



## Giving to whom? Altruism in different types of relationships

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### ABSTRACT

Experiments show that people give money away to other people, even when contributions are anonymous. These findings contradict the common economic assumption that people maximize their own payoffs. Here we take the approach that human altruism is shaped by a set of cognitive models for distinct types of relationships. Specifically, we apply relational models theory which distinguishes between communal relationships based on need, authority relationships based on power, and trade relationships based on reciprocity. We test whether relational models theory can explain altruism in the dictator game, a standard method for observing altruism. For each relational model, we manipulate its key variable (need, power, or reciprocity) by varying hypothetical descriptions of the dictator game, while holding constant real monetary incentives. In the communal scenario participants transfer more money to recipients with greater need for the resource (Experiment 1), in the authority scenario participants transfer more money to recipients who were higher status (Experiment 2), and in the exchange scenario, participants transfer more money to recipients who previously delivered goods to the dictator. In sum, we find that relationships, even when hypothetical, strongly affect altruistic behavior – modal dictator contributions range from 0% to 100% – and relational models theory correctly predicts these effects.

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### 1. Introduction

People transfer resources to other people in different types of relationships – sharing with family, trading with merchants, and ceding to authorities. These transfers are the foundation of economies and they can increase wealth in society by promoting specialization and buffering individuals against risk (Smith, 1776). People's economic interactions are fundamentally *social* because they occur in relationships of different kinds. Moreover, each type of relationship has specific expectations about how individuals will distribute resources (Fiske, 1992). This idea suggests that psychological theories about human relationships can potentially clarify how resources move through economic systems.

Until recently, economic models focused on a single type of resource transfer: self-interested trade under enforceable contracts. However, experimental evidence has shown the inadequacy of self-interest models, leading to efforts to revise economic assumptions (Camerer, 2003; Henrich et al., 2001; Smith, 2008). A prime example is the dictator game in which one participant is given an endowment of money and decides how much to give to another participant. Even in anonymous

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laboratory settings, participants' behavior violates self-interest: Rather than giving nothing, participants give on average 20% of the endowment (Camerer, 2003; for a comprehensive review, see Engel, 2011).

A common approach to understanding altruism is based on *social preferences* (Bolton & Ockenfels, 2000; Fehr & Schmidt, 1999) which can be modeled by simple parameters describing how an individual values other people's payoffs. In this approach, an individual's altruism is incorporated in their self-interest by including other people's payoffs in the individual's utility function, weighted by social preference parameters. These economic models resemble theories in social psychology about *social value orientation* in which individuals vary in how much they value their own payoffs relative to other people's payoffs (Messick & McClintock, 1968; Van Lange, 1999). However, some researchers have argued that social values are flexible and sensitive to situations and relationships (Van Lange & Joireman, 2008), but there is no consensus about how to account for these factors. In sum, social preference models inherit from self-interest models an exclusive focus on payoffs and they do not differentiate among different types of relationships such as family, trade, and power relationships.

A related approach extends social preferences to account for the recipient's previous behavior and intentions (Dufwenberg & Kirchsteiger, 2004; Falk & Fischbacher, 2006; Rabin, 1993; see also work on *welfare tradeoff ratios*, e.g., Sell, Tooby, & Cosmides, 2009). These models allow altruism to vary based not only on the individual's payoffs but also on the recipient's potential payoffs for each possible decision in their choice set. This adds a new dimension – the partner's potential payoffs – to shape an individual's relative weightings of their own and other people's payoffs. Nonetheless, these models continue to be driven by payoffs: an individual's assessment of their partner is derived entirely from the partner's potential payoffs in previous decisions, and further, this assessment is put into action as a parameter specifying the individual's rate of return for the partner's payoffs.

Social preference theories improve on self-interest models but researchers have shown that they fail to account for an important set of empirical observations: Altruistic behavior exhibits *context effects* or *framing effects* and is highly sensitive to the *description* of resource allocation tasks, not only the raw payoffs modeled by social preferences (reviewed by Bowles, 2008; Engel, 2011; Levitt & List, 2007; Smith, 2008). For example, people give less money in the dictator game when they "earn" the endowment by completing a quiz (Hoffman, McCabe, Shachat, & Smith, 1994). Experimental instructions that convey greater social distance between a dictator and a receiver decrease giving behavior (Hoffman, McCabe, & Smith, 1996). Whether decisions are framed as individual or on behalf of a group influences altruism (Cason & Mui, 1997; Song, Cadsby, & Morris, 2004). Giving is sensitive to descriptions of an initial allocation as \$18 and \$2 or \$15 and \$5 (Bolton & Katok, 1998), particularly when money initially allocated to the other person is described as a "tax" (Eckel, Grossman, & Johnston, 2005). People give less money to recipients in the dictator game when they have the option to take money from them (Bardsley, 2008; List, 2007). People give more money to women than men (Saad & Gill, 2001), more money to friends than strangers (Brañas-Garza et al., 2010), and more money to recipients who are described as "relying" on the dictator (Brañas-Garza, 2007).

Although context effects are well-known empirically, it remains unclear how to explain them. Here we take a cognitive perspective by suggesting that the human mind computes *implicit payoffs*, in addition to explicit payoffs, by using cues associated with recurrent situations, and task descriptions affect behavior by providing these cues. To function in everyday life, human cognitive systems cannot track only explicit payoffs because summary payoff information is often unavailable. Indeed, the payoffs associated with different outcomes are not usually given to the individual (like in experiments) but rather must be computed by the mind. What is usually taken for granted in game formalizations – a description of outcomes and payoffs – poses severe computational challenges for the mind: Using only sense data, human cognitive systems need to construct sets of possible outcomes and to assign relative values to them. To accomplish this formidable task, cognitive systems rely on cues in order to recognize ancestrally recurrent situations and to impute values tuned by natural selection to reflect the statistical payoffs associated with those situations over evolutionary history (Pinker, 1997; Tooby & Cosmides, 1992). Thus, one potential explanation for framing effects is that people's decisions are not driven only by explicit payoffs (given by the experimenter) but also by implicit payoffs computed by cognitive systems based on available cues, including cues contained in task descriptions.

People's relationships might provide especially potent cues because basic relationships such as kinship, power, and exchange are ancient and reliable correlates of particular payoff structures. Here we test whether relationships might help explain the empirical result that descriptions can influence behavior in economic games: Descriptions can provide cues associated with different relationships, influencing which cognitive systems guide allocation decisions and which behaviors are activated by these cognitive systems.

### 1.1. Relational models theory

Theories of human relationships from social psychology can potentially help explain variation in altruistic behavior. As a highly social species, humans form a variety of distinct types of relationships with different functions (Bugental, 2000; Clark & Mills, 1979; Fiske, 1992; Kenrick, Li, & Butner, 2003). Here we focus on relational models theory (Fiske, 1992; Fiske & Haslam, 2005), which distinguishes among communal relationships based on meeting each other's needs, authority relationships based on asymmetries in power, and trade relationships based on reciprocity. Each of these relationship types is governed by distinct cognitive mechanisms with different evolved functions and different information-processing structures (Fiske, 1992). These cognitive systems provide a working model of each relationship including the payoff structure and a repertoire of behaviors for managing the relationship. They allow people to comprehend and distinguish different relation-

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