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Chapter 3: The Greater Power of Generosity²⁰

One of the greatest challenges to interpersonal relations is rooted in social dilemmas or conflicts between self-interest and collective interest. But how can people maintain lasting cooperation in social dilemmas? Which strategy should one adopt? For a long time, the answer of most behavioral scientists to this question was *tit for tat* – a reciprocal strategy that many people tend to adopt in their interactions with relative strangers in experimental settings (see e.g., Axelrod, 1984; McClintock & Liebrand, 1988; Parks & Rumble, 2001; Van Lange, 1999). However, recent empirical work has revealed that a *generous* strategy (i.e., doing slightly more than one did for you) may be more effective than a tit-for-tat strategy, particularly in realistic environments that are characterized by “noise”—that is, situations in which people sometimes make unintended errors in their actions or perceptions (e.g., accidentally saying the wrong thing, pushing the wrong button; Kollock, 1993; Van Lange et al., 2002).

Empirical research has shown that in noisy social dilemmas generous individuals elicit greater cooperation, elicit greater impressions of benign intention and feelings of trust, are perceived as having more other-regarding intentions, and having higher moral standards than people who adopt a tit-for-tat strategy (Van Lange et al., 2002). It is argued that generosity has two functions. First, generous individuals promote an atmosphere of interpersonal trust, including perceptions of benign intent, that help people to give each other the benefit of the doubt, which help people to reduce the detrimental effects of noise (i.e., the trust building function of generosity). Second, theoretically, only one of the two interaction partners needs to adopt a generous strategy, so long as the interaction partner adopts a reciprocal strategy (i.e., tit-for-tat) and does not seek exploitation (i.e., the symbiosis of generosity and reciprocity; Van Lange et al., 2002).

In the present research, we explore the role of a third function of generosity, arguing that generosity may trigger or help maintain a genuine other-regarding mindset. Specifically, we suggest that generous individuals (rather than reciprocal individuals) are able to activate a mindset that motivates them to forego their self-interest and engage in a *genuine* form of other-regarding behavior – that is, other-regarding behavior that cannot be accounted for an attempt to anticipated reciprocity and related benefits one might expect to receive from the other based on own generosity. Such a mindset is expected to have a function of very positive interaction experiences, in which people receive very good psychological outcomes (an atmosphere of interpersonal trust), as well as very good material outcomes (through reciprocating generosity). As such, the third function of generosity can be conceptualized as the product of the two functions of generosity we discussed earlier (trust-building; generosity-reciprocity symbiosis).

To assess such other-regarding behavior, the present research used a single-trial *dictator game* (e.g., see Henrich et al., 2005; Forsythe et al., 1994) that was designed to eliminate various strategies for enhancing material self-interest. Specifically, the

²⁰ This chapter is based on Klapwijk, A. & Van Lange, P.A.M. (2009b). The Greater Power of Generosity. Manuscript under review.

participant was asked to decide how much actual money that they received for participation in the experiment to give to the person with whom they had interacted in the social dilemma task. Thus, as a novel test of the other's regarding mindset function of generosity, we examine how much money participants allocate to either a generous or a reciprocal partner in a noise-free or a "noisy" social environment. The hypothesis is that generous partners will receive more money than tit-for-tat partners, especially in noisy situations.

Study 3.1

Method

Participants and design. Forty-four undergraduate students (29 women) of the VU University at Amsterdam took part in the present research (mean age was 22 years). Each participant received € 3.50 in exchange for participation. Participants were randomly assigned to one of four experimental conditions. The design was 2 (partner's strategy: tit-for-tat or generous) × 2 (noise: absent or present). The primary dependent variable was the amount of money participants donated to the interaction partner in the dictator game. The experiment, which was entirely computerized and conducted in separate cubicles, consisted of two tasks: (a) a social dilemma task, in which we manipulated a partner's strategy and noise, and (b) a dictator game, to assess genuine other-regarding behavior.

Social dilemma task. The task was a two-person social dilemma game in which participants and a fictitious interaction partner (i.e., computer opponent) delivered valuable parcels for each other throughout a virtual city. The task consisted of nine rounds, each of which consisted of two parts. In Part A, the participant was the sender of the parcel and the partner was the deliverer, and in Part B the roles were reversed. Being the sender, participants were shown a "waiting" screen displaying the elapsed time, the incomes of the interaction partner, and own costs. Being the deliverer, participants could navigate through a virtual city by clicking on one of four red arrows around a blue ball to take the parcel to its location of delivery, which was indicated by a flag (for a detailed description of this task, see method section of Chapter 2).

Both parts of a trial lasted no longer than 25 seconds. Level of cooperation was measured by the number of seconds the participants used for the delivery. Deliverers earned € 0.60 for every second they were "on the road" (like a taxi driver). Senders lost € 1.40 per second, so it was in their interest that the parcel was delivered as fast as possible. Taken together, both parts of the task form a social dilemma. The money earned in the task was hypothetical but by earning more money participants could increase their chances of winning a 15-euro book or CD gift certificate. After explaining the social dilemma task, participants engaged in two practice trials. In the second practice trial their "maximum delivery speed" was measured. This measure enabled us to control for individual differences in task performance in the analysis.

Manipulation of the partner's strategy. Both the tit-for-tat partner and the generous partner were programmed to deliver the parcel in 13 seconds in the first round, a moderately cooperative move (see also Chapter 2). In subsequent trials, the tit-for-tat partner delivered the parcel in the same number of seconds as the participant did in the

previous trials. The generous partner delivered the parcel four seconds faster than the participant did in the preceding trial. To induce some variability in the partner's choices, we added or subtracted one second in every other trial.

Manipulation of noise in the partner's strategy. Prior to the social dilemma task, participants were informed about the possible occurrence of noise during the experiment (see also Chapter 2). We explained to the participants that every now and then construction blocks could appear on the map, for which they had to make a detour which lasted about seven seconds. In reality, we only manipulated noise in the partner's strategy – for the participants themselves, we included blocks that were not in the way to the flag as reminders of the presence of noise. As noted earlier, the task included nine rounds of which three trials (i.e., trial 2, 5, and 8) were influenced by noise.

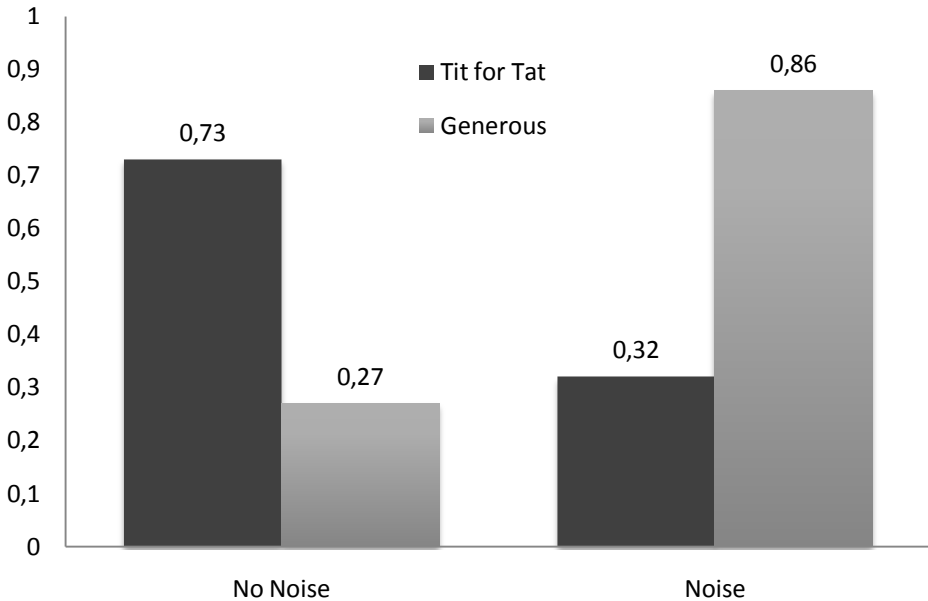
Measuring impressions of benign intent. Ten items assessed impressions of benign intent during the interaction (Chapter 2; Van Lange et al., 2002). Positive items were “The interaction partner was...generous, nice, forgiving, kind, trustworthy,” and negative items were “The interaction partner was...self-centered, greedy, competitive, stingy, vengeful, selfish” (Cronbach's $\alpha = .93$). Participants could indicate how much they agreed versus disagreed with these statements on scales ranging from 1 (totally disagree) to 7 (totally agree).

Dictator game. After the social dilemma task, and a post-experimental questionnaire, we introduced a “dictator game” (e.g., see Forsythe et al., 1994) that was not announced before. Specifically, participants were informed that they would receive an extra € 1.50 (in addition to their payment of € 3.50) and were told that they could choose to anonymously donate either nothing, € 0.50, € 1.00, or € 1.50 to the partner in the lab. We also told the participants that the amount they would give to the interaction partner would be doubled by the experimenter, so that the interaction partner would receive twice the value of whatever the participant gave away. After their choice, the experiment ended and participants were paid and debriefed.

Results

Giving in the dictator game. The primary goal was to examine whether genuine other-regarding behavior is affected by manipulations in the social dilemma task. Hence, we begin with reporting the effects of a 2 (partner's strategy: tit-for-tat or generous) \times 2 (noise: absent, or present) ANOVA on giving in the dictator game. This analysis revealed no main effects for noise or partner's strategy, both F 's < 1 , ns , but did yield the predicted interaction between noise and partner's strategy, $F(1, 40) = 9.53$, $p < .01$. As can be seen in Figure 3.1, when noise was present participants donated more money to a generous partner ($M = 0.86$, $SD = .55$) than to a tit-for-tat ($M = 0.32$, $SD = .60$) partner, $F(1, 40) = 5.67$, $p < .05$, which provided good support for our hypothesis⁴. When noise was absent, the effect of strategy did not reach full significance, $F(1, 40) = 3.94$, $p = .054$, but this marginal finding is nevertheless interesting by suggesting a reversed effect: participants donated more money to a tit-for-tat partner ($M = 0.73$, $SD = .61$) than to a generous partner ($M = 0.27$, $SD = .34$) when there was no noise. We return to this somewhat anomalous finding in the discussion.

Figure 3.1: Average amount of money (in euros) that participants donated to the partner after having interacted with either a tit-for-tat partner or a generous partner in a noise-absent or a noise-present environment.



*Social dilemma task: Cooperation and Impressions*²¹. To examine whether the present research replicates earlier findings, we analyzed whether cooperation was affected by interaction partner's strategy and noise. A 2 (partner's strategy: tit-for-tat or generous) × 2 (noise: absent or present) ANCOVA²² yielded the expected interaction effect (albeit marginally) for noise and partner's strategy, $F(1, 39) = 3.29, p = .08$. Simple main effect analysis revealed that both partners elicited equal levels of cooperation when noise was absent ($M = 14.88, SD = 5.63$ and $M = 15.74, SD = 3.69$, for the generous and tit-for-tat partner respectively), $F < 1, ns$, while the generous partner ($M = 13.90, SD = 5.57$) elicited more cooperation than the tit-for-tat partner ($M = 10.85, SD = 6.87$) when noise was present $F(1, 39) = 3.58, p = .07$. Of lesser relevance, the analysis revealed no main effects for partner's strategy, $F(1, 39) < 1, ns$, or noise, $F(1, 39) = 1.15, ns$. Thus, the present research largely supported the beneficial effects of a generous strategy for eliciting cooperation under noise³.

A 2 (partner's strategy: tit-for-tat or generous) × 2 (noise: absent or present) ANOVA on impressions of benign intent revealed a main effect for partner strategy, $F(1, 40) = 6.08, p < .05$, indicating that the generous partner was perceived as more benign ($M = 4.55, SD = 0.70$) than the tit-for-tat partner ($M = 3.83, SD = 1.36$), and a main effect for noise, $F(1, 40) = 8.42, p < .01$, indicating that partners were perceived as more benign in

²¹ Means are transformed to number of seconds that remained after the parcel was delivered, such that a higher score indicated a greater level of cooperation.

²² To correct for possible differences in "navigation skills", we used the participants' performance on the second practice trial as a covariate in the analysis of cooperation levels (see Chapter 2).

the noise-absent condition ($M = 4.61$, $SD = .75$) compared to the noise-present condition ($M = 3.76$, $SD = 1.29$). Moreover, the analysis revealed the predicted interaction effect for partner's strategy and noise $F(1, 40) = 4.12$, $p < .05$. Simple main effects analysis revealed a significant effect for partner's strategy within the noise-present condition, $F(1, 40) = 10.10$, $p < .01$, indicating that participants perceived the generous partner ($M = 4.42$, $SD = .69$) as more benign than the tit-for-tat partner ($M = 3.11$, $SD = 1.45$) when there was noise. There was no effect within the noise-absent condition, $F < 1$, *ns*, indicating that there were no differences between the generous partner ($M = 4.67$, $SD = .72$) and the tit-for-tat partner ($M = 4.55$, $SD = .80$) when there was no noise.

Discussion

Past research has revealed that generosity helps to cope with noise within an interaction through building trust and benevolently exploiting the tendency of most people to reciprocate generosity. The present findings, observed for cooperation and impressions of benign intent, provided further support for these findings. While such findings underscore the strength of generosity *within* an interaction situation, the present findings suggest that the power of generosity goes well *beyond* a specific interaction situation. Indeed, under realistic circumstances where interactions in a social dilemma are challenged by noise, generosity seems to be able to reinforce or strengthen genuine forms of other-regarding behavior after that interaction. Thus, generosity is useful in that (a) it helps one to cope with noise within an social dilemma, and (b) it promotes other-regarding behavior in a subsequent situation.

The latter, novel finding has important implications for relatively diverse literatures. First, the present research makes a substantial contribution to the rapidly growing literature on the evolution of human cooperation (for example, see Fehr & Fischbacher, 2003). In particular, the functional value of some explanations may well be constrained to noise-free environments that have been studied so far in simulations and empirical studies, for example, our findings show that a tit-for-tat strategy may be particularly, if not only, effective in noise-free environments. Moreover, the present research may provide clues for how generosity influences how relations are being built and maintained (i.e., fostering an atmosphere of trust and benign intent) and how it may function as a 'social glue' function within communities – even with relative strangers (see Chapter 4 findings). Also, our data support the “nice guys finish first” notion in that generous individuals (rather than reciprocal individuals) may be attractive partners to cooperate with (competitive altruism, Hardy & Van Vugt, 2006; indirect reciprocity, Nowak & Sigmund, 2005). Although the precise mechanisms need to be more fully understood, at this point it seems plausible that acts of generosity may have relatively enduring effects in terms of trust (such as impressions of benign intent), and in terms of promoting a genuine other-regarding mindset. Except for close partners we do not tend to interact with the same person each and everyday day, so it seems important to know that act of generosity may have enduring effects affecting concrete – and costly – behavior in a new situation.

Second, the present findings also contribute to the field of positive psychology, which is defined as the study of the conditions and processes that contribute to the flourishing or optimal functioning of people, groups, and institutions (cf. Gable & Haidt, 2005; also see Seligman, 2008). It becomes more and more clear that acts of generosity facilitate

maintaining positive relationships and enhance positive feeling and trust (see Chapter 2; Van Lange et al., 2002) –which may very well help to cope with negative events in times of uncertainty and misunderstanding (i.e., noise). Thus, the study of generosity may be relevant for a greater understanding of psychological well-being and coping and may relate very well to neighboring areas of research (e.g., research on gratitude, sacrifice, and forgiveness in ongoing relationships; Algoe, Haidt, & Gable, 2008; Karremans et al., 2003; Van Lange et al., 1997).

Third, a well-established effect in behavioral economics is that rational, profit-maximizing individuals tend to behave selfishly when interactions are about to end – since chances for future interaction and retribution are low – this is referred to as the “end game effect” (e.g., see González, Güth, & Levati, 2005; also see Luce & Raiffa, 1957). However, in our study we found that the strategy of the opponent can be an important moderator of this effect, and that this effect also depends on whether interactions are perfect or whether they are affected by unintended errors (i.e., negative noise). In other words, the end game effect, which is well-documented, may be strongly conditioned on generosity and noise.

We were surprised to see that in the noise-absent condition, a generous partner was offered less money than a tit-for-tat partner (while cooperation levels elicited by both partners were equal) It is possible that this paradoxical finding is an example of “do-gooder derogation” (Monin, 2007; see also Hermann, Thöni, & Gächter, 2008), that is, the generous partner may be seen as a (too) morally superior to the participant and therefore awarded less money. As Monin (2007) notes that this is also reflected in the work on the “might over morality” hypothesis (Liebrand et al., 1986), showing that low-cooperators tend to see high-cooperators as moral but weak, transforming the situation to one that requires “strength” rather than morality.

Concluding Remarks

Historically, there has been a strong and enduring consensus among social and behavioral scientists that reciprocity was *the* answer to major questions about human cooperation. This may be true for noise-free situations. However, the present findings – for cooperation, impressions, *and* other-regarding behavior -- provide a converging picture that some level of generosity – at least doing somewhat more than one did for you -- may be a more accurate answer to these questions, at least when referring to realistic situations where people are bound to make errors (i.e., when there is noise). Thus, the unique contribution is that when unintended errors do challenge cooperative interaction, generosity not only promotes cooperative interaction and benevolent interpretations of the other’s actions. It may also bring about true acts of generosity even when possibilities for “getting it back” do not exist, and even when it concerns actual money. As such, the present research may help us better understand the power of generosity, and how it may help us to become genuinely generous ourselves.