

Agreement in the ultimatum game: An analysis of interpersonal and intergroup context on the basis of the consensualistic approach to negotiation

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Abstract

The main paradigm in the study of negotiation is the decision-making approach, which emphasizes an individual-based factor of behavior, self-interest. Focusing on the ultimatum game, we reviewed the segment of the empirical literature that emphasizes social-contextual mechanisms, particularly interpersonal communication and intergroup relations. We found that, through communication, proposals are treated as justifiable claims and that the social context provides different norms for justification. We suggest that aspects of communicative rationality, such as normative rightness and subjective truthfulness, act as organizing principles for approaching negotiation as a joint *rule-making* process. We argue that any rule proposed is only validated through the agreement of the other side(s) and, thus, the consensualistic approach is better suited for the analysis of negotiation compared to the existing decision-making paradigm.

Keywords: ultimatum game; communication; communicative rationality; negotiation; consensualistic approach; joint rule-making process

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When individuals are asked to divide a sum of money between themselves and another player, who can either accept the offer or reject it (in which case both players get nothing), they do not necessarily attempt to keep almost everything for themselves. Similarly, the receivers of the offers do not accept offers that they judge as unfair, even though that leaves them with no gain at all. This game, known as the ultimatum game (Güth, Schmittberger, & Schwarze, 1982), is considered to be the simplest form of negotiation. Interestingly, the behavior displayed by both the proposers and the receivers in the ultimatum game leaves room for considering factors such as ethics and social norms, which are not as easily fitted in utility functions (*utility* being a measure of satisfaction put forward by economists) as financial earnings. Decision-making approaches within psychology and economics have attempted to accommodate these findings within the self-interested utility-maximizing model of human behavior but have not offered a new model of rationality. In the present article, we will review part of the empirical research that has employed the ultimatum game to show that negotiation is better perceived as an intersubjective *rule-making* rather than a subjective *decision-making* process. In this endeavor, we will rely on the notion of *communicative* rationality (Habermas, 1985). We will specifically focus on the specialized segment of the literature on ultimatum games that incorporate aspects of the social context, specifically interpersonal communication and group membership, and their influence on agreement.

The ultimatum game

Two players are usually involved in the game. Player A receives a sum of money, typically \$10, and proposes a possible division of this sum between the two players. Player A can offer player B a sum in the range of \$0 to \$10 and keep the rest for himself. Player B can either accept the proposal or reject it. If she accepts the offer, the money is allocated as proposed. If she rejects the offer, neither player receives any money. The game then ends, irrespective of whether the offer is accepted or rejected. The game can be repeated in multiple rounds. The negotiation here is implicit and quite rudimentary. As such, the ultimatum game lends itself to the uncovering of the fundamental principles of negotiation.

If one adheres strictly to the economic principle of rationality, one would expect Player A to behave according to self-interest, and offer a very small part (e.g., 1\$) of the entire sum to the other player. Player B would also be expected to behave strictly according to self-interest, and accept the offer under the rationale that \$1 is better than \$0. Yet, empirical studies have shown that many people propose 50%-50% splits and that the average of offers to the second player is typically in the range of 30%-40% of the sum, while offers less than 20% are frequently rejected (Camerer & Thaler, 1995). On a subjective level, the 50%-50% social norm can be treated as the source of some type of utility that is more important than strict financial earnings and, when adhered to and added in the utility function of the individual, results in greater utility. In this sense, it represents a social preference. On the intersubjective level that is put forward by the consensualistic approach (an approach emphasizing agreement instead of preferences and utility; Arvanitis, 2015), the 50%-50% split can be treated as an application of a moral norm that could lead to agreement, as long as participants view this norm as a reasonable term of their interaction. In this case it is a socially

constructed rule of interaction. This intersubjective perspective does not focus on individual preference or utility but more on the context of interaction between people.

The decision-making model of negotiation and its limitations

The psychological study of negotiation has largely been influenced by the approach of decision-making (Bazerman, Curhan, Moore, & Valley, 2000; Brett & Thompson, 2016; Thompson, Wang, & Gunia, 2010), which places great emphasis on the economic principle of the satisfaction of interests in a rational manner. The reason is that, in need of a criterion for distinguishing a right from a wrong decision, cognitive and social psychologists found it very useful to use the economic benchmark of correspondence between preferences (or interests) and behavior. In very simple terms, they accept that people make the right decision when they behave according to their self-interest (and maximize their utility) and the wrong decision when they do not. After making this assumption, they can study how people actually make decisions.

Research that started on a systematic basis with the seminal work of Tversky and Kahneman (1974) showed that people do not always act consistently with the economic benchmark of human behavior. Instead, they follow heuristics, that is, systematic deviations from perfectly rational thinking. For example, solving a mathematical problem with a high value for the solution, compared to a low value, can lead to higher offers for proposers and higher acceptance thresholds for responders in a subsequent, completely irrelevant, ultimatum game (Tripathi, 2016). It seems that people will consistently anchor their proposals and their responses on irrelevant information and will fail to act strictly according to their self-interest.

Even if all heuristics were accounted for, the model of the negotiator as a decision-making actor would still be incomplete. Social psychological factors, such as ethics and social relationships, would still need to be incorporated in a thorough

analysis of negotiation (Tsay & Bazerman, 2009). A central question is how fairness norms can be incorporated in the model of the negotiator as a decision maker.

Economists may simply add a social norm in a person's utility function as a social preference and argue that the person still behaves as a decision-maker in a conscious effort to maximize utility. However, Binmore (2010) argued that it is a 'bad mistake' to blur the distinction between a social preference and a social norm, that is, an appropriate habituated response to a contextual cue that has evolved through some combination of conscious and unconscious learning. The former is a component of the utility function that takes into account the welfare of others and the latter is a culturally-evolved equilibrium device that is not necessarily consistent with optimizing behavior. Behavioral economists make further steps in explaining non self-interested behavior, but their account is still evaluated against the backdrop of individual-level constrained optimization and the normative foundations of neoclassical economics (Berg, & Gigerenzer, 2010). For example, "nudge" theorists (Thaler, & Sunstein, 2008) recognize people's deviations from economic rationality but offer advice on how people can behave closer to it. Even within behavioral economics, fairness is fitted within some sort of strategic or evolutionary optimization process.

Handgraaf, Van Dijk, and De Cremer (2003) discuss the different factors affecting the balance between fairness and self-interest in three groups of variables, namely context, player characteristics and game characteristics, shedding light on the comparative dimension that complements the social utility model of human behavior. Bicchieri (2006) proposes a theory of social norms that is juxtaposed to rational decision making and offers an account of heuristic processing in the ultimatum game on the basis of empirical and normative expectations (Bicchieri & Chavez, 2010),

while remaining in the realm of behavioral decision-making. Debove, Baumard, and André (2016) review 36 different accounts for the evolution of fairness, biological, cultural or learning-based, but cannot determine whether people have an evolved sense for fairness or whether they are motivated by strategic self-interest.

The assumptions of the model of decision-making are continually being doubted and are gradually being relaxed, but it still remains the central paradigm in the analysis of negotiations. Negotiation is invariably treated as a joint decision making process in which participants jointly try to satisfy their interests. Any deviation from strict self-interest is somehow fitted within a broader concept of self-interest or social preference without necessarily going beyond it. There is always room for aspects of fairness, ethics, social relationships that were not included in previous formulations, but these factors are still conceptualized at the level of individual decisions.

All efforts to broaden the study of negotiation beyond self-interest have not really challenged its main pillar: the model of the negotiator as an instrumentally rational decision-maker. Any non-purely self-interested decision is treated either as an exception to the rule or as a specific case that still confirms some aspects of the rule. Since the literature has evolved from the economic perspective, understandably, an organized social-contextual paradigm to replace the negotiator as a decision-maker does not exist yet. The consensualistic approach aims to fill this void.

Negotiation as a joint rule-making process

Economists have readily accepted for decades that utility, as a psychological concept for understanding behavior, is not very useful. Samuelson (1938, p.61) wrote “The discrediting of utility as a psychological concept robbed it of its only possible virtue as an explanation of human behaviour in other than a circular sense, revealing

its emptiness as even a construction”, before going on to famously portray the so-called ‘revealed preference’ approach. Since then, utility and preferences are primarily considered to be revealed after behavior has taken place. These notions essentially reflect some type of consistency with regard to individual behavior (Sen, 1977) and do not represent explanations or causes of behavior. In other words, people are considered to prefer something if they consistently choose it. It would be tautological to say that they choose it because they prefer it.

In the case of the ultimatum game, preferences are initially considered to correspond to financial incentives. When people are observed to act inconsistently with this conceptualization of preferences, accommodations have to be made with regard to this simplistic view of behavior. For example, when individuals appear to follow social norms, a social preference for these social norms is assumed (e.g., Charness & Rabin, 2002). Preferences are tailored to the individual after observed behavior and are utilized to construct the economic model of the rational actor. Sen (1977) describes this model of the human actor as a “rational fool”. In terms of social psychology, or psychology in general, preferences (or utility) are poor explanations, not only because they are assumed after behavior, but also because they fail to take substantially into account the social and cultural context. It is important to note that economists never aspired to understand how preferences develop but rather settled for having a benchmark for ‘rational’ behavior.

An entirely different approach to decision-making would be to treat negotiation as a joint rule- or norm- making process, in which the emphasis would be less on preferences, that is, on what people would want to do, and more on what they ought to do. Within such a perspective, social norms would become more central to the study of negotiation than individual interests. In this case social norms are not

treated as social preferences but as cultural constructs or interpersonally constructed rules of interaction (Arvanitis, 2015; Binmore, 2010).

At the heart of every negotiation there is a communicative process (Arvanitis & Karampatzos, 2011; Putnam 2004, 2005), in which participants try to persuade each other and regulate their interaction. Within such a process, arguments may be defended along several communicative dimensions (Habermas, 1985). These include a means-end reasoning that serves participants' interests, theoretical truth (i.e., being correct about the world), subjective truthfulness (i.e., being sincere) and normative rightness (i.e., proposing the right norm). During the communicative process, parties try to validate claim-rights (that is, entitlements that are inextricably connected to the duties of others) along all of these dimensions and agreement, if achieved, will represent agreement along these dimensions (Arvanitis & Karampatzos, 2013). For example, the prospective buyer of a personal computer could argue during negotiation: "I believe that 1000 dollars, which is 10% under market price, is fair and serves everyone's interests." Such a statement can be justified on four separate dimensions: (a) Subjective Truthfulness: Does she actually believe it? (b) Theoretical Truth: Is 1000 dollars truly 10% under market price? (c) Normative Rightness: Is it really fair? (d) Means-end, instrumental rationality, reasoning: Does it serve everyone's interests? Any of these separate issues can be raised by the other side and, if not convincingly defended, will lead to disagreement on the price of 1000\$ for the personal computer, that is, the proposed rule.

Viewed under this perspective, it is easy to discern that the decision-making literature will prioritize the means-end reasoning of serving interests as the basic source of agreement. On the other hand, the recently formulated consensualistic approach to negotiation (Arvanitis, 2015) will emphasize normative rightness instead.

Norms and rules of interaction arguably hold a more central role than interests since negotiating parties do not negotiate their interests or their wants; they negotiate the terms of their interaction. In this approach, the main objective of negotiation is to establish the rules of interaction of the participants and their respective duties and claim-rights. Whereas within the economic perspective, norms are introduced as social rules that people have the preference to follow (Kimbrough & Vostroknutov, 2016), the consensualistic approach emphasizes how people co-determine the rules they (dis)agree on. Agreement is acceptance of commitment, conceptualized as Sen (1977) envisioned it, that is, closely connected to the notion of duty. Although it may be treated as a superior strategy, even when going against calculated self-interest (Nesse, 2001), and as something that should be enforced to serve evolutionary viability (Han, Pereira, Santos, & Lenaerts, 2013), the consensualistic approach does not search for an evolutionary or strategic advantage to commitment; it rather treats it as an inherent element of the intersubjective mechanics of communication. The emphasis is on coordination, co-regulation (Semin & Cacioppo, 2008) and convergence of will (Arvanitis, 2015) rather than a series of self-beneficial or evolutionarily advantageous decisions. Contrary to economics-inspired attempts to incorporate morality or norms in the negotiation process on the basis of strategic or evolutionary benefits, the consensualistic approach contends that the rules, duties and claim-rights can only be created and validated during communication, vis-à-vis negotiating counterparts, and are better conceptualized on an intersubjective, social-contextual level than on a subjective, individual-preference level.

Although such an intersubjective view places emphasis on social-contextual variables, it does not disregard individual-level variables. Interests, preferences, mood or personality traits are an inextricable part of any negotiation. It is different however

to view negotiation as a subjective individual-level decision-making process in which social context and norms play a secondary role than view it as an intersubjective social-contextual rule-making process in which individual variables play a secondary role. The shift in emphasis allows for a richer understanding of negotiation, providing the opportunity for a social psychologist to analyze negotiation on the appropriate level of analysis, that is, the interpersonal and intergroup level (cf. Doise, 1984 about levels of analysis in social psychology).

Although the ultimatum game is not typically conducted within a social context and communication among participants is rarely allowed, it is the only widely researched game that requires the agreement of the parties involved for the allocation of resources. Other well-known games, such as the trust game (Berg, Dickaut, & McCabe, 1995) or the dictator game (Forsythe, Horowitz, Savin, & Sefton, 1994), do not make any allocation contingent on agreement. There are interesting, though less researched, variations such as the anticipation game (Zisis, Di Guida, Han, Kirchsteiger, & Lenaerts, 2015), where trust and implicit negotiation are embedded in the choice of partner rather than in the game itself. Therefore, agreement is more tacit than explicit and only indirectly concerns the final allocation of resources. So long as, above all else, the consensualistic approach emphasizes agreement, the study of negotiation could begin with a simple form of communication that is restricted to making an offer and receiving a simple yes or no response, as in the ultimatum game. However, experiments without verbal communication among participants do not offer real ground for evaluating the consensualistic approach. Research that utilizes a richer social context is more appropriate. If people, on an implicit level, are contemplating justifiable reasons for certain propositions, if they are thinking in terms of rules, claim-rights and duties, these reasons will arguably be communicated when

participants are given the opportunity. This is why we have focused our review on a subset of articles that have utilized the ultimatum game and further included a richer social context, where interpersonal communication and intergroup interaction may bring forth social norms and reasons for their justification. Studies that have focused on the individual and, more specifically, on individual differences, emotions, mood, or brain activity are not incorporated in this review unless they take into account the broader social context.

Communicative action and the scope of the present review

The consensualistic approach views negotiation as a series of communicative actions (Arvanitis, 2015; Arvanitis & Karampatzos 2011; 2013), which should be distinguished from strategic actions. The former refer to actions that are coordinated through reaching understanding and the latter through the exertion of influence (Habermas, 1992). Communicative actions are accompanied by validity claims, as well as the reasons for their acceptance, while strategic actions do not require such acceptance or mutual understanding. Habermas (1992) argues that the smallest units of analysis for reaching understanding consist of an elementary speech act that raises at least one validity claim and the “yes/no” utterance of acceptance/non-acceptance of the claim by the other party. This resembles the structure of the ultimatum game but there is no apparent way to ascertain whether the particular game is a strategic or a communicative procedure. In order to distinguish between the two types of procedures we need to probe deeper to establish their differences.

Strategic acts are exclusively goal-directed, instrumental acts and involve what Habermas (1985) calls the objective world. They are validated on a true/false or effective/non-effective basis, in relation to the plans or interests of the actor. On the other hand, communicative acts may also involve the subjective world (i.e., the

internal world only the individual has access to), and the intersubjective world (i.e., the social world). The former ones are validated on a truthful/untruthful basis and the latter ones on a right/wrong basis. These are different dimensions of rationality and accounts of human behavior, which have not been identified or studied as such within the study of negotiation.

More particularly, such dimensions are not considered aspects of rationality within economics, because economics is exclusively based on the model of instrumentally rational actors. All acts are evaluated according to the value they bring to their actors and any deviations are accounted for in the realm of the same model. In other words, when economists evaluate an act as rational, they are exclusively referring to its effectiveness with regard to individual interests and goals, broadly as they may be defined, even if these incorporate social norms or morality. Psychology too works within a similar model in the study of behavioral decision-making. At the same time, it has a broader view of human behavior and numerous sub-disciplines, such as discursive psychology, that focus on language and behavior (cf. Arvanitis & Karampatzos, 2013). However, it has yet to offer a different model of rationality.

In order to examine whether the ultimatum game can be approached under the communicatively rational perspective that is advocated by the consensualistic approach to negotiation, we need to find evidence of subjective truthfulness and normative rightness in guiding offers and responses. In other words, we need to find evidence for validity claims concerning the truthful/non-truthful and right/wrong dimensions, as well as reasons for their acceptance. This is challenging while focusing on the ultimatum game, since explicit communication is usually absent. For example, simply witnessing a higher offer is not necessarily evidence of an actor being motivated by normative rightness since it can equally stand as evidence for

strategic actions, that is, evidence of the actor not trying to be fair but simply trying to avoid being rejected and missing out on the resources. Carefully constructed research designs may test for the presence of strategic action, finding that rewarding skillful game partners does not differ between ultimatum and dictator games and that fairness in this case is the prevailing reason for the offers (Ruffle, 1998). On the other hand, there is generally a difference in the level of offers between ultimatum and dictator games that points to reasons besides fairness for the offers (Forsythe, Horowitz, Savin, & Sefton, 1994). It is, however, easier to ascertain the reasons behind an offer or a response if the ultimatum game involves communication. Therefore, our review on an interpersonal level will focus only on studies that include communication. At the same time, these are the only types of studies that can be evaluated on the truthful/non-truthful dimension, that is, on the level of subjective truthfulness, since they involve the externalization of the internal world of the actor. On this level, games that allow for the possibility of deception are ideally suited to study subjective truthfulness.

In terms of normative rightness, we also decided to focus on intergroup ultimatum games, where there is not a proximal instrumentally rational reason to reject offers coming from an outgroup member or a similar reason to offer a larger amount to an ingroup member. Habermas (1996) talks about value considerations emanating from situations in which individuals emphasize a collective “we”, in a way quite familiar to the established social identity theory (Tajfel, & Turner, 2001). He explains that when the collective self becomes salient, “ought” and duties replace subjective ends and preferences. Even without communication, intergroup ultimatum games could offer a chance to test this assertion, and establish that normative

rightness considerations become more prevalent as negotiation moves toward the collective level (Arvanitis, 2015)

We therefore review empirical studies that have placed the ultimatum game within a social context, allowing for interpersonal communication or intergroup interaction, as these are classic social-contextual topics that would allow us to interpret ultimatum game findings under the interpretive lens of the consensualistic approach to negotiation. Furthermore, a meta-analytic approach was utilized in order to provide an overall quantitative estimate of the proposed effect as it has been reported in the literature. While doing so, meta-analysis does not merely provide a sum of individual studies' effects, but rather weighs the relative contribution of each study on the basis of its precision. Importantly, meta-analytic techniques allow researchers to estimate the presence of heterogeneity between published findings. This is not only interesting in its own right, but it further allows for a more elaborate estimation of the overall effect.

Findings will be presented mainly according to the workings of human communication and the ways in which social norms might guide negotiation toward agreement. Our goal is to offer an alternative way to approach the ultimatum game and, through it, negotiation as a whole.

Methodology

Search strategy

In order to identify the studies included in our review, we conducted a search at three pertinent online databases (PsychInfo, EconLit, Scopus) with the search term "ultimatum game" under "all fields". The article search ended in March 2017. After removal of duplicates, we identified 1010 papers, 663 of which were empirical peer-reviewed papers. Details of the study-search procedure can be found in Figure 1.

Arvanitis, Papadatou-Pastou and Hantzi (2017) reported the results of the systematic review of the subsample of papers that used a sample of children ($n = 35$ papers). We will briefly outline some of the basic results of this study below, but we will focus on studies that have used adult participants who are placed within a social context, especially interpersonal and intergroup. The systematic reviews and meta-analyses were conducted following the guidelines of the PRISMA statement (Moher, Liberati, Tetzlaff, Altman, & Group, 2009).

Eligibility criteria

In order for studies to be included in the systematic review, the following criteria had to be met:

1. Participants: To be considered for inclusion, studies had to have employed adults as participants.
2. Design: Studies had to have used some version of the ultimatum game placed within a social context, namely contexts that include interpersonal communication and intergroup interaction.
3. Publication language: Only studies written in English were included.

In order to be further eligible for inclusion in the meta-analyses, studies had to report either (a) offers proposed to ingroup versus outgroup members and/or (b) acceptance rates for offers coming from an ingroup versus an outgroup member.

Statistical analysis

Two meta-analyses were conducted to test for the presence of a general ingroup favoritism effect. In the first meta-analysis the offers proposed to ingroup versus outgroup members were compared, whereas in the second meta-analysis, the acceptance rates for proposals coming from either an ingroup or an outgroup member were compared. Some of the studies included in the systematic review did not use

comparable designs (which would allow means and standard deviations for each group to be extracted), making inclusion in the meta-analyses feasible for only a subset of studies. In the case of Mendoza, Lane, and Amodio (2014), where means and standard deviations could be calculated but were not reported for each group, the authors kindly provided the data. It is not unusual in the systematic review and meta-analysis literature for considerably fewer studies to be included in the meta-analyses that follow systematic reviews, than in the reviews themselves (e.g., Ntolka & Papadatou-Pastou, 2017).

The software package Comprehensive Meta-analysis (v.2; Borenstein, Hedges, Higgins, & Rothstein, 2005) was used for data analysis. The standardized difference in mean offers (meta-analysis 1) or mean acceptance rates (meta-analysis 2) between the two groups studied (ingroup and outgroup) was used as the effect size measure. Firstly, an effect size was calculated for each data set independently with its corresponding 95% confidence interval. Then, an overall estimation of the effect size across studies was calculated and weighted according to sample size, using a fixed-effects model along with a test for the overall effect (Z statistic). The effect sizes were tested to see if they come from a single population using two tests of homogeneity, the Q statistic and the I^2 index. In the case of significant heterogeneity between the studies, the overall effect size was calculated again using a random effects model. This meta-analytic procedure is known as the “conditionally random-effects” procedure (Hedges & Vevea, 1998).

Developmental considerations

A systematic review of 35 papers, Arvanitis et al. (2017), showed that ultimatum game offers increase with age. A meta-analysis of 22 data sets from five of those papers (Harbaugh, Krause, & Vesterlund, 2007; Kogut, 2012; Overgaauw, Guroglu,

& Crone, 2012; Takagishi et al., 2014; Takezawa, Gummerum, & Keller, 2006) quantified this relationship using meta-regression (Figure 2). More specifically, meta-regression on the age of the participants revealed a significant linear trend of the magnitude of the ultimatum game offers, $Q(1) = 4.04, p = .044$; the best-fitting linear relation between mean offer and age was $offer = 0,07(age) + 3,26$. This small effect of age on offers could be related to Theory of Mind mechanisms (Takagishi, Kameshima, Schug, Koizumi, & Yamagishi, 2010) or general perspective-taking (Guroglu, van den Bos, & Crone, 2009; Takagishi et al., 2014) and is not only limited to the mere evaluation of outcomes. In fact, evaluation of intentions can be equally important (Sutter, 2007), showing that fairness regarding the final allocation of resources may not be the only factor involved. As the development of the brain shifts more attention to others relative to the self, evaluation of fairness norms seems to have an increasing effect on behavior within the ultimatum game (Crone, 2013). The systematic review showed further that older children feel more content when they offer more (Kogut, 2012) and tend to do so more when participating in groups (Takezawa et al., 2006). A caveat should be noted here: higher offers do not necessarily reflect the intentions of people to be fair. They could be strategically motivated, meaning that they could result from the desire to gain more by avoiding rejection from others. Irrespective of individual motivation, the social norm of equity becomes salient and influences the behavior of participants, even from a very young age. Social-contextual factors, on an interpersonal or group level, should play a role in this process and we will focus on them from now on.

Results

Interpersonal communication

Study selection. Our review of an interpersonal social context focuses only on empirical studies where some type of communication took place, usually in the form of one-side messages from one of the participants. The general study selection process is described in Figure 1. The 663 abstracts of peer-reviewed research papers were scanned for the use of interpersonal communication in the design of the experiments. We found research that focused on effects of communication on responder and proposer behavior ($n = 12$ papers) and research that addressed the issue of deception, in experiments where the proposer could withhold information from the responder, for example, about the size of the pie ($n = 13$ papers). We made a distinction between these two types of studies because, in the first group, the behavior of participants primarily dealt with what Habermas (1985) called normative rightness or, in other words, with fairness, while, in the latter group, behavior was influenced by what he called subjective truthfulness or, put very simply, with sincerity. These two dimensions, although both part of the communicative process, have not been separated as two distinct areas of agreement, or sources of disagreement, in the ultimatum game literature, although they could pose different reasons for why parties eventually reach agreement or not. The ultimatum games employed in the selected papers were of different design, including the design of the mini-ultimatum game which only allows discrete offers and a variation called the taxi-cab game (Anbarci, Feltovich, & Gürdal, 2015), had different payoff structures and were basically multi-round games, in some cases with the same partner (e.g., Boles, Croson, & Murnighan, 2000; Croson, Boles, & Murnighan, 2003). A few were single-shot games (e.g., De Cremer, Van Dijk, & Pillutla, 2010; Greiner, Caravella, & Roth, 2014; Hack & Lammers, 2008; Lusk & Hudson, 2004; Van Swol & Braun, 2014).

Review. Research on the effect of communication on ultimatum game behavior focuses on different aspects of communication, such as pre-play or post-play communication, coming either from the proposer or the responder. A general finding is that pre-play communication makes responders more demanding (Zultan, 2012) and increases the level of offers, more so in face-to-face interaction (Greiner, Caravella, & Roth, 2014). In cases where responders are able to express their anger or disapproval alongside their decision, they accept lower offers, since they are able to justify their acceptance decision and show that they are unhappy with an inferior outcome (Xiao & Houser, 2005). The same tendency to accept unfair offers is observed with post-decision messages (Georgantzís, Parasyri, & Tsagarakis, 2016). When the intentions of the proposers are uncertain, responders find proposers more trustworthy if their offers are accompanied by an apology (De Cremer, Van Dijk, & Pillutla, 2010) and they find outcomes more fair if the offers are accompanied with sensitive messages (Hack & Lammers, 2008). A communicative setting may help in creating a trust climate in favor of the proposer in general (Pfaff & Velez, 2012).

Proposers too are affected by communication. ‘Cheap talk’ instructions explaining how people fail to be rational in the ultimatum game result in lower offers (Lusk & Hudson, 2004). The ability to send messages along with offers increases their payoffs since they are able to justify their position, make lower offers and receive lower rejection (Andersson et al., 2010). The opportunity for responders to make an initial request results in lower offers by the proposers, seemingly because responders tend to bluff and overstate the amount they would accept (Rankin, 2003). On the other hand, in the laboratory, the possibility of subsequent feedback by the responders is associated with higher offers (Johnson, 2016). The opportunity for responders to comment on their offer to a third party, or, in other words, the

opportunity to gossip, creates image concerns for the proposers and increases the level of their offers as well (Samahita, 2016).

Truthfulness, alongside fairness, plays an important role in communication, as it should already be evident from the discussion of bluffing and uncertainty above and the way in which both may undermine the positions of participants. In general, truthful messages are more likely to be accepted (Anbarci, Feltovich, & Gürdal, 2015) and participants exhibit a stronger truth bias for friends (Van Swol, Braun, & Malhotra, 2012; Van Swol, Malhotra, & Braun, 2012). However, it is not easy to spot deception and it is more difficult in face-to-face than in computer-mediated communication (Van Swol & Braun, 2014; Van Swol, Braun, & Kolb, 2015). People in a position to lie may lie, but they will not necessarily earn more (Besancenot, Dubart, & Vranceanu, 2013). In the long term, revealed proposer misrepresentations increase offers as well as rejections (Croson, Boles, & Murnighan, 2003).

People will avoid deception if they have alternatives (Koning, Steinel, Beest, & Dijk, 2011). They will try to deliver on their promises (Banerjee, Chakravarty, & Ghosh, 2016) and if they accompany offers with a promise of truthfulness, they are less likely to be deceptive (Kriss, Nagel, & Weber, 2013). At the same time, they may even try to avoid situations that will enable them to deceive others (Shalvi, Handgraaf, & De Dreu, 2011) or to become accomplices in such a process (Sutan & Vranceanu, 2016). Still, if they have the chance to deceive under the knowledge that none of their private information will be revealed, they may still do so (Boles, Croson, & Murnighan, 2000).

Discussion. The literature on interpersonal communication is diverse. Experiments often focus on either pre-play or post-play communication, usually one-sided. Pre-play communication presents an opportunity for each party to make their

case. Proposers will generally favor instrumental rationality considerations while responders will favor fairness. The expectation for post-play communication coming from the responders may influence the salience of social norms for the proposers and result in higher offers. Post-play communication for responders gives the opportunity to express their feelings for unfair offers, while still accepting them. Messages are typically used to justify offers or corresponding responses. Self-interest and fairness become salient through the justifications offered or required under different conditions of communication processes and influence in turn the level of offers as well as the rejection rates. What is considered 'cheap talk' by instrumental rationality scientists has an effect on the possibility of agreement depending on the opportunity or the requirement of the participants to justify their positions or their behavior. Some researchers have ceased entirely to treat communication as 'cheap talk' and have started systematic research (Bicchieri & Chavez, 2010) on the way in which communication makes social norms salient. Still, research primarily points to the fact that agreement significantly deviates from the economic rationality equilibrium without necessarily offering a communicative rationality counter-paradigm.

Within such a paradigm, truthfulness should prove extremely important. It seems people prefer not to deceive but will do so, especially when the other party has no way of finding out. In conjunction with the consideration of fairness norms, people will assign importance to the truthfulness of others. Arguments coming from untrustworthy people will not be heard and will undermine agreement. However, the research reported above shows that it is not easy to spot deception. The channel of communication, the relative power of parties, and the information known to each party have an effect on the evaluation of deception and the prospect of agreement.

Parallel to the salience of norms, the consensualistic approach to negotiation equally focuses on perceptions of subjective truthfulness and their impact on communication.

Intergroup context

Study selection. Tajfel (1970, p.102) wrote: “To behave socially is a complex business”. His minimal group experiments showed that self-interest is not the sole guide of social behavior, but ‘groupness’, as he called it, and fairness also play a crucial, yet complicated, role. On an interpersonal level, we focused more on fairness as a normative desideratum of negotiation. Our review of the intergroup context includes empirical papers of the ultimatum game that include intergroup differentiation ($n = 24$ papers) in order to assess the way in which group membership impacts negotiation. The general study selection process is described in Figure 1. The 663 abstracts of peer-reviewed research papers were scanned for ingroup-outgroup-intergroup distinctions. Sixteen papers were found focusing strictly on intergroup differentiation and eight papers focused more on cultural context. Our emphasis is on intergroup distinctions and less on cross-cultural differences that have been the object of another meta-analysis (Oosterbeek, Sloof, & Van De Kuilen, 2004). The ultimatum games employed in the papers were of variable design, either focusing on responder or on proposer behavior, all multi-round.

Review. People generally tend to conform to ingroup norms and are influenced by other ingroup members in the ultimatum game, and this is even reflected in their brain activity (Wei, Zhao, & Zheng, 2013). If they play a group ultimatum game with outgroups, they behave more competitively than with ingroups (Robert & Carnevale, 1997) and, as individuals, they tend to discriminate against the outgroup proportionally to the level of social distance with the outgroup (Diekhof, Wittmer, & Reimers, 2014). A ‘groupness’ effect in ultimatum games has been

observed in findings of racial bias against Blacks (Kubota, Li, Bar-David, Banaji, & Phelps, 2013), in the increased acceptance of offers from female-stereotyped proposers (Fabre, Causse, Pesciarelli, & Cacciari, 2015), in expecting offers to address Benevolent Sexism expectations that ‘man should provide’ (Silvestre, Sarlet, Huart, & Dardenne, 2016) or within the violent environment of the Israeli-Palestinian conflict (Schubert & Lambsdorff, 2014).

However, Messick, Moore, and Bazerman (1997) found that when there are more complex calculations involved, ingroup favoritism, as well as self-interest, may play a lesser role, even not statistically significant, than the ‘divide equally heuristic’. At the same time, we would like to point out that the term ‘divide equally heuristic’ is used only by decision theorists to denote a concern for fairness and underestimates the importance of norm considerations when self-interest is at stake. The question “Where did subjects go wrong?” (Messick, Moore, & Bazerman, 1997, p. 99) shows eloquently why decision theorists are not able to incorporate successfully concerns for fairness in their analysis, as well as evaluation of ingroup norms.

An important question for the consensualistic view of negotiation is how perceptions of fairness interact with ingroup favoritism. Fairness evaluation appears to be strongly modulated by group membership, in the direction of favoring the ingroup (Y. Wang et al., 2017). Brune et al. (2012) found that ingroup hypnotic suggestion increases tolerance of unfairness. On the other hand, Valenzuela and Srivastava (2012) demonstrated that, under incomplete information conditions, the ingroup bias for accepting lower offers is attenuated, illustrating that people will not tolerate being taken advantage of by ingroup members when they are vulnerable. Moreover, unfairness that is intentional is perceived more negatively when coming from ingroup members (L. Wang, Zheng, Meng, Lu, & Ma, 2016). A shared social

identity may increase demandingness (McLeish & Oxoby, 2011) and ingroup members will be punished more harshly when they make marginally unfair offers (Mendoza, Lane, & Amodio, 2014). The study of these complex interactions among self-interest, fairness and ingroup favoritism might shed more light on why people with elevated secondary psychopathic traits show exaggerated intergroup bias in the ultimatum game (Gillespie, Mitchell, Johnson, Dawson, & Beech, 2013).

On a cultural level, groupness takes different forms. Fershtman and Gneezy (2001) showed that Eastern Jews receive greater monetary payoffs than Western Jews, arguably because they are perceived to react more harshly to unfairness. Wu, Zhang, Zhang, and Tian (2015) found that, whereas Chinese participants made greater offers to their friends compared to US participants, the effect was diminished after American cultural priming. Differences on ultimatum game offers and rejection rates have been also found between UK and Malaysia (Chuah, Hoffmann, Jones, & Williams, 2007, 2009), Los Angeles and Machiguenga (Henrich, 2000), Korea and Germany (Horak, 2015, 2016) and among fifteen small-scale societies that show that self-interest does not sufficiently explain behavior in the ultimatum game (Henrich et al., 2005). Cross-cultural research has informed how virtual characters in an ultimatum game should be constructed, going beyond the utility-maximizing paradigm and showing considerable variation among different cultures (Nouri, Georgila, & Traum, 2014).

Meta-analyses. The first meta-analysis was a meta-analysis of four studies (Chuah et al., 2009; McLeish & Oxoby, 2011; Messick et al., 1997; Robert & Carnevale, 1997) comprising five data sets on proposer offers. Findings show that proposers offer higher amounts toward ingroup members compared to outgroup members (see Table 1; $d = .25$, 95% CI = .07, 0.43, $Z = 2.76$, $p = .006$; heterogeneity

between studies was not significant, $Q(4) = 9.02$, $I^2 = 56.64$, $p = .06$). As an illustration, if proposers would give a mean of 5\$ to outgroup members (with a standard deviation of 1), they would give a mean of 5.25\$ to ingroup members (with the same standard deviation); if in both cases the standard deviation equaled 2, then a mean of 5.5\$ would be given to ingroup members.

The second meta-analysis was a meta-analysis of six articles (Brune et al., 2012; Diekhof et al., 2014; Kubota et al., 2013; Mendoza, Lane, & Amodio (2014); L. Wang et al., 2016; Y. Wang et al., 2017), comprising seven data-sets on responder acceptance rates. Heterogeneity between the studies was found to be significant, $Q(6) = 31.12$, $p < .01$, $I^2 = 80.71\%$, which means that the effect sizes included in the meta-analysis do not come from a single population. This heterogeneity could be attributed to methodological differences and/or differences in the participant characteristics in the seven data sets. For example, Kubota et al. (2013) included a sample of white participants who played the UG supposedly against black participants, whereas for the purposes of the Y. Wang et al. (2017) study a “red” group played against a “blue” group. These correspond to natural and minimal groups, respectively. However, it should be stressed that these findings should be interpreted with caution, as the estimated heterogeneity might not be stable due to the small number of data sets included. As the effect sizes were found to not come from a single population, a random effects model was then employed, which assumes that the data are drawn from a distribution of populations. Findings show that responders are more prone to accept offers coming from ingroup members (see Table 2, Cohen $d = .34$, 95% $CI = .05, .63$, $Z = 2.33$, $p = .02$). As an illustration, if responders were to accept offers with a mean acceptance rate of 40% from ingroup members (with a standard deviation of 10%), then they would accept offers with a mean acceptance rate of 36.6% from

outgroup members. If the standard deviation were 20%, then they would accept offers from outgroup members with a mean acceptance rate of 33.2%.

Discussion. The meta-analyses portrayed above showed that there is ingroup favoritism in the ultimatum game, with lower offers proposed to outgroup compared to ingroup members, as well as lower offers accepted when made by ingroup compared to outgroup members. In addition, the review revealed that people will tend to punish transgression from ingroup norms more harshly for ingroup than outgroup members. On the one hand there appears to be a tendency to favor ingroup members relative to outgroup members but, within the ingroup, equality is expected and unfairness may be punished harshly under conditions of vulnerability or marginally unfair offers. Fairness and self-interest seem to take on different meanings depending on group membership but also depending on cultural identity. The ultimatum game is not guided by individual preferences alone and adding fairness norms does not tell the whole story; the group and cultural context provide important focal points that are taken into account in the level of offers and rejection rates. The intergroup context is invariably a source of rules that parties can use in order to come to an agreement.

General discussion

We have reviewed research on the ultimatum game that employs a richer social context in order to discuss how self-interest, normative rightness, subjective truthfulness, and groupness (which can be classified under normative rightness) may interact to produce or deter agreement. Other research on the ultimatum game discusses a variety of important intraindividual areas such as brain activity (e.g., Civai, Crescentini, Rustichini, & Rumiati, 2012; Haruno, Kimura, & Frith, 2014), ego depletion (e.g., Halali, Bereby-Meyer, & Ockenfels, 2013), personality (e.g., Ding, Ji,

Chen, & Hitchman, 2014; Hilbig & Zettler, 2009), mood (e.g., Forgas & Tan, 2013; Harle & Sanfey, 2007), and emotions (e.g., Ketelaar & Tung Au, 2003; Kwong, Wong, & Tang, 2013; Liu, Chai, & Yu, 2016), which interact with the above. While acknowledging the importance of these intraindividual variables, we focus on social-contextual dimensions, as a departure point for the analysis of negotiation.

Overall, findings from the systematic reviews and meta-analyses presented above, clearly illustrate the limitations of the rational economic model. Self-interest was not found to drive negotiation in an ultimatum game scenario, as offers and rejections depart from economists' predictions. This is not something new for decision-making theorists who continue to relax the assumptions of the instrumental rationality paradigm by including behavior that evidently lies beyond its scope. We go even further to suggest that an entirely new paradigm should be proposed.

We hereby propose to treat negotiation as a joint, communicative rule-making process, as laid out by the consensualistic approach to negotiation (Arvanitis, 2015) and in line with the communicative rationality of Habermas (1985). Viewed in this way, negotiating parties will try to find justifiable rules for their interaction or, in other words, make claims and try to validate them through agreement. It is the prospect of agreement that drives negotiation. As showcased in the above review, communication, usually studied in the form of one-way messaging, indeed takes the form of justifying positions and behavior. Proposers will justify lower offers if they can communicate their position and, at the same time, will make higher offers if they feel they will have to justify their position to the responders afterwards. Responders will justify their rejection, or even their acceptance on the basis of self-interest, so long as they can communicate their disappointment or anger for the unfair proposals.

Communication in a simple ultimatum game should arguably revolve around two basic rules: 50-50 splits and extreme self-interested outcomes. Even without explicit communication, research shows that 50-50 splits may seem a strong anchor but, still, this anchor is weakened drastically if such precise equal splits are not possible (Guth, Huck, & Muller, 2001). This finding shows that, although equality can always be thought of as a valid anchor, it is substantially undermined when pure equality is not possible. On the other hand, if recipients are completely powerless, offers increase, arguably due to the proposers' experience of social responsibility (Handgraaf, Van Dijk, Vermunt, Wilke, & De Dreu, 2008). Therefore, even when communication is rudimentary and implicit, outcomes are diverse. We may hypothesize that the more parties can communicate and the richer the context becomes, the more diverse the rules that may be brought into the process. We have discussed, for example, how groupness poses a justifiable allocation rule and the intricacies involved in the application of group norms as well as the influence of the broader cultural context. It is a matter for future research to study how communication indeed makes these different types of rules salient.

At the same time, messages are evaluated not only on the level of norms that become salient (the level of normative rightness), but on the level of truthfulness as well. Bluffs are punished. Uncertainty regarding intentions requires reassurance. Truthful arguments are more likely to be accepted and people generally avoid deception if they can. Truthfulness, sincerity and trust seem to have an effect on agreement that is distinct from the observance of a fair norm or, indeed, any norm that may become salient during the negotiation process. In this sense, subjective truthfulness should be evaluated distinctly from normative rightness as ground for justifying rules for any type of interaction.

Importantly, the rules that become salient do not impose themselves on the procedure. As mentioned already, the consensualistic approach would emphasize how people co-determine the rules they (dis)agree on. Implicitly or explicitly, parties in the ultimatum game draw from the social context or their individual preferences, but they are not merely following norms; according to the consensualistic approach, they are co-authoring the rules of their interaction. Truthfulness and reference to appropriate rules is important for justifying claims toward one another and agreement is the mechanism for their validation. Indeed, the whole procedure is less about wants and more about what each party is able to justifiably claim from the other (Arvanitis & Karampatzos, 2013). This is clearly illustrated by the fact that wants would only be ideally satisfied if each player reserved the whole amount for themselves.

Research on the ultimatum game has allowed us so far to examine normative rightness and subjective truthfulness, but arguments could include truth propositions (for example, the exact cost for building the house that is under negotiation) or aesthetic propositions (for example, the beauty of a painting that is under negotiation). All types of arguments could affect the possibility of agreement.

If we view the ultimatum game and every type of negotiation less as a subjective pursuit of interests and more as an intersubjective rule-making process, the more we will put these pieces of research together and advance the social-psychological study of negotiation. The question of whether people are fair or selfish is not as pertinent as how they coordinate on allocation rules, that is, how they come to an agreement. Research on negotiation can go beyond decision-making if it focuses on communication -which may be implicit in the simplest form of the ultimatum game or explicit as more aspects of communication are brought into the process- and if it treats every proposal as a justifiable claim that can only be validated by the

agreement of the other side(s). Justification can occur on different levels and agreement could validate different types of arguments. People are rational when they have reasons for accepting an allocation rule, reasons that do not necessarily stand the test of economic instrumental rationality but stand the test of communicative rationality. It is toward each other that they justify allocation rules, not toward themselves alone. The process of coordination on the basis of justifiable reasons is therefore at the center of negotiation processes. As we examine existing ultimatum game studies, it is not easy to ascertain how ingroup norms, 50-50 splits, sincerity and self-interest point to different allocation rules which become the main pillars of the rule-making process that we have argued negotiation to be. In order to better understand this process, we need to broaden the scope of the ultimatum game so that players communicate proposed allocation rules, justify them and listen to counterarguments. The ultimatum game literature is so diverse in the research of implicit (that is, without communication) bargaining that we would expect a surge of interesting findings as more aspects of communication are incorporated in future studies.

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Figure 1 Flow diagram for the search and inclusion criteria for studies in the systematic reviews and meta-analyses.

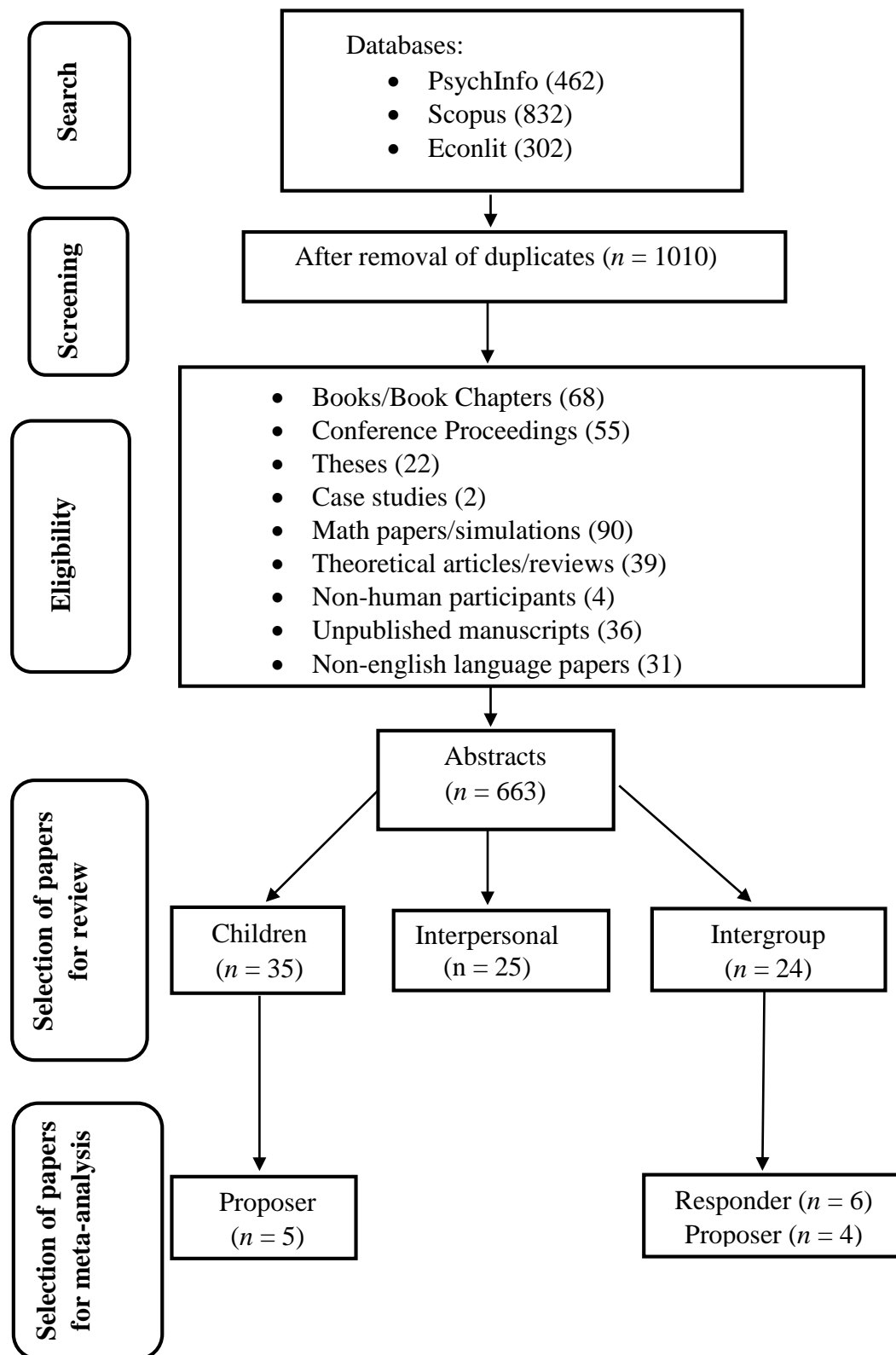


Figure 2 Regression of age on mean offer, adapted from Arvanitis et al. (2017)

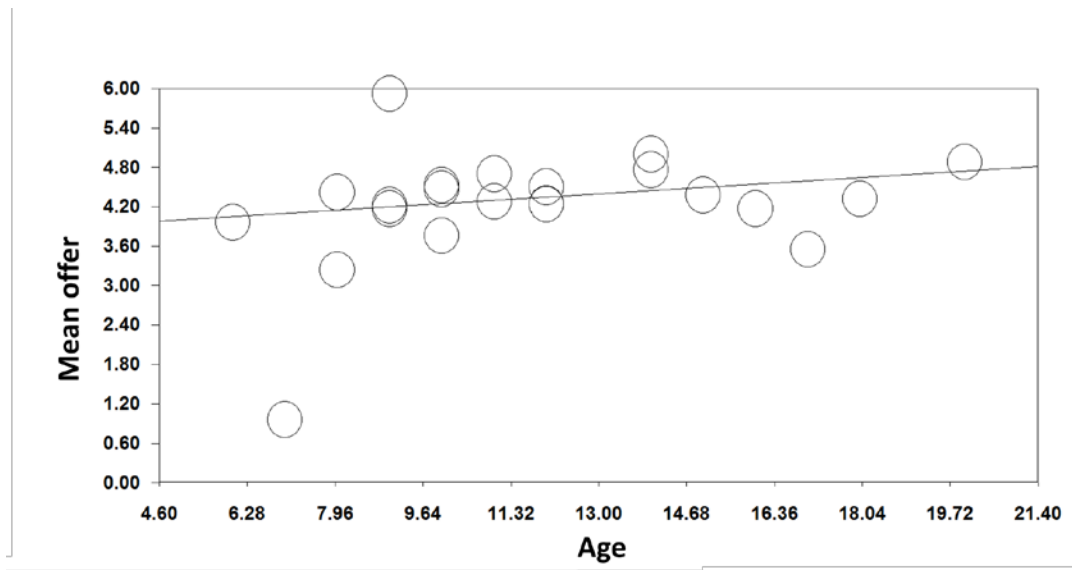


Table 1

Ingroup bias on ultimatum game offers

Study	Sample Size	Ingroup VS outgroup	Cohen's d	Notes
Chuah, Hoffmann, Jones, & Williams, 2009	98	Malaysian sample - Malaysian VS UK subjects	0.452	Chuah at al. (2007) was not included because it used the same sample
Chuah, Hoffmann, Jones, & Williams, 2009	85	UK sample - UK VS Malaysian subjects	-0.078	Chuah at al. (2007) was not included because it used the same sample
McLeish & Oxoby, 2011	84	Priming interaction with fellow students VS priming interaction with non-fellow students	0.620	A no-prime condition was not included in the analysis because there was no way to ascertain possible ingroup or outgroup perceptions
Messick, Moore, & Bazerman, 1997	78	Daytime VS evening class students	0.263	Experiment 1, disjunctive and conjunctive conditions were aggregated for analysis

Robert & Carnevale, 1997	108	Fellow students VS students from other university	-0.029	Experiment 1, the 'individual' and 'group' conditions were aggregated for analysis
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Table 2

Ingroup bias on ultimatum game acceptance of offers from members of ingroup VS outgroup

Study	Sample Size	Ingroup VS outgroup	Cohen's d	Notes
Brune et al., 2012	24	Peers VS non-peers	0.531	Different offers of within conditions were aggregated for analysis, hypnosis conditions were excluded
Diekhof, Wittmer, & Reimers, 2014	50	Fans of own soccer team VS fans of other team	0.495	Different types of offers of within conditions were aggregated for analysis, and compared to fans of 'neutral' team

Kubota, Li, Bar-David, Banaji, & Phelps, 2013	36	Sample of non-black participants – white VS black proposers	0.356	The authors also report results for the subset of only white participants
Mendoza, Lane, & Amodio (2014) – Study 1	35	Sample of white participants – white VS black proposers	-0.169	Data were provided by the authors
Mendoza, Lane, & Amodio (2014) – Study 2	115	Fellow students VS students from other university	-0.086	Data were provided by the authors
L. Wang, Zheng, Meng, Lu, & Ma, 2016	28	Fans of same basketball team VS fans of different team	0.616	Neuroscientific study, different conditions were aggregated for analysis
Y. Wang et al., 2017	16	‘Red’ group VS ‘blue’ group	0.913	Neuroscientific study
