

The Power of Asking: How Communication Affects Selfishness, Empathy, and Altruism*

James Andreoni¹ Justin M. Rao²

¹Department of Economics, University of California, San Diego

²Yahoo! Research Labs, Santa Clara, CA

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Abstract

To understand the “pure” incentives of altruism, economic laboratory research on humans almost always forbids communication between subjects. In reality, however, altruism usually requires interaction between givers and receivers, which clearly must influence choices. Charities, for example, speak of the “power of asking.” Indeed, evolutionary theories of altruism are built on human sociality. We experimentally examine communication in which one subject allocates \$10 between herself and a receiver, and systematically altered who in the pair could speak. We found that any time the recipient spoke, giving increased – asking is powerful. But when only allocators could speak, choices were significantly more selfish than any other condition. When empathy was heightened by putting allocators “in the receivers shoes,” altruism appeared as if recipients had been able to ask, even when they were silent. We conclude that communication dramatically influences altruistic behavior, and appears to largely work by heightening empathy.

1 Introduction

Laboratory experiments on altruism have almost exclusively studied subjects in isolation from social interaction in order to protect anonymity and identify “pure” incentives to give. Yet in the real world giving occurs in the context of a social interaction between giver and receiver and the incentives to give are affected by the social factors surrounding this interaction. A common finding is that most subjects exhibit significant altruism and inequity aversion (Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000). Recent work has linked these preferences to brain activity (in areas associated with rewards) arguing in favor of “hardwired egalitarianism” (Tricomi et al., 2010). However, in the United States and other industrialized countries there is vast inequality in consumption, while charitable giving is only 1-2% of income (Andreoni, 2006). How can we reconcile a taste for equality with behavior that indicates people generally tolerate a great deal of inequality in their daily lives? In this paper we argue that while humans do have a strong capacity to *behave* altruistically, selfishness typically predominates. Furthermore, social cues have evolved so that altruism is not expressed indiscriminately, but rather is likely to be expressed when it is instrumental in serving other selfish (or imperfectly altruistic) ends.

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To test this hypothesis, we use a subtle manipulation of a single social factor: verbal communication. Communication is a natural social cue because it forms the backbone of the interaction between giver and receiver. Indeed a leading theory on the origins of verbal communication is that it arose out of gestural communication to facilitate mutually beneficial coordinative acts (Grice, 1957; Tomasello, 2008). Furthermore, verbal communication typically entails recursive belief formation about the subject matter and language conventions. In Experiment 1 of our study, we used the Dictator Game (DG) and systematically altered who in the pair (one, both and the order) could send a message. We find that in the condition in which only the allocator could speak, only 6% of the endowment was donated, which was significantly lower than the no-communication baseline of 15%. This is the condition in which roles were most asymmetric in the social interaction. In stark contrast, anytime the recipient spoke, at least 24% of the endowment was passed — asking is indeed powerful. Interestingly, giving was highest in the conditions that involved two-way communication. In these conditions 30% of the endowment was passed on average, even when the allocator was first to speak.

To help understand verbal expression and motivations, third-party reviewers performed textual analysis. We find that content of the messages from allocators significantly depended on the presence of an “ask.” For instance, fairness was significantly more likely to be spoken about in the presence of an ask, whereas luck was significantly less likely. Interestingly, the content did not differ based on whether the allocator was responding directly to an ask, or sending a message knowing they would receive a reply before they made their final allocation decision. In the latter condition allocators did a good job of “anticipating the ask” (the modal ask focused on fairness and equal division) and tailored their message appropriately. Conversely, in the one-way communication condition in which only allocators spoke, messages were one-sixth as likely to mention fairness and typically offered an apology.

The results of Experiment 1 are stark. When only the allocator could speak, he typically was very selfish and issued a hollow apology, but the apologetic “blocking mechanism” was not employed in the presence of an ask; in this case allocators’ messages displayed more of an understanding of the other’s position. This finding, along with recent findings in the neuroeconomics literature linking areas of the brain associated with communication and social contexts with empathic concern (De Vignemont and Singer, 2006; Decety and Jackson, 2006; Moll et al., 2006; Hare et al., 2010) led us to hypothesize that communication from a recipient facilitates altruism through feelings of empathy. In Experiment 2 empathy was heightened by putting allocators “in the receivers shoes.” Experiment 2 used modified version of the two conditions involving one-way communication in Experiment 1. Before roles were determined, all subjects filled out a decision form for each role. Then roles were randomly determined and unused decision forms were set aside. In the condition in which only the allocator could speak, the allocations and verbal content appeared as if recipients had been able to ask. Making choices from the position of both roles and being subjected to a verbal request led to nearly identical pass distributions. Our interpretation is that asking leads the allocator to actively consider and identify with the role of the recipient; we call this feeling “empathy.”¹ However, there are limits in terms of the associated effects on giving. In both experiments, requests for more than

¹In a formal model, one could define empathy as inversely proportional to the variance of one’s belief about another’s expectations.

equal division (“selfish requests”) lead to average pass levels significantly below the baseline.²

There is considerable evidence that feelings of empathy are strongly connected to altruistic and pro-social behavior (Batson et al., 1988; Batson, 2002; De Vignemont and Singer, 2006; Preston and de Waal, 2002). The “empathy-altruism hypothesis” posits that feelings of empathy are the primary explanation for altruistic acts for which the agent does not expect to receive compensating material benefits through reciprocity or the absence of sanctions. Laboratory experiments have found that altruistic behavior is promoted through the reduction of social distance (Roth, 1995; Hoffman et al., 1996; Bohnet and Frey, 1999) and making potential victims of selfishness more identifiable (Schelling, 1968; Small and Loewenstein, 2003).³ However, recent work has argued that selfish concerns such as guilt aversion (Charness and Dufwenberg, 2006; Battigalli and Dufwenberg, 2007) and self-image maintenance through self-signaling (Bodner and Pr-elec, 2003) and self-deception (Dana et al., 2007) can help explain seemingly altruistic behavior. Although the idea has not received explicit attention in the literature, it indeed it may be the case that empathy operates through these channels. For example, it may raise the cost of self-deception.⁴ In Section 4 we discuss this possibility.

Given the economic and social importance of altruistic behavior, several theories have been proposed to explain the origins and evolution of altruism and cooperation in humans. Leading theories include kin selection (Hamilton, 1964), reciprocity (Nowak and Sigmund, 2005; Trivers, 1971) and norm adherence through sanctions (Gurerk et al., 2006; Fehr and Gächter, 2002; De Quervain et al., 2004). These theories provide a sound theoretical backbone for the existence of altruistic behavior in the human psychological composition and can help explain why people are often generous in situations in which the conditions of the theories are not met (e.g. acts of altruism towards non-kin, in the absence of reciprocity/sanctions or one-time gifts to strangers). However, they rely in two important ways on the fact that humans are a *social* species. First, the social nature of human interaction allows for the underlying theoretical mechanisms to function (for instance communication allows for reputation building and reciprocity). Tomasello (2008) shows that the differences in altruism between great apes (which exhibit effectively no pure altruism) and humans can be linked to humans’ advanced social capacities such as verbal communication. Secondly, the theories rely on humans to respond to social cues so that they are not indiscriminately altruistic and hence perish quickly.

Neuroimaging studies provide support for both points. The evidence indicates that the human brain is wired so that the decision processes underlying altruistic behavior and socialization are strongly linked (Harbaugh et al., 2007; Moll et al., 2006; Hare et al., 2001). In addition to the neural evidence, the reasoning underlying our argument that communication affects empathy and elicits altruism rests on a unique feature of human communication known as “recursive mindreading” or “role imitation reversal” (Hare et al., 2001; Akhtar et al., 1996). That is, in any dyad, person 1’s communicative acts depend critically on 1’s beliefs concerning person 2’s beliefs and 2s beliefs about 1s beliefs, and so on. In economics, this is the familiar

²Rankin (2006) also finds this result for numerical requests.

³Laboratory work has also demonstrated that altruism can be elicited through self-interest related channels. Examples include monetary rewards/punishment (Gurerk et al., 2006; Fehr and Fischbacher, 2003), emotion-based rewards/punishment (Masclot et al., 2003) and appealing to subjects’ desire to maintain a positive social image (Andreoni and Bernheim, 2009).

⁴We thank a referee and editor for this helpful suggestion.

notion of iterative belief formation, which underlies game theoretic solution concepts.⁵ This recursively structured belief formation helps establish the “joint attentional frame” necessary for effective, high level communication (Clark, 1992).

In Experiment 1, communication from recipients, regardless of the order of who spoke, led to a “conversation” more likely to be centered around fairness and more generous behavior. This is surprising in that the content of requests is quite predictable; one would presumably expect a message center around fairness and a numerical request for equal division and this is exactly the modal message. Despite the predictability of the request, allocators in the condition in which only they got to speak behaved more selfishly than the baseline and sent messages centered around luck or apology — “asking for the obvious” matters. Experiment 2 indicates that it matters through the elicitation of empathy associated with the belief formation necessary for communication. In the discussion section we explore the possibility that empathy affects behavior through self-interested channels such as guilt aversion and self-deception.

The remainder of the paper proceeds as follows: Section 2 presents the experimental design, Section 3 provides the results, Section 4 contains a discussion and Section 5 concludes.

2 Experimental Design

In order to test our hypothesis that verbal communication has evolved to mediate the expression of altruism, we manipulated the communication available to subjects playing a modified version of the dictator game (DG). The DG is regarded as the standard decision task to study altruism in experimental economics (Forsythe et al., 1994; Andreoni and Miller, 2002). In the baseline version of the game, two subjects share 100 money units (MUs). MUs are always worth \$0.10 to all subjects. One subject is randomly assigned the role of allocator and the other is assigned the role of receiver. The allocator initially holds all 100 MUs and makes the decision of how many MUs pass to the receiver, without communication between subjects. The allocator’s decision is final and completely determines monetary payoffs.

We conducted two experiments building on the baseline DG without communication. Experiment 1 included 238 subjects who played two rounds of the DG with different anonymous partners. Roles remained constant across rounds. In addition to the baseline DG were four conditions that allowed subjects, to varying degrees, to communicate via written verbal and numerical messages. Communication was always optional and free form.

In condition “Ask” (*A*), the receiver wrote a verbal message along with a numerical “pass request,” which the allocator read before making the pass decision. After the allocator made the pass decision the receiver was informed of the payoffs for the game. In “Explain” (*E*), the allocator sent a written verbal message along with the pass decision, however the receiver stayed silent. In “Ask then Explain” (*AE*), the receiver first sent a verbal message and numerical request and then the allocator recorded the pass choice accompanied by a verbal reply message. In “Explain then Ask” (*EA*) the allocator first sent a verbal message along with a “non-binding allocation,” the receiver then responded with a verbal and numerical request, after

⁵In fact, behavioral models of bounded rationality, such as level-*k* thinking, arrive at new equilibria by limiting the number of iterative steps, see for instance Crawford and Iriberry (2007).

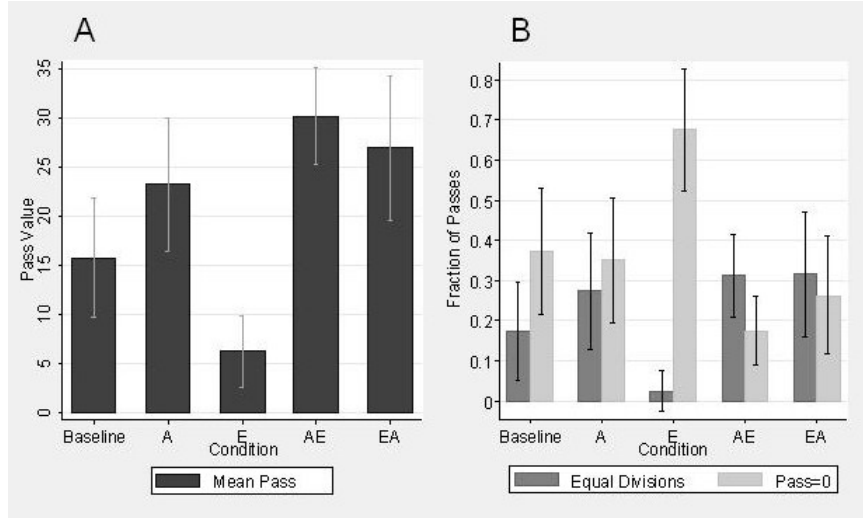


Figure 2: **(A)** Means of pass value by Experiment 1 condition: Baseline (no communication), *A* (ask by recipients), *E* (explain by givers), *AE* (ask then explain), *EA* (explain then ask). **(B)** Fraction of equal divisions and pass = 0 by condition of Experiment 1. The allocator determined the final allocation of 100 MUs between themselves and an anonymous partner (the receiver) by “passing” any value between 0 and 100 MUs. Bars give ± 2 s.e.

3 Results

Experiment 1 Results

Figure 2 presents mean amounts passed in Experiment 1 (panel **A**) and the fraction of all pass amounts equal to zero and to equal division on the right (panel **B**). The evidence is clear. Both the existence and structure of communication significantly influenced allocators’ expressed altruism. In the no-communication baseline, allocators passed an average of 15.3 MUs. In *E*, allocators gave significantly less than the baseline (Wilcoxon rank-sum $z = -2.73$, $p < 0.006$), chose fewer equal divisions ($t = -2.33$, $p < 0.025$, two-tailed t-test, standard errors clustered by subject) and more zeros ($p < 0.007$). Conversely, in the two-way communication conditions (*AE*, *EA*) allocators’ transfer greatly exceeded the baseline (*AE*: $z = 3.29$, $p < 0.001$, *EA*: $z = 2.04$, $p < 0.041$). Giving in *A* was higher than the baseline and the difference becomes significant when we only consider requests for an even division or less ($z = 1.965$, $p < 0.049$). A full comparison of conditions is given in Appendix Table 2.

In the conditions in which allocators “spoke” first, giving was very much a function of whether the communication was one-way (*E*) or two-way (*AE*, *EA*). Passes were on average over four and half times higher in *EA* than in *E* (*EA* mean= 27.0, *E* mean= 6.5; $z = 4.28$, $p < 0.0001$), while equal division was ten times more likely ($t = 3.69$, $p < 0.0004$). In fact, the mean of the non-binding allocation from the first round of communication in *EA* was 25.8, far exceeding the mean pass in *E* ($z = 4.41$, $p < 0.0001$).⁶

⁶Although the means of the non-binding and final allocation in *EA* are not significantly different from each other, there is a significant majority of subjects shaded slightly up.

Table 1: Communication Content by Condition of Experiment 1

	Condition			
	<i>A</i>	<i>E</i>	<i>AE</i>	<i>EA</i>
Fraction of <i>Explain</i> Messages Containing:				
Remorse		0.39	0.14***	0.05***
Fairness		0.03	0.23***	0.13*
Need		0.13	0.06	0.04*
Luck		0.07	0.06	0.05
You'd do it too		0.08	0.02	0.00*
No words		0.18	0.05**	0.00***
Non-binding allocation in <i>Explain-Ask</i>				25.8
Fraction of <i>Ask</i> Messages Containing:				
Fairness	0.45		0.53	0.34
Friendly Greeting	0.23		0.16*	0.17
Flattery	0.28		0.08***	0.06***
Acknowledge Power	0.26		0.20	0.09***
Need	0.19		0.14	0.12
No words	0.10		0.03*	0.00**
Numerical Request in <i>Ask</i>	50.4		49.8	45.9

*** $p < 0.01$, * $p < 0.1$ indicate two-tailed significance as compared to one-way communication given by a two-tailed t -test

Table 1 examines whether the content of subjects' written communication was associated with pass behavior. Each message was evaluated for content by seven undergraduate reviewers (gender balanced to match the subject pool) who had no prior knowledge of the study. The communication items are intended to capture the basic content of a message. A message can fall into more than one category, or none at all. In a majority of cases, reviewer opinion was unanimous. In the remaining cases, the average rating was used. The instructions to reviewers are contained in the appendix.

The statistical tests in Table 1 compare communication in the two-way conditions to their one-way counterpart. Overall, allocator communication varied in ways consistent with the expressed altruism. Allocators in *EA* and *AE* were more likely to express fairness and less likely to express remorse than allocators in *E*. These differences are large in magnitude and highly significant. Receivers' written messages (requests) varied by condition as well, while the numerical request did not. Receivers were significantly less likely to communicate flattery and acknowledge the allocator's power in the two-way conditions. These differences are most likely due to the more balanced nature of two-way communication. Unsurprisingly, the modal request in all conditions expressed fairness and called for an equal division. Also, the likelihood of using verbal communication at all was significantly higher in the two-way conditions.

Across conditions, allocators who expressed fairness behaved far more altruistically ($n = 48$, mean pass = 40.21) than those who did not ($n = 110$, mean = 16.04, $t = 7.20$, $p < 0.000$). Conversely, remorse was associated with far lower pass values ($n = 45$, mean = 10.42, vs. $n = 45$, mean = 28.54, $t = 4.93$, $p < 0.000$). Conditional on the numerical request, the content of the request, as measured through the communication categories presented in Table 1, did not significantly affect allocator behavior. The quantile

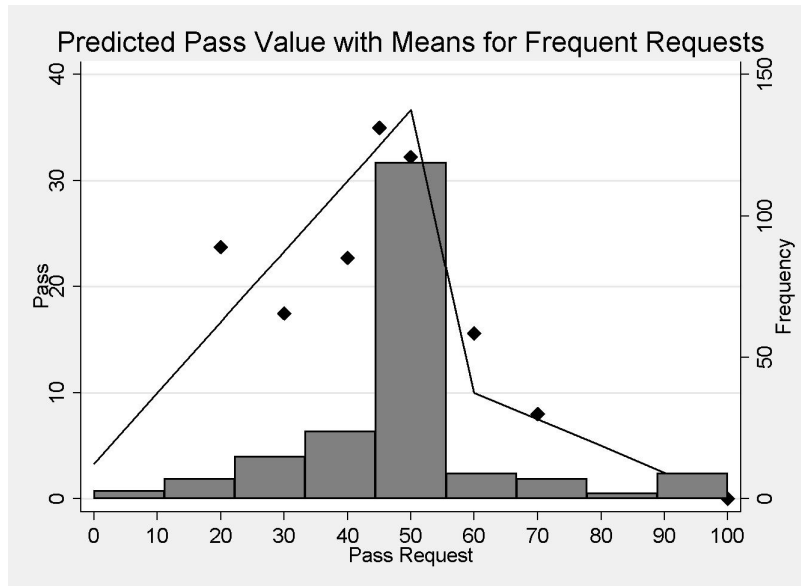


Figure 3: Bars: Frequency of pass requests (right axis), Line: L.A.D. fitted pass values as a function of numerical request (left axis), Diamonds: Mean pass values for relatively frequent requests (left axis)

regression used to support this conclusion is contained in the appendix. The estimated coefficient on *fairness* was well within a standard error of zero (coeff. -3.83 , $t = 0.32$, $p < 0.75$); there was sufficient variation to estimate this coefficient as 61.6% of subjects requesting an equal division mentioned fairness.⁷ None of the other categories approached standard significance levels as all were well within one standard error of zero. Perhaps paradoxically, the words themselves in requests do not appear to directly affect allocator behavior, but the existence of a request matters tremendously.⁸

Numerical request had a significant effect (coeff. 1.00 , $t = 3.76$, $p < 0.000$), but asking for more than equal division was costly (coeff. -1.25 , $t = -3.02$, $p < 0.001$). Table 2 shows why this is the case and the result is illustrated graphically in Figure 3. Subjects rarely got more than they asked for, with the exception being requests for quite low amounts and these requests comprise only 10.2% of all requests. Across conditions, 15% of requests for 40 were granted and 11% were exceeded. Of these passes that exceeded 40, the mean was 50. In contrast, 39% of requests for 50 were granted. The difference 39% vs. 11% of subjects receiving 50 across these two requests is highly significant ($t = 2.79$, $p < 0.006$) – asking is indeed powerful. However, asking for more than an equal division was detrimental; only 5% of such requests were granted and none were exceeded. The mean pass for these “selfish requests” was less than half of the mean for the modal request of equal division and less than the mean in the baseline no-communication condition.

⁷Including a term for fairness interacted with the level of the request yields a coefficient estimation of 0.81, not significantly different from 0.

⁸Rankin (2006) finds that numerical requests increase passes in an anonymous DG, but actually reduce passes when the interaction is face-to-face. He argues that the requests can crowd-out pro-social motivation present in the face-to-face treatment. In our experiment, it is possible that mentioning the numerical requests crowded out the content of verbal communication.

Table 2: Do You Get What You Ask For?

	Request Category			
	$r < 40$	$40 \leq r \leq 45$	$r = 50$	$r > 50$
Probability of pass $< r$	0.50	0.74	0.58	0.95***
Mean pass	5.0	16.5	18.4	11.4
Probability of pass $= r$	0.13**	0.15**	0.39	0.05***
Mean pass	15.0	40.0	50.0	80.0
Probability of pass $> r$	0.38***	0.11	0.03	0.00
Mean pass	47.5	50.0	85.0	n/a
% of Requests	10.2%	17.3%	59.0%	13.5%
Aggregate Mean	22.19*	23.7**	32.9	14.7***

*** $p < .01$, ** $p < .05$, * $p < .10$ two-tailed significance
as compared to $r = 50$, given by a t-test

Experiment 2 Results: Empathy as a Proximate Factor

The patterns of communication content (Table 1) provide evidence that the positive effect of two-way communication on altruistic behavior is mediated by feelings of empathy.⁹ Experiment 2 tests this hypothesis directly by using one-way communication and intentionally heightening feelings of empathy towards one’s partner (and this is common knowledge). Fig. 4A presents mean pass by condition of Experiment 2. The mean pass of “E with empathy” ($E(e)$) was 21.7, which is significantly higher than E ($z = 4.03$, $p < 0.0001$). The mean pass of “A with empathy” ($A(e)$), was 27.6, which was greater than A , although not significantly ($z = 0.79$, $p < 0.42$) and very close to the generous behavior observed in the two-way conditions of Experiment 1 ($EA = 27.0$, $AE = 30.2$). As hypothesized, the selfish behavior exhibited in E was eliminated with the heightened empathy, just as it was with the existence of a subsequent request in EA . This is shown in Fig. 4B, which compares the fraction of equal divisions and zeros in all the conditions in which allocators spoke first.

Subjects exhibited significantly more generosity in both Experiment 2 conditions as compared to the baseline in Experiment 1, regardless of the fact they both involved one-way communication ($A(e)$ $z = 1.85$, $p < .032$; $E(e)$ $z = 1.45$, $p < 0.073$ one-tailed t -test).¹⁰ Most interestingly, the distribution of choices in the empathy-inducing conditions in Experiment 2 were nearly identical to the true two-way communication conditions of Experiment 1. This is displayed graphically in Fig. 4C, which compares the pooled distribution of EA & AE to $E(e)$ & $A(e)$ (within each pool the conditions are not significantly different from each other). The distributions are virtually identical.

⁹Note that we only claiming this altruistic behavior, not altruism. This leaves open the possibility that although empathy is a proximate factor, it is mediated through selfish channels, such as self-deception or guilt aversion. We address these points in Section 4.

¹⁰We use a one-tailed test here due to the bulk of evidence from the psychology literature that empathy increases observed generosity.

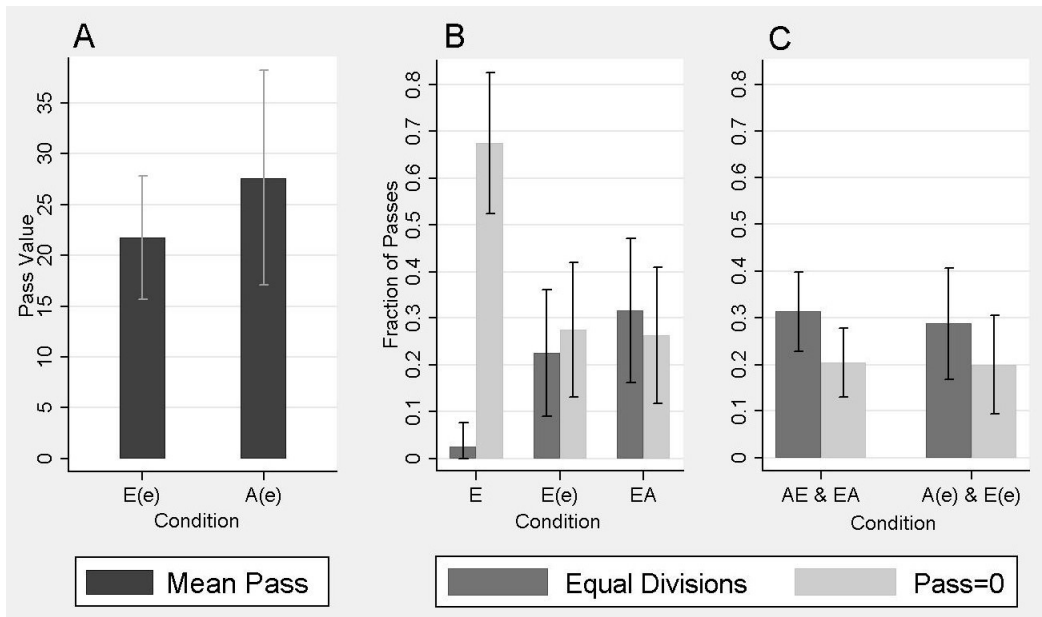


Figure 4: **(A)** Means of pass value by Experiment 2 condition: $A(e)$ (A with experimentally heightened empathy) and $E(e)$ (E with experimentally heightened empathy). **(B)** Fraction of equal divisions and pass = 0 in conditions in which allocators “spoke” first. **(C)** Pooled comparison of the two-way communication in Experiment 1 and the “empathy” conditions of Experiment 2. Statistical tests given in Tables 1 and 3 fail to reject equality in distribution of pass value in AE and EA of Experiment 1 and $A(e)$ and $E(e)$ in Experiment 2. Bars give ± 2 s.e.

4 Discussion

In the introduction we argued that static inequity aversion did not match real-world inequality and that such “indiscriminate altruism” would not be a fit trait.¹¹ We argued further that theoretical explanations for the underpinnings of altruism rely on people responding to social cues so that altruistic acts are meted out efficiently and to ensure the would-be altruist does not end up in the poor house, or worse. Brain imaging studies and traditional laboratory experiments have shown that in many contexts people have a strong aversion to inequality. However, in our daily lives we are exposed to inequality regularly, but take costly actions to lessen it only in special circumstances, such as when asked to give a charitable donation (Andreoni and Payne, 2003; Landry et al., 2006) or observed by an audience (Andreoni and Bernheim, 2009). Our view is that although one may feel the pangs of sympathy in the face of inequality (and associated brain activation), the response is mediated by social cues and incentives, selfishness typically predominates.

The results of our experiments support this claim. In both experiments, factors such as the relative inequality and worthiness of the recipient were held constant. Subjects were always playing a DG in which one subject began with all the wealth and had an opportunity to share. In the condition in which roles were most asymmetric in terms of both power and speaking, *E*, we observed near universal selfishness (93% of money was kept). When we modified *E* so that receivers could respond to the written message before final allocation decisions were made (*EA*), giving quadrupled. These differences were highly significant. Communication appears to be a powerful social cue in eliciting unselfish behavior. In the following subsection we examine why this the case.

The Power of the Ask

A natural view of communication is that it affects actions through its content alone (for a discussion see Mohlin and Johannesson, 2008) . In this light, our results are surprising. The actual messages sent in the conditions with an “ask” mattered very little. One reason could be that the content of written requests appears obvious. One would presumably expect receivers to request 50-50 splits and extol fairness, which is precisely the modal message. This obviousness could explain why the verbal content of receivers’ messages had no significant effect on allocations. This obviousness cannot, however, explain the primary finding of the paper that the fact of being asked matters tremendously, despite the fact that any request is obvious.

Figure 3 provides clear evidence of “the power of the ask.” It presents fitted values of the role of numerical request on pass value across all conditions, the distribution of numerical requests and sample means for relatively frequent requests. Asking for more typically leads to a greater pass but with limits — subjects who requested more than an equal division were punished. So while “asking for the obvious” is effective, asking for more than one’s fair share typically results in getting nothing in return.

This “paradox of obviousness,” which has been studied in other contexts (Ellingsen and Johannesson, 2004; Charness and Dufwenberg, 2006; Charness and Rabin, 2005; Charness, 2000; Xiao and Houser,

¹¹It is worth noting that indiscriminate altruism, roughly speaking, exists in what are known as eusocial species. Although exceedingly few species are eusocial, they are a few prolific examples such as ants and bees. Individual members of these species act to preserve the meta-organism (the hive) and many of their instincts go against self-preservation (for example, when a drone bee stings, it dies).

2009), must be understood from two different perspectives. First, in *E* the (unspoken) request the receiver would make was just as obvious as in *EA*, yet subjects in *E* sent self-serving messages while in *EA* they expressed less remorse and more fairness.¹² Moreover, the mean of the non-binding allocation in *EA* was four times that of the final allocation in *E* ($p < .0001$) (final allocations in *EA* were shaded up slightly from the non-binding allocation). The allocators in *EA* were clearly successful in anticipating (and preemptively responding to) the ask, while those in *E* were able “explain away” their selfishness. The giving behavior and verbal messages suggests that the communicative “joint attentional frame” differed significantly across these one and two-way communication conditions.

Second, allocators in *E* not only were more selfish than in all conditions containing an ask, they were also significantly more selfish than the baseline, when both parties were silent. We saw that the predominant content of messages in *E* was remorse. Often this was simply the words “I’m sorry.” The baseline differed from *E* in that expressing remorse was not possible. If expressing remorse could reduce one’s guilt, then explaining one’s choice could have an instrumental value to allocators in *E* relative to the baseline. This explanation is consistent with previous findings of guilt aversion (Dufwenberg and Gneezy, 2000; Charness and Dufwenberg, 2006). Another related explanation is that *E* facilitated self-deception. The allocator convinces himself that passing nothing and issuing an apology is a morally acceptable action.

The interesting contrast is that explaining does not have the same instrumental value in *EA* that it has in *E*. Instead, allocators in *EA* are significantly more generous than both the baseline and *E*, and statistically indistinguishable from *A* and *AE*. There are also on average four times less likely to issue an apology. Asking, it appears, has the power to neutralize any value of explaining. When the allocator does not have to consider the other’s position through communication or experimentally induced empathy, this self-deception and guilt avoidance comes at low cost. When pushed to form more precise beliefs about the other’s position, these self-serving rationalizations are defanged.

The findings of Experiment 1 confirm our primary hypothesis that communication can greatly influence the level of altruism. Studying the “pure” incentives by ignoring this social component of giving will hide significant aspects of giving behavior.

The Advantage of Empathy

This leads to our secondary hypothesis: the existence of communication from the receiver to the allocator increases the allocator’s empathy with the receiver. In Experiment 2, we initially placed subjects in roles of both allocator and recipient, and then randomly determined which of the two roles to use for the completion of the games and determination of monetary payments. Since the subjects made both *A* and *E* decisions, they had to put themselves in the mindsets of both roles.

The data strongly support our hypothesis. Subjects in *E(e)*, who faced no ask, were significantly more altruistic than *E* subjects, and statistically indistinguishable from the *EA* subjects, who actually did face an ask (Fig. 2B). That is, having to formulate an (unused) ask themselves was as effective as facing an actual ask from another subject. Our inference is that two-way communication leads one to appreciate and

¹²Xiao and Hauser (2009) find that allowing recipients to complain ex-post leads to more generous behavior.

identify the other's position more fully (which we call empathy). This inference is motivated by the fact that an essential (and unique) feature of human communication is what linguists call recursive mindreading (forming beliefs about the other's beliefs).¹³ Facing an ask, be it explicitly or implicitly through empathic reasoning, blocks self-serving communication and selfish choices.

Although there has been a large amount of work linking empathy and pro-social behavior (see a review in Batson, 1991), it has not been established that empathy increases "pure altruism" (genuine concern for others). Three channels of impure altruism have been the subject of recent attention in the literature: concerns for social-image (Andreoni and Bernheim, 2009; Tadelis et al., 2008; Ariely et al., 2009), self-image and self-signaling (Bodner and Prelec, 2003; Dana et al., 2007) and guilt aversion (Charness and Dufwenberg, 2006; Battigalli and Dufwenberg, 2007). In our experiment, social distance and anonymity remained constant, so the results are unlikely to be explained by differing concerns for social image. We discuss the other two channels below.

Past work has defined guilt aversion to be proportional to the degree to which the action falls short of recipient's expectations ("let down aversion") (Dufwenberg and Gneezy, 2000; Charness and Dufwenberg, 2006). This interpretation works well for Experiment 1 conditions *E*, *A* and *AE*, under the assumption that requests (in part) form receiver's expectations (and allocator's recognize this). The prevalence of apologies in *E* is also supportive as apologies are associated with feelings of guilt (Tangney, 1995). However, it has trouble explaining why behavior in *EA* is so similar to *AE* and so different from *E*. One would expect the allocator to use the first message (non-binding allocation and verbal) to depress receiver's expectations in order to reduce guilt, but non-binding allocations are generous and the message content does not mirror that in *E*. Furthermore, in the *E(e)* condition of Experiment 2, allocators never receive any actual communication and yet still give much more than *E* and more than the baseline. This indicates that apologies and efforts to intentionally depress expectations lose their force in the face of empathy, whether it is induced by an ask or through direct consideration of both roles as in Experiment 2, because the issuer is more likely to see the apology as unsatisfactory (*he* would not find it satisfactory were *he* the receiver). Our conclusion is that guilt aversion can only explain the results if empathy limits the effectiveness of strategies to reduce guilt; guilt aversion based solely upon the recipient's expectations is difficult to reconcile with all our experimental findings.¹⁴

The argument in favor of self-image maintenance rests upon self-signaling and strategic ignorance. The basic premise is that allocator's do not consider the other's position if they do not have to. An analog is the finding by Dana et al. (2007) that roughly half of subjects willfully remain ignorant about how their actions will affect their counterpart in a modified dictator game or that people on the street "avoid the beggar" (Dana et al., 2006). Grossman (2010) revisits the Dana et al. (2007) game and replicates the finding that half of subjects *remained* ignorant when it was the default choice, but also finds that only 25% actively *chose*

¹³Great apes appear to have the capacity for level-1 mindreading only. For example, in the game of hind-and-seek an ape can correctly recognize what the seeker can and cannot see during hiding process. But they do not act in a way that is consistent with recognizing that other apes recognize this as well, whereas human toddlers do (Call and Tomasello, 1999). Level-2 mindreading is required for anything beyond very basic communication, as such, this sort of communication is distinctly human (Tomasello, 2008).

¹⁴As mentioned earlier, the empathy in this study was in a sense always "common knowledge of empathy" in that recipients knew allocators would read the messages and everyone knew their fellow subjects filled out decision forms from both roles.

ignorance when no default was provided and that only 3% chose ignorance when knowledge of the other's payoffs was the default. Our results have a similar tone. In the Experiment 1 conditions with an ask, the situation moves from one which the allocator has the *potential* to know the recipient's feelings (baseline) to one in which she is *forced*, based on the belief formation associated with verbal communication, to actually consider her.¹⁵ This knowledge raises the cost of self-deception. An active understanding of the position of the other is precisely what we have defined as empathy. As such, under this interpretation, empathy promotes altruistic behavior by making self-deception (self-signaling) more difficult (costly).

The results of Experiment 2 are consistent with this interpretation. Many subjects found it difficult to simultaneously request a fair division and administer a stingy one. But subjects who did pass 0 were just as likely as other subjects to request an equal split. It is interesting that the subjects that were not moved from a position of selfishness by this intervention seemingly had no trouble requesting a bulk of the pie and typically included a verbal message. However, 63% of these subjects did not communicate verbally in $E(e)$, far more than the 14.8% observed in E for subjects sending 0.

The question of how empathy promotes altruism is an interesting one we leave to future research. We note that our results are consistent with both the more traditional view that empathy generates a genuine concern for others (Batson, 1991) and the view that it operates through self-interest, either by raising the cost of self-deception or by blocking strategies that ameliorate guilt.

5 Conclusion

Our results highlight the importance of the social component of giving and assert that studying giving without considering communication between the giver and recipient has the potential to overlook many valuable insights. Because standard explanations for the existence of altruistic behavior in humans, especially among non-kin, rely heavily on the social nature of our species, a direct study of the social factors that affect altruistic behavior is a natural and important step in furthering our understanding. Our study introduces communication into an economic experiment and shows that communication, especially the power of asking, greatly influences feelings of empathy and pro-social behavior. It suggests that selfishness typically predominates and the human capacity for altruism is activated through social cues. Humans have evolved the dual capacities to both be very compassionate and to put on blinders to protect us from our naturally altruistic tendencies. Communication from recipients, be it real or inferred through introspection, is one way that our species triggers the empathy required to remove these protective blinders.

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¹⁵We thank a referee for this helpful distinction.

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6 Appendix

6.1 Supplementary Tables

Supplementary Table 1: Random-effects Tobit regression of pass value on request characteristics.

Supplementary Table 1: Effect of Numerical Request
and Ask Content Categories on Pass Amount

	(1)	(2)
Request	0.761* (0.444)	1.000*** (0.266)
Request*1{Request>50}	-1.072 (0.740)	-1.250*** (0.414)
1{Request>50}	30.38 (48.98)	35.00 (28.70)
Power	3.134 (13.58)	
Need	-11.41 (12.18)	
Friendly greeting	-1.393 (15.94)	
Fairness	-3.831 (11.98)	
Flattery	2.438 (16.72)	
round1	1.194 (7.068)	
Constant	0.746 (18.90)	-10.0 (12.21)
Observations	156	156

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
Standard errors in parentheses

Supplementary Table 2: Wilcoxon rank-sum z -scores for difference in distribution by condition of Experiment 1.

	Condition			
	<i>A</i>	<i>E</i>	<i>AE</i>	<i>EA</i>
Baseline	-1.26	2.73***	-3.29***	-2.04**
<i>A</i>		3.69***	-1.46	-0.68
<i>E</i>			-5.94***	-4.38***
<i>AE</i>				0.64

*** $p < 0.01$, ** $p < 0.05$

Supplementary Table 3: Wilcoxon rank-sum z -scores for difference in distribution.

Experiment 2 Condition	Experiment 1 Condition				
	Baseline	<i>A</i>	<i>E</i>	<i>AE</i>	<i>EA</i>
$E(e)$	1.45*	-0.187	4.03***	-1.875*	-0.90
$A(e)$	1.83**	0.79	3.73***	0.78	-0.181

*** $p < 0.01$, * $p < 0.1$ indicate significance, one-tailed test except in comparison to *AE*&*EA*

6.2 Experiment 1 Instructions Sample: Condition AE

Welcome and thank you for participating in this study. For agreeing to participate you will automatically earn a \$7 “thank you” payment. Anything you earn in the study will be added to this.

Confidentiality

We promise you total anonymity and confidentiality in this study. We will never record your name anywhere and no other participant will ever be able to tie you to the decisions you make. Whatever you earn will be paid to you in a sealed envelope. As a result, not even those running the study will be able to connect you to the decisions you made.

Quiet Please

During this study, please do not talk or make any other audible noises. This is very important. Any talking will mean that we will have to cancel the study.

Thank you for your cooperation.

This Study

In this study you will be paired with one other participant for a single decision. The actions you and the other subject take will result in dividing 100 tokens between the two of you. Tokens are worth \$0.10 each. This means you will be determining the allocation of \$10 between the two participants.

After this decision you will be randomly re-matched with one other participant and make another decision like that just described. Again you will allocate 100 tokens, that is, \$10. Your role in the decisions will be the same both times.

After this decision the study will be complete and we will prepare your payments.

The Allocation

One of the two participants in your pair will be randomly selected as the Allocator. This will be called Person A. The other participant will be called the Receiver, or Person R. Person A will choose an allocation for the pair. Person A will do this by filling in the blanks in this statement:

“Of the 100 tokens, I choose to hold _____ for myself and pass _____ to Person R.”

Person A’s decision will determine the final payoffs for both Person A and Person R.

The Stages for this Study

There will be several stages to the study. These stages will be conducted by having each pair of participants fill out a Decision Form. We will pass the form back and forth between participants in such a way that the two participants cannot identify each other. This is how the stages will work.

Stage 1: Person R can make a request to Person A by filling in the spaces like this:

Stage 1: Person R moves.

<p><i>R's Request to A:</i> Please fill out your decision in Stage 2 this way:</p> <p>Of the 100 tokens, I choose to <i>hold</i> _____ for myself and <i>pass</i> _____ to Person R.</p>
<p>In the space below, you may record a message to Person A.</p>

In addition, Person R can write a message to Person A in the space provided. The message can say anything. *The only restriction is that it contain no information that could allow participants to identify each other.*

We will then carry the form to Person A for the next stage.

Stage 2: Person A chooses the allocation of the 100 tokens by filling in blanks in this line of the Decision Form:

Stage 2: Person A moves.

<p>Of the 100 tokens, I choose to <i>hold</i> _____ for myself and <i>pass</i> _____ to Person R.</p> <p>(Note: The amounts in <i>hold</i> and <i>pass</i> must sum to 100. Each token is worth \$0.10.)</p>
<p>Chosen Allocation: Person A earns \$ _____ and Person R earns \$ _____</p>
<p>In the space below, you may record a message to Person R.</p>

Note: The amounts in hold and pass must sum to 100.

Person A will get the tokens in the hold portion and Person R will get the tokens in the pass portion. However, Person A can hold any number from 0 to 100, including 0, 100 and any number in between.

When Person A has chosen the allocation of tokens, he/she will write the allocation in terms of dollars in the space provided (remember, each token is worth \$0.10).

In addition, Person A can write a message to Person R in the space provided. The message can say anything. *The only restriction is that it contain no information that could allow participants to identify each other.*

We will then carry the form to Person R for the next stage.

Stage 3: Person R must see the message from Person A and acknowledge this by checking the box at the bottom of the decision form.

This ends a round.

The Two Rounds

After all the stages described above are complete we will reassign people to new partners and we will begin the second round of decisions. No one will know anything about their partner's decisions and outcomes in the first round. The second round will be conducted the same way as the first. The study will end after the second round.

Your Earnings

At the end of the second round, we will prepare your payments. This includes the \$7 "thank you" payment, plus the earnings from the allocation of the 100 tokens in the two rounds.

We will place each person's earnings in a sealed envelope. We will pay participants in the role of Person A first and allow them to leave. We will then pay those in the role of Person R and allow them to leave.

Your Role

After everyone has read the instructions we will flip a coin to determine who will play which role. You will stay in the same role for both decision rounds.

If HEADS: Odds will be Person A, Evens will be Person R

If TAILS: Evens will be Person A, Odds will be Person R

Things to Remember

1. You automatically get a \$7 "thank you" payment.
2. Your confidentiality is assured.
3. Quiet Please. No audible sounds can be permitted.
4. There will be two decision rounds.
5. For each decision round you will be paired with a different participant.
6. You will be assigned the role of Person A, the Allocator, or Person R, the Recipient. You will stay in that role for both decision rounds.
7. Person A has the choice of how to allocate the 100 tokens.
8. Each token you earn is worth \$0.10. Hence, the most you can earn in the study is \$27, the least is \$7 (including the \$7 "thank you" payment), or you can earn anything in between.
9. We will pay in cash in a sealed envelope at the end of the study.

Once all questions have been answered we will begin by flipping a coin to determine your role.

6.2.1 Experiment 2 Instructions

Welcome

Welcome and thank you for participating in this study. For agreeing to participate you will automatically earn a \$7 “thank you” payment. Anything you earn in the study will be added to this.

The Two Decision Tasks

Today’s study includes two separate decision tasks, which we will call Decision Task X and Decision Task Y. Each of the tasks has several things in common.

- Both Decision Tasks will pair you with an anonymously chosen person on the other side of the room. **IMPORTANT:** For each decision task, you will be paired with a different anonymous participant.
- Both Decision Tasks assign roles to the two participants in each pair. As you will see, one role is called Player A, and the other is called Player R. **IMPORTANT:** When we select roles, you will be in the same role for both decision tasks
- Both Decision Tasks have several stages where players alternate activities. We conduct this by passing a Decision Form between the players in each pair until all the stages are complete..

The two decision tasks have some differences as well.

- In Decision Task X, Person R moves in Stage 1, Person A moves in Stage 2, etc.
- In Decision Task Y, Person A moves in Stage 1, Person R moves in Stage 2, etc.

Shortly, we will be going over the Directions for both Decision Tasks X and Y.

Making Stage 1 Decisions

Before we assign you your role today, we are going to ask you to make the Stage 1 decisions for both roles. That is, you will make the Stage 1 decision for Decision Task X as if you are in the role of Person R, and you will make the Stage 1 decision for Decision Task Y as if you are in the role of Person A.

After everyone has made the Stage 1 decisions for both decision tasks we will flip a coin to determine who will play which role. You will stay in the same role for both decision tasks.

If HEADS: Odds will be Person A, Evens will be Person R

If TAILS: Evens will be Person A, Odds will be Person R

IMPORTANT: Since it is equally likely that you will be in either role, it is in your interest to make the Stage 1 decisions for each role as if you were actually known to be in that role.

If you are chosen to be Person A:

We will carry out your Stage 1 decision from Decision Task Y.

We will set aside your Stage 1 decision form for Decision Task X. What you did in Stage 1 for Decision Task X will never be seen by another person in the study.

If you are chosen to be Person R:

We will carry out your Stage 1 decision from Decision Task X.

We will set aside your Stage 1 decision form for Decision Task Y. What you did in Stage 1 for Decision Task Y will never be seen by another person in the study.

Making Stage 2 Decisions

If you are chosen to be Person A:

Your Decision Form for Task X will be carried to an anonymous person in the Role of Person R, who will then make the Stage 2 decision for Decision Task X.

You will also receive a Decision Form for Decision Task Y from a different anonymous person in the role of Person R and will be asked to make a Stage 2 decision in Decision Task Y.

If you are chosen to be Person R:

Your Decision Form for Task Y will be carried to an anonymous person in the Role of Person A, who will then make the Stage 2 decision for Decision Task X. You will also receive a decision form for Decision Task X from a different anonymous person in the role of Person A and will be asked to make a Stage 2 decision in Decision Task X.

Your Earnings

At the end of all the decisions, we will add your earnings from Decision Task X and Decision Task Y, plus the \$7 thank you payment. We will place each person's earnings in a sealed envelope and hand them to you individually, by your participant number.

Next we will go over the directions for both Decision Tasks. Each Decision Task has separate directions, and separate Decision Forms. After we have gone over all the directions, you can fill out the Stage 1 decisions for both Task X and Task Y. You may fill them out in any order you like.

When you have finished, please put the Decision Form for Decision Task X in the envelope marked "X", and put the Decision Form for Decision Task Y in the envelope marked "Y". When everyone is done with both decisions, we will collect all the Decision Forms. At that point we will flip a coin to determine roles.

IMPORTANT: Do not make any decisions until we have gone over the directions for both Decision Tasks, and the Experimenter instructs you that you can begin making decisions. Thank you for your cooperation.

We will now begin reading the directions for the two decision tasks.

(Both decision tasks were then explained just as in Experiment 1)

6.3 Instructions to Reviewers and Precise Definitions of Communication Categories

Structure of the Game

In the DG there are two players: the allocator and the receiver. A coin toss determines role assignment. The allocator is given ten dollars to split between herself and the receiver. She can pass to the receiver any dollar amount from zero to ten.

In some conditions of the experiment, subjects were allowed to communicate via written messages. There were two types of communication: ask and explain. The ask phase allowed receivers to send a message requesting a certain portion of the ten dollar pie, along with a written message. The explain phase allowed allocators to send a written message along with the pass amount. The experimental conditions were varied such that some contained no forms of communication, while others contained one or two. The order was also changed. For the DG there were the following conditions: ask only, explain only, ask then explain and explain then ask. Note that for the explain then ask, allocators also sent a non-binding numerical “proposed” allocation.

Each subject played two rounds of the game (condition remained the same) with two different partners. For example, for the DG ask-explain condition, the game was played as follows.

1. Receiver sends a written message to the allocator, along with a numerical pass request.
2. The allocator chooses the pass amount and sends it to the receiver along with a written message.
3. The players are paid according to the split determined by the allocator.

It is important to remember the order of the communication when analyzing the content of the messages. For instance, for the “explain then ask” condition, the explain message should be coded first followed by the ask condition. Also it is important to note the numerical request (or non-binding proposal) because the subjects would read and interpret the message with the request in mind as well. Basically you want to read the communication as a subject would (i.e. in the right order and using all information available to the subject) and analyze the content. The spreadsheet provided to you will contain columns for each condition. For example if you see a 1 in the “ask then explain” column this means that was the condition used. In every condition except “explain then ask” the communication (if applicable) order is: ask, explain, comment. So you really just need to watch out for the “explain then ask” condition and be sure to read the explains first for this case.

The following section explains precisely how the content will be analyzed.

Coding the communication

Each form of communication needs to be categorized according to its content. These categories are not exclusive, that is a message could very well fit into two or more categories. The categories were chosen to limit the inherent subjectivity in determining the content of the message. Please read these guidelines carefully.

In the coding spreadsheet you have been provided with you will notice that to the right of the column containing the written communication there are columns with the appropriate communication categories. For instance, next to the column labeled “Ask” there are columns labeled “a.fairness”, etc. After reading the message you will put a 1 in a column if you feel it qualified as that category of communication and 0 if it, in your opinion, did not qualify. Invariably there will be some judgment calls to be made, in these situations

just try to be consistent and do your best.

Receiver Communication

Category	Description	Example
Fairness	Appeals to fairness, equity, equal division or similar moral value.	This seems like the fair way to go.
Power	Acknowledges the power that the allocator has.	You have the control
Flattery	Contains a compliment or some other form of flattery	I know you are a good person
Need	Expresses a need for the money	I am broke, help me out
Friendly Greeting	Contains a greeting usually used amongst friends	Hey, what's up :)

Allocator Communication

Category	Description	Example
Remorse	Expresses remorse and/or contains an apology	Sorry!
Need	Expresses need.	Sorry, I need the cash.
Luck	Mentions the good luck they had in being chosen as allocator	I won the coin toss.
You'd do it too	States that the receiver would do the same thing if they were allocator	This is what you'd do too..
Power	Makes the point that the allocator has all the power	It's my choice so I get more.