat, és azt is lehet tudni, hogy egyénileg mennyit kerestek. Amikor azonban kifizették őket, akkor keresetüket összevonták, azaz egyben, közösen kapták meg a pénzt. Ezután minden egyes pár összekülönbözött azon, hogy miként igazságos elosztani az egy összegben kapott pénzt. Önhöz fordultak, hogy tegyen igazságot, és mondja meg, hogy kinek mennyi pénz jár.

Önök az lesz a feladata, hogy minden egyes pár esetében javasolja, hogyan osszák el a pénzt, azaz mennyit kapjanak a pár egyes tagjai.

A VITA ELŐZMÉNYE

Először a pár mindkét tagja külön-külön teljesített egy munkát. E munka során 5 darab egyszerű tárgyakat ábrázoló képet kaptak, és a képek alá be kellett írni a látott tárgy nevét. Amikor készen voltak, mindkettőjüknek kiválasztott egy gép véletlenszerűen egy tárgyat, és ellenőrizte, hogy helyesen van-e beírva a név. 1500 Ft-ot keresett az, aki helyesen írta be a tárgy nevét. Mivel mindketten helyesen írták be a tárgy nevét, fejenként 1500 Ft-ot kerestek.

Shared asymmetric history condition

Ezt követően egy véletlen mechanizmus (egy darab pénzfeldobás) döntötte el, hogy melyik személy kapja meg az 1500 Ft-ot. Azaz mindkét személynek, 50% esélye volt arra, hogy a munkájáért megkapja az 1500 Ft-ot, de csak egyikük kaphatta meg a pénzt.

A pénzfeldobás eredménye szerint A személy nem kapta meg az 1500 Ft-ját, B személy pedig megkapta az 1500 Ft-ját. Azaz A személy 0 Ft-ot keresett, míg B személy 1500 Ft-ot keresett ezen a munkán.

All three independent history conditions

Ezt követően mindkét személynek külön-külön, egy-egy véletlen mechanizmus (egy-egy pénzfeldobás külön-külön mindkettőjüknek) döntötte el, hogy megkapja-e az 1500 Ft-os keresetüket. Azaz mindkét személynek, egymástól függetlenül 50% esélye volt arra, hogy a munkájáért megkapja az 1500 Ft-ot.

Independent asymmetric history condition

A pénzfeldobások eredménye szerint A személy nem kapta meg az 1500 Ft-ját, B személy pedig megkapta az 1500 Ft-ját. Azaz A személy 0 Ft-ot keresett, míg B személy 1500 Ft-ot keresett ezen a munkán.

Independent symmetric history loser-loser condition

A pénzfeldobások eredménye szerint sem A személy, sem B személy nem kapta meg az 1500 Ft-ját. Azaz semmit sem kerestek ezen a munkán.

Independent symmetric history winner-winner condition

A pénzfeldobások eredménye szerint mind A személy, mind B személy megkapta az 1500 Ft-jukat. Azaz mindketten kerestek pénzt ezen a munkán.

Everyone

A VITA

Másodszor, mindkettőjük munkája az volt, hogy önállóan, egy tíz kérdésből álló kvízt oldjanak meg, ahol minden helyes válasz 150 Ft-ot ért. Mindketten önállóan dolgoztak a kvíz-en, de a keresetüket összevonták, és egyben adták nekik oda. Azt lehet azonban tudni, hogy melyik fel mennyivel járult a közösen kapott keresethez.

Az öt vitázó fél (A és B személyek) egyéni és összkeresetét a táblázatban találja. Minden sor egy-egy vitázó pár helyzetét írja le. A második oszlopban találja a pár összkeresetét. A harmadik oszlopban A személy hozzájárulását a negyedik oszlopban pedig B személy hozzájárulását láthatja.

Az „ennyit kapjon A személy” oszlopba írja be, hogy objektíven mennyi jár A személynek.

Az „ennyit kapjon B személy” oszlopba írja be, hogy objektíven mennyi jár B személynek.

Figyeljen arra, hogy a két személynek adott pénz összege pontosan az összkeresettel legyen egyenlő!

Set1_ID	A és B személy közös keresete - Ezt adták nekik oda.	A személy hozzájárulása	B személy hozzájárulása	Az objektív igazságosság szerint ennyit kapjon A személy	Az objektív igazságosság szerint ennyit kapjon B személy
19	1650 Ft	300 Ft	1350 Ft	..... Ft	..... Ft
22	750 Ft	450 Ft	300 Ft	..... Ft	..... Ft

68	2250 Ft	1050 Ft	1200 Ft	..... Ft	..... Ft
80	2700 Ft	1200 Ft	1500 Ft	..... Ft	..... Ft
5	900 Ft	150 Ft	750 Ft	..... Ft	..... Ft

English

Everyone

You are invited to complete a short survey. The principle investigator is xxxx (blanked for blind review). Participation is anonymous: We cannot link your responses to your identity.

First, you will respond to a few demographic questions. Then, you will stand in the shoes of an impartial judge, and propose fair splits of jointly created proceeds between two disputants (called persons A and B). These two people cannot agree on how to divide fairly their joint proceeds and they ask you to propose fair splits from the vantage point of an objective and neutral judge. If you have any questions, comments or concerns, please email XY on the XY email address (blanked for blind review). You will receive 500 HUF in cash for completing the survey.

We begin with a few demographic questions

1. The year when you were born: ...
2. Your gender:
 - Male
 - Female
3. Your highest level of education:
 - Elementary school
 - High school or equivalent
 - BA/BSc or college
 - MA/MSc/Diploma
 - Advanced/PhD
 - Other
4. Your (or your family's) income level in the population:
 - In the lowest 25%
 - In the second lowest 25%
 - In the third 25%
 - In the top 25%

Now, stand in the shoes of an unbiased judge who is approached by five pairs of people who disagree about how to fairly divide their joint earnings. That is, you will have to propose fair division for each of the five pairs.

On the next page you will first read about the background of these disputes. The backgrounds of the disputes are the same across the five pairs but the pairs are always different. In nutshell, they all share the background of having individually completed a task.

Shared and Independent asymmetric history conditions

For completing this task, only one party was in fact paid his remuneration, while the other was not paid.

Independent symmetric history loser-loser condition

For completing this task, neither party was paid his/her remuneration.

Independent symmetric history winner-winner condition

For completing this task, both parties were paid his/her remuneration.

Everyone

Next, you will learn the background of the dispute. In nutshell: It is about the fact that these pairs participated in a second task as well. Here again, they individually completed their task and were informed how much they individually earned. When they were paid, however, their earnings were pooled, and they were given this pooled earnings. Then each pair got into a dispute on how to divide fairly their earnings. They asked you to propose for how to fairly divide their earnings and how much each of them should get. Your task is to propose a fair division of the pooled earnings for each pair.

THE DISPUTE'S BACKGROUND

First, both members of a pair completed the same task individually. Their task was to type in the names of 5 simple images. After completion, one image was randomly selected for each party, and was checked for whether the party labelled this image correctly. The pair who correctly typed in the name received a 1500 HUF remuneration. Since both parties correctly labelled the selected image, they were both entitled for a 1500 HUF remuneration.

Shared asymmetric history condition

Next, a random mechanism (one coin flip) determined which party received his/her remuneration of 1500 HUF. That is, each party had a 50% to receive the 1500 HUF, but only one of them could receive it.

According to the outcome of this coin flip, person A did not receive her/his earning of 1500 HUF, while person B did receive his/her earnings. That is, person A earned 0 HUF, while person B earned 1500 HUF on this task.

All three independent history conditions

Next, one random mechanism (a coin flip for each party) for each party separately determined whether the focal party receives his/her remuneration of 1500 HUF. That is, independently from each other, each party had a 50% to receive his/her remuneration of 1500 HUF.

Independent asymmetric history condition

According to the outcome of the coin flips, person A did not receive her/his earning of 1500 HUF, while person B did receive his/her earnings. That is, person A earned 0 HUF, while person B earned 1500 HUF on this task.

Independent symmetric history loser-loser condition

According to the outcome of the coin flips, neither person A, nor person B received his/her earnings of 1500 HUF. That is, they both earned 0 HUF on this task.

Independent symmetric history winner-winner condition

According to the outcome of the coin flips, both persons A and B received his/her earnings. That is, both of them earned 1500 HUF on this task.

THE DISPUTE

Second, both parties work was to individually complete the same ten-item trivia quiz, where each correct answer yielded 150 HUF. They both individually worked on the quiz, but their earnings were pooled and were given them as one joint sum. They were both, however, were informed on how much they individually contributed to the joint earnings.

In the table below you find the individual and joint earnings of the five disputing pairs (person A and B). Every row describes one pair. In the second column you find the pair's joint earnings. In the third column you can find person A's contribution and in the fourth column, you can find person B's contribution.

In the "...this is how much person A should get" column, insert how much person A should get according to an objective vantage point.

In the "...this is how much person B should get" column, insert how much person B should get according to an objective vantage point.

Make sure that the sum of “how much person A should get” and “how much person B should get” is equal to the joint earnings!

Set1_ID	Persons A and B joint earnings – this is how much they were given	Person A’s contribution	Person B’s contribution	According to the objective fairness, this is how much person A should get	According to the objective fairness, this is how much person B should get
19	1650 HUF	300 HUF	1350 HUF	..... HUF	..... HUF
22	750 HUF	450 HUF	300 HUF	..... HUF	..... HUF
68	2250 HUF	1050 HUF	1200 HUF	..... HUF	..... HUF
80	2700 HUF	1200 HUF	1500 HUF	..... HUF	..... HUF
5	900 HUF	150 HUF	750 HUF	..... HUF	..... HUF

Thank you!

Appendix B

Here we present additional results from the bargaining experiment and the spectator survey.

1. Detailed demographics

Detailed player demographics are presented in Table B.1. We find that mean age differs between the four experimental treatments. In other respects, we find no demographic differences between treatment. 50% of players are male, most players are high school graduates and reported belonging to the second or to third income quartile of the Hungarian population.

Table B.2 summarizes demographic characteristics of those spectators whose responses were presented in the bargaining experiment. Mean age and gender distribution does not differ between the four pair-level conditions. There are, however, only high school graduates in the two independent symmetric treatments, whereas about one-fifth of spectators in the two asymmetric history treatments have at least a bachelor's degree. There is also a difference in the distribution of income levels. There, income level is shifted toward the lower strata (bottom and second quartile) for spectators in the shared asymmetric history condition whereas in the other three pair-level conditions, spectators are spread across the second, third and top quartiles.

Table B.3 summarizes spectator demographics. As evident from this table, spectators do not differ in their age and gender distributions between the four survey conditions. The distributions of highest level of education, however, differ between the four conditions. There are slightly more spectators with completed college degrees in the independent symmetric loser-loser condition than in the other conditions and there are significantly more subjects with MA/MSc/University degrees among independent history loser-loser and winner-winner spectators, than in the other survey conditions. Additionally, income distribution differs between

the four conditions, as is evident from the last row of this table. It seems that there is a higher proportion of highest-income subjects in the independent symmetric winner-winner condition than in the other three survey conditions, while income level is shifted towards the lower quartile for spectators in the shared asymmetric history conditions.

Table B.4 presents further details about key experimental variables which were left out of Table 1 in the manuscript. From the first row of the top panel we learn that there is no difference between joint stage 2 quiz earnings across pair-level treatments. The second row shows that there are differences in players' experimental earnings. Losers made less than their winner partners in the two asymmetric treatments as well in the two symmetric treatments – an intended consequence of the loser-winner manipulation in stage one. The third row presents individual stage 2 earnings, where we learn that – consistent with the loser-winner stage one manipulation – there are no stage 2 quiz earnings differences between partners in a pair. The fourth row demonstrates that partners' beliefs about their fair shares differ. Losers in both asymmetric treatments believed themselves to be entitled to more than winners, while there is no such difference in the independent symmetric history conditions. The lower panel of this table documents that, according to unbiased spectators, losers in both asymmetric history conditions should get more money than their winner partners.

Table B.1
Demographic characteristics of players in the bargaining experiment

	Shared asymmetric history		Independent asymmetric history		Independent symmetric history loser-loser, n = 90	Independent symmetric history winner-winner, n = 92	Test of statistical difference between the six individual-level treatments
	loser n = 91	winner n = 91	loser n = 75	winner n = 75			
Mean (SD) age in years	21.64 (3.75)	20.75 (1.51)	21.38 ¹ (1.88)	22.17 (4.59)	21.46 ¹ (2.28)	21.08 (1.79)	$W(5, 228)^2 = 2.89^*$
Gender							
Female	45 (49.5%)	54 (59.3%)	39 (52.0%)	44 (58.7%)	41 (45.6%)	50 (54.3%)	$\chi^2(5) = 4.99$
Male	46 (50.5%)	37 (40.7%)	36 (48.0%)	31 (41.3%)	49 (54.4%)	42 (45.7%)	
Total	91 (100.0%)	91 (100.0%)	75 (100.0%)	75 (100.0%)	90 (100.0%)	92 (100.0%)	
Highest level of education							
Elementary school	0 (0.0%)	1 (1.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	$\chi^2(20) = 16.34$
High school graduate	84 (92.3%)	85 (93.4%)	71 (94.7%)	71 (94.7%)	87 (96.7%)	90 (97.8%)	
BA/BSc/College	6 (6.6%)	4 (4.4%)	4 (5.3%)	3 (4.0%)	3 (3.3%)	1 (1.1%)	
MA/MSc/Diploma	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.1%)	
Advanced/PhD	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Other	1 (1.1%)	1 (1.1%)	0 (0.0%)	1 (1.3%)	0 (0.0%)	0 (0.0%)	

SELF-SERVING HISTORY

Total	91 (100.0%)	91 (100.0%)	75 (100.0%)	75 (100.0%)	90 (100.0%)	92 (100.0%)	
Income level							
Lowest 25%	3 (3.3%)	3 (3.3%)	4 (5.3%)	1 (1.3%)	1 (1.1%)	3 (3.3%)	
Second 25%	29 (31.9%)	27 (29.7%)	35 (46.7%)	20 (26.7%)	30 (33.3%)	20 (21.7%)	
Third 25%	53 (58.2%)	54 (59.3%)	30 (40.0%)	47 (62.7%)	58 (53.3%)	57 (62.0%)	$\chi^2(15) = 20.50$
Top 25%	6 (6.6%)	7 (7.7%)	6 (8.0%)	7 (9.3%)	11 (12.2%)	12 (13.0%)	
Total	91 (100.0%)	91 (100.0%)	75 (100.0%)	75 (100.0%)	90 (100.0%)	92 (100.0%)	

Note. ¹ One subject's age was handled as missing since s/he indicated to be 103 years old (birth year: 1916).

² We report Welch statistics to account for unequal variances. * $p \leq .05$

Table B.2

Demographic characteristics of the survey participants assigned the role of unbiased spectator, with the sample restricted to those presented in the experiment

	Shared asymmetric history n = 23	Independent asymmetric history n = 26	Independent Symmetric history loser-loser n = 32	Independent Symmetric history winner-winner n = 28	Test of statistical difference between the four pair-level treatments
Mean (SD) age in years	22.90 (3.71)	22.23 (3.00)	23.06 (3.77)	24.00 (5.88)	$F(3,103) = 0.79$
Gender					
Male	11 (47.8%)	14 (53.8%)	18 (56.3%)	14 (51.9%)	$\chi^2(3) = 0.40$
Female	12 (52.2%)	12 (46.2%)	14 (43.8%)	13 (48.1%)	
Total	23 (100.0%)	26 (100.0%)	32 (100.0%)	27 ¹ (100.0%)	
Highest level of education					
Elementary school	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	$\chi^2(6) = 12.56^*$
High school graduate	19 (82.6%)	21 (80.8%)	32 (100.0%)	28 (100.0%)	
BA/BSc/College	3 (13.0%)	3 (11.5%)	0 (0.0%)	0 (0.0%)	
MA/MSc/Diploma	1 (4.3%)	2 (7.7%)	0 (0.0%)	0 (0.0%)	
Advanced/PhD	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Other	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Total	23 (100.0%)	26 (100.0%)	32 (100.0%)	28 (100.0%)	
Income level					
Lowest 25%	4 (17.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	$\chi^2(9) = 26.68^{**}$

SELF-SERVING HISTORY

Second 25%	10 (43.5%)	12 (46.2%)	11 (34.4%)	6 (21.4%)
Third 25%	8 (34.8%)	8 (30.8%)	17 (53.1%)	15 (53.6%)
Top 25%	1 (4.3%)	6 (23.1%)	4 (12.5%)	7 (25.0%)
Total	23 (100.0%)	26 (100.0%)	32 (100.0%)	28 (100.0%)

Note. ¹ One survey participant did not indicate his/her gender. * $p \leq .05$, ** $p \leq .$

Table B.3

Demographic characteristics of all survey participants assigned the role of unbiased spectator

	Shared asymmetric history n = 100	Independent asymmetric history n = 100	Independent Symmetric history loser-loser n = 100	Independent symmetric history winner-winner n = 100	Test of statistical difference between the four pair-level treatments
Mean (SD) age in years	22.63 (2.68)	23.20 (4.16)	22.05 ¹ (2.78)	22.70 ¹ (5.25)	$W(3, 211) = 1.87^3$
Gender					
Male	53 (53.0%)	51 (51.0%)	59 (61.5%)	55 (55.6%)	$\chi^2(3) = 2.43$
Female	47 (47.0%)	49 (49.0%)	37 (38.5%)	44 (44.4%)	
Total	100 (100.0%)	100 (100.0%)	96 (100.0%)	99 (100.0%)	
Highest level of education					
Elementary school	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	$\chi^2(15) = 24.47^*$
High school	83 (83.0%)	77 (77.0%)	59 (61.5%)	76 (77.6%)	
BA/BSc/College	14 (14.0%)	15 (15.0%)	32 (33.3%)	15 (15.3%)	
MA/MSc/Diploma	3 (3.0%)	6 (6.0%)	4 (4.2%)	6 (6.1%)	
Advanced/PhD	0 (0.0%)	0 (0.0%)	1 (1.0%)	0 (0.0%)	
Other	0 (0.0%)	2 (2.0%)	0 (0.0%)	1 (1.0%)	
Total	100 (100.0%)	100 (100.0%)	96 (100.0%)	98 (100.0%)	
Income level					
Lowest 25%	14 (14.0%)	7 (7.0%)	0 (0.0%)	0 (0.0%)	$\chi^2(9) = 53.83^{***}$
Second 25%	47 (47.0%)	45 (45.0%)	27 (28.1%)	31 (31.3%)	
Third 25%	35	36	57	46	

SELF-SERVING HISTORY

	(35.0%)	(36.0%)	(59.4%)	(46.5%)
Top 25%	4 (4.0%)	12 (12.0%)	12 (12.5%)	22 (22.0%)
Total	100 (100.0%)	100 (100.0%)	96 (100.0%)	99 (100.0%)

Note. ¹ One survey participant did not report his age. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Table B.4

Detailed descriptive table of key experimental and survey variables. Means (SD) and 95% CIs.

Players from the bargaining experiment	Shared asymmetric history $n_{\text{pair}} = 91$			Independent asymmetric history $n_{\text{pair}} = 75$			Independent symmetric history loser-loser $n_{\text{pair}} = 45$	Independent symmetric history winner-winner $n_{\text{pair}} = 46$	Test of statistical differences between the four pair-level treatments
	loser $n_{\text{indiv}} = 91$	winner $n_{\text{indiv}} = 91$	Test of statistical difference between loser and winner	loser $n_{\text{indiv}} = 75$	winner $n_{\text{indiv}} = 75$	Test of statistical difference between loser and winner	Independent symmetric history loser-loser $n_{\text{indiv}} = 90$	Independent symmetric history winner-winner $n_{\text{indiv}} = 92$	
Joint Stage 2 quiz earnings in HUF	2075.27 (334.11) [2055.69, 2144.86]			2104.00 (287.55) [2037.84, 2170.16]			2066.67 (384.94) [1951.02, 2182.32]	2116.30 (300.38) [2027.10, 2205.51]	$F(3, 253) = 0.29, ns$
	Shared asymmetric history			Independent asymmetric history					Test of statistical differences between the six individual-level treatments
Experimental earnings in HUF without show-up fee	1085.79 (331.02) [1016.85, 1154.73]	2475.02 (295.04) [2413.58, 2536.47]	$F(1, 180) = 893.21$ ***	1293.97 (331.51) [1217.70, 1370.25]	2684.03 (290.52) [2617.18, 2750.87]	$F(1, 148) = 745.86$ ***	1296.00 (293.22) [1234.58, 1357.41]	2809.91 (257.47) [2756.59, 2863.23]	$F(5, 508) = 604.41$ ***
Number of correctly answered stage 2 quiz questions	6.86 (1.60) [6.52, 7.19]	6.98 (1.40) [6.69, 7.27]	$F(1, 180) = 0.29, ns$	6.99 (1.47) [6.65, 7.33]	7.04 (1.33) [6.73, 7.35]	$F(1, 148) = 0.05, ns$	6.89 (1.68) [6.53, 7.24]	7.05 (1.42) [6.76, 7.35]	$F(5, 508) = 0.25, ns$
Individual stage 2 quiz earnings in HUF	1028.57 (240.39) [978.51, 1028.57]	1046.70 (209.73) [1003.02, 1046.70]	$F(1, 180) = 0.29, ns$	1048.00 (221.24) [997.10, 1048.00]	1056.00 (199.49) [1010.10, 1056.00]	$F(1, 148) = 0.05, ns$	1033.33 (252.85) [980.37, 1033.33]	1058.15 (213.72) [1013.89, 1058.15]	$F(5, 508) = 0.25, ns$

SELF-SERVING HISTORY

Players' beliefs about their fair share in HUF	1078.63]	1090.38]		1098.90]	1101.90]		1086.29]	1102.41]	
	1375.27	1031.74		1177.47	1039.87		1037.11	1056.79	
	(379.96)	(265.17)	$W(1, 161)$	(267.63)	(323.05)	$F(1, 148) =$	(266.70)	(221.36)	$W(5, 232) =$
	[1215.24, 1374.43]	[969.27, 1082.27]	$^1 = 50.02$ ***	[1115.89, 1239.04]	[965.54, 1114.19]	8.07 **	[981.25, 1092.97]	[1010.95, 1102.63]	14.03 ***
	Shared asymmetric history		Independent asymmetric history						Test of statistical differences between the six individual-level treatments
Spectators from the survey	loser $n_{\text{spectators}} = 23$	winner $n_{\text{spectators}} = 23$	Test of statistical difference between loser and winner	losers $n_{\text{spectators}} = 26$	winners $n_{\text{spectators}} = 26$	Test of statistical difference between loser and winner	Independent symmetric history loser-loser $n_{\text{spectators}} = 32$	Independent symmetric history winner-winner $n_{\text{spectators}} = 28$	
Players' fair shares in HUF as proposed by spectators	1366.04 (354.38)	551.35 (211.39)	$W(1, 36) = 89.66$ ***	1052.69 (234.53)	960.77 (228.45)	$F(1, 50) = 2.05$, <i>ns</i>	979.38 (290.16)	1055.36 (271.68)	$W(5, 70) = 23.67$ ***
	[1212.80, 1519.02]	[459.94, 642.76]		[957.96, 1147.42]	[868.49, 1053.04]		[874.76, 1083.99]	[950.01, 1160.70]	

Note. ¹ We report Welch statistics to account for unequal variances. *** $p \leq .001$

Consulting Model I of Table B.5, we learn that the effects of shared asymmetric history and tension on the likelihood of impasse are robust after controlling for stage 2 quiz earnings differences between loser and winner. Relative effort level between players is not associated to the likelihood of impasse. The effects are similar after controlling for age differences and gender composition within a pair, see Model II.

Table B.5

Summary of binary logistic regressions of reaching impasse after controlling for within pair effort level differences (Model I) and age differences and gender composition (Model II). Pair-level analysis.

	I	II
Intercept	-3.08 *** (0.53)	-3.14 *** (0.62)
History = 1 (Shared)	1.11 * (0.54)	0.93 + (0.57)
Tension	3.63 ** (1.40)	3.93 ** (1.45)
Quiz earned signed differences	1.77 (1.38)	1.95 (1.43)
Age difference		0.05 (0.05)
Gender composition		0.14 (0.35)
Likelihood-ratio χ^2	18.29 **	19.07 **
df	3	5
N	166	165 ¹
BIC	135.67	151.93

Note. Coefficients are on the logit scale and standard errors are in parentheses.

Age difference: Age in years reported by loser minus winner.

¹ One subject pair is excluded since one subjected to be 103 years old (birth year: 1916)

Gender composition is a multinomial variable:

1 – two females, 2 – mixed gender, 3 – two males in a pair.

Quiz earned signed difference is the difference between loser's and winner's quiz earnings where earnings are expressed as the proportion of stage 2 pooled earnings (i.e., loser minus winner).

+ $p \leq .10$, * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

We administered a post-experimental survey including two small question clusters after players learned the outcome of the bargaining. In Table B.6 we summarize results of responses on this survey. When comparing conditions, we report p -values corresponding to post-hoc Bonferroni or Games-Howell tests.

From row one of Table B.6, one can see that there is a statistical difference between players in the four conditions in how much they agree with the statement that fairness prescribes compensating stage 1 losers in stage 2. Specifically, we find that losers in both treatments agree more with this statement than their winner partners (both p -values are below 0.05) but there is no difference between losers in shared and independent history conditions. Similarly, there is no difference between winners in the two pair-level conditions.

The second row shows that players differ in how much they agree that stage one's outcome has a bearing on the fair division in stage two. We find that losers in the shared history condition agree more than winners with this statement, $p \leq .05$, and that they also agree more than independent history losers, $p \leq .05$. At the same time, there is no loser-winner difference in the independent history condition nor between winners across the two pair-level treatments.

From row three, one can see that players are not equally satisfied with their bargaining earnings. Specifically, losers in the shared asymmetric history condition are less satisfied than their winner partners, $p \leq .01$, but not less satisfied than losers in the independent asymmetric history treatment. At the same time, we observe no loser-winner difference in reported level of satisfaction in the independent asymmetric history treatment.

From the fourth row of this table we see that reported level of anger differs between the four independent level treatments, but we observe no corresponding loser-winner in the two pair-level treatments, nor between losers across the two pair-level treatments.

The fifth row presents a difference in the reported level of disappointment between all players. Specifically, shared asymmetric history losers report greater mean disappointment than their winner partners, $p \leq .05$, whereas there no such difference between losers across the two asymmetric history conditions, nor between losers and winners within the independent asymmetric history condition.

From row six, we learn that winners are happier with the bargaining outcome than losers in the shared asymmetric history condition, $p \leq .01$, but no difference between losers across the two history conditions nor between losers and winners in the independent asymmetric history condition.

Finally, the last row of this table documents a difference between players' reported level of relief in the four individual-level treatments. At the same time, we observe neither loser-winner differences within, nor loser-loser differences across asymmetric history treatments.

Table B.6

Mean (SD) and 95% CIs of responses on the post-experimental survey.

	Shared asymmetric history		Independent asymmetric history		Test of statistical differences between the four individual-level treatments
	loser n _{indiv} = 91	winner n _{indiv} = 91	loser n _{indiv} = 75	winner n _{indiv} = 75	
It is fair to compensate the party from the joint quiz earnings, who did not get paid from the image-labeling task. ¹	3.04 (0.87) [2.86, 3.22]	2.54 (0.75) [2.38, 2.69]	2.75 (0.92) [2.54, 2.96]	2.33 (0.66) [2.18, 2.49]	$F(3, 328) = 11.90$ ***
How much someone earned from the image-labeling task, has a bearing on what is the fair division of the joint earnings. ¹	2.92 (0.92) [2.73, 3.12]	2.56 (0.90) [2.37, 2.75]	2.55 (0.79) [2.36, 2.73]	2.39 (0.70) [2.23, 2.55]	$F(3, 328) = 6.23$ ***
How satisfied are you with your earnings from the bargaining? ²	2.58 (0.82) [2.41, 2.75]	2.99 (0.86) [2.81, 3.17]	2.79 (0.58) [2.65, 2.92]	2.87 (0.89) [2.66, 3.07]	$F(3, 328) = 4.11$ **
Do you feel angry if you think about the bargaining? ³	1.41 (0.61) [1.28, 1.53]	1.24 (0.48) [1.14, 1.34]	1.25 (0.50) [1.14, 1.37]	1.15 (0.39) [1.06, 1.24]	$W(3, 180) = 3.64$ *
Do you feel disappointed if you think about the bargaining? ³	1.49 (0.67) [1.35, 1.63]	1.26 (0.51) [1.16, 1.37]	1.37 (0.56) [1.24, 1.50]	1.17 (0.45) [1.07, 1.28]	$W(3, 180) = 5.08$ **
Are you happy if you think about the bargaining? ³	1.87 (0.70) [1.72, 2.01]	2.23 (0.65) [2.10, 2.37]	1.91 (0.64) [1.76, 2.05]	2.12 (0.73) [1.95, 2.29]	$W(3, 179) = 5.75$ ***
Do you feel relieved if you think about the bargaining? ³	1.89 (0.77) [1.73, 2.05]	2.16 (0.75) [2.01, 2.32]	1.83 (0.70) [1.66, 1.99]	2.05 (0.80) [1.87, 2.24]	$F(3, 328) = 3.48$ *

Note. ¹ Response scale: 1 – absolutely disagree, 2-disagree, 3- agree, 4-absolutely agree.

² Response scale: 1 – absolutely unsatisfied, 2 – unsatisfied, 3 – satisfied, 4 – absolutely satisfied for item about satisfaction.

³ Response scale: 1 – absolutely not, 2 – little bit, 3 – very much.

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$