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How We Can Promote Behavior That Serves All of Us in the Future

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The health and vitality of relationships, groups, and society at large is strongly challenged by social dilemmas or conflicts between short-term self-interest and long-term collective interest. Pollution, depletion of natural resources, and inter-group conflict can be characterized as examples of urgent social dilemmas. This article advances a conceptual framework in which we analyze social dilemmas in terms of social and temporal concerns relevant to the social (individual vs. collective) and temporal (short-term vs. long-term) conflicts underlying social dilemmas. We discuss the plasticity of social orientations (altruism, cooperation, egalitarianism, individualism, competition, aggression) and temporal orientations (short-term orientation, future orientation), and illustrate their “logical effects” and “paradoxical effects” on behavior that supports collectively desired outcomes. This analysis enables us to suggest a set of novel recommendations for policy and intervention to help solve various social dilemmas in contemporary society.

The Urgency of Solving Social Dilemmas

Winter 1978/1979. Due to an unusually heavy snow, a small village in the North of the Netherlands was completely cut off from the rest of country so that there was no electricity to use for light, heating, television, etc. However, one of

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the 150 inhabitants owned a generator that could provide sufficient electricity to all people of this small community, if and only if they exercised substantial restraint in their energy use. For example, they should use only one light, they should not use heated water, the heating should be limited to about 18° Celsius (64° Fahrenheit), and the curtains should be closed. As it turned out, the generator collapsed because most people were in fact using heated water, living comfortably at 21° Celsius (70° Fahrenheit), watching television, and burning several lights simultaneously. After being without electricity for a while, the citizens were able to repair the generator, and this time, they appointed inspectors to check whether people were using more electricity than they agreed upon. But even then, the generator eventually collapsed due to overuse of energy. And again, all inhabitants suffered from the cold and lack of light, and of course, could not watch television.

The situation described above may be a bit unusual and extreme. Yet conflicts between immediate self-interest and longer-term collective interests are quite pervasive in everyday life. For example, the division of household chores among relationship partners can take cooperative or noncooperative forms, as can negotiations such as the dispute between seller and buyer about the price and services relevant to a product, or discussions among colleagues concerning who gets the best office. Such conflicts can also be found at the societal level. While we may at times be tempted to evade taxes, or pollute the environment, society as a whole is of course better served when most members do not evade taxes and do not pollute the environment. Finally, such conflicts of interest also arise on the global stage through the various forms of noncooperative—and often violent—interactions among different ethnic groups (e.g., conflicts of interests in the Middle East).

Conflicts between immediate self-interest and longer-term collective interests are so pervasive in everyday life that one can go so far as to claim that the most challenging task governments, organizations, and even partners in a relationship face is to successfully manage conflicts between self-interest and collective interest. Clearly, relationships are healthier if partners do not neglect one another's preferences, organizations are more productive if employees spontaneously exchange one another's expertise, and nations fare better to the extent that they show respect for one another's values, norms, and traditions. In the social and behavioral sciences, these "challenging tasks" are often studied within the increasingly rich literature of *social dilemmas*, broadly defined as situations in which short-term individual and long-term collective interests are at odds (Messick & Brewer, 1983).

Given their pervasive nature and serious consequences, it would serve policymakers well to understand how to encourage people to cooperate in social dilemmas. To that end, we advance a conceptual framework in which we analyze social dilemmas in terms of several social and temporal orientations relevant to decision making in social dilemmas. The six social orientations include altruism, cooperation, egalitarianism, individualism, competition, and aggression. The two

temporal orientations include present time orientation and future time orientation. Much of our framework is based on past research examining how individual differences in these social and temporal orientations impact decision making in social dilemmas. At the same time, in an effort to highlight their policy implications, we also treat these orientations as being responsive to situational influences (or interventions). In sum, we recognize both the stability and plasticity of people's social and temporal orientations across time and situations. To account for this plasticity, we offer a *slot machine metaphor*,¹ which emphasizes that while certain individuals may be generally predisposed toward one of these orientations, most or all people also have "slots" for each of these orientations, and people and situations differ in the probability with which each of these orientations may be activated. By forwarding the slot machine metaphor, we are not necessarily taking issue with contemporary theories of personality, which suggest that person factors interact with situation factors to determine behavior. Rather, we are simply offering a different metaphor for thinking about those interactions.

Beyond the slot machine metaphor, we also discuss how each of these orientations can exert "logical effects" and "paradoxical effects" on behavior that supports collectively desired outcomes. Logically, prosocial (or other-regarding) orientations (altruism, cooperation, egalitarianism) and future orientations should (and often do) encourage people to act in the interest of the collective. However, under certain circumstances, the activation of these orientations may have unforeseen negative consequences, just as the activation of proself (or self-regarding) and immediate orientations may support collectively desired outcomes. The broader take-home message is that there is plasticity in interpersonal orientations, and that, when activated, policymakers should be aware of the potentially paradoxical effects of these orientations.

While our primary focus is on how social and temporal orientations impact decision making in social dilemmas, our analysis is relevant to a broader range of problems that do not necessarily qualify as a social dilemma. For example, in a social dilemma that is often defined in terms of a conflict between self-interest and collective interest, people are actually faced with a choice between one option that maximizes altruism and joint gain and another option that maximizes individualism, competition, and aggression (e.g., see Joireman, Kuhlman, Van Lange, Doi, & Shelley, 2003). In other situations, people are faced with a choice between an option that maximizes altruism, joint gain and own gain, and another option that maximizes competition and aggression. In these situations, known as maximizing difference games (because it contrasts competitive and aggressive motives with other motives), people can pursue "cooperation" for individualistic

¹ We are indebted to Mike Kuhlman, who is the first to make reference to "slot machines" in describing social orientations. He used this concept during informal discussions at the Third International Conference on Social Dilemmas (Groningen, The Netherlands).

reasons, and should only choose the noncooperative alternative if they want to beat or hurt their partner or the collective. While not a social dilemma, the maximizing difference game is arguably a pervasive type of situation that people face on a daily basis, and the motives we discuss in this article are clearly relevant to this type of situation.

The ideas we discuss in this article are also relevant to a range of what are typically treated as “individual temporal dilemmas.” For example, while it might be in an individual’s short-term interest to utilize a credit card to purchase items he/she cannot really afford, in the long run, overextending one’s credit is an unwise financial decision (e.g., Joireman, Sprott, & Spangenberg, 2005). As another example, while it might be tempting to engage in a variety of unhealthy habits (smoking, drinking, eating as much as one wants), in the long run, each of these behaviors can lead to serious problems. Because they appear to involve only the decision maker, it is common to frame such problems as *individual* temporal dilemmas. However, because these different decisions have social consequences, they could just as easily be framed as examples of social dilemmas, given that financial and health problems of individuals often carry a social cost (e.g., increased health care). In sum, while our primary focus is on social dilemmas, we believe that through our analysis, policymakers are likely to find insights that apply to a much broader range of pressing social problems.

Social and Temporal Orientations in Interdependent Interactions

Social Dilemmas

The majority of societal problems involves multiple actors whose choices impact both their own and others’ well-being (i.e., most involve a certain degree of social interdependence). Many of the most challenging interdependence problems can further be viewed as *social dilemmas*, or situations in which short-term individual and long-term collective interests are at odds (Messick & Brewer, 1983). Framed as such, social dilemmas can be seen to involve two conflicts of interest, including a *social conflict* between individual and collective interests and a *temporal conflict* between short-term and long-term interests. These conflicts of interest, in turn, afford a range of possible social and temporal orientations that people bring to bear on their decisions in social dilemmas (for an overview of eight orientations, see Table 1). Each of the six social orientations deals with the extent to which an individual is concerned with their own and another’s well-being and are commonly referred to as *social value orientations* (McClintock, 1972; Messick & McClintock, 1968; Van Lange, 1999). These orientations include altruism (maximizing others’ well-being), cooperation (maximizing joint outcomes), egalitarianism (minimizing the difference between own and others’ outcomes), individualism (maximizing own outcomes), competition (maximizing

Table 1. Outcome Maximized by Social and Temporal Orientations Alongside Their Logical and Paradoxical Effects

Orientation	Outcome maximized	Logical effect	Paradoxical effect
Social orientations			
Altruism	MaxOther	Promotes cooperation	Helping a single individual at expense of group
Cooperation	MaxJoint	Promotes cooperation	Helping in-group at expense of out-group and overall collective
Equality	MinDiff	Promotes cooperation	Encouraging (negative) reciprocity
Individualism	MaxOwn	Undermines cooperation	Cooperating as a means to achieving long-term self-interest (reciprocity)
Competition	MaxRel	Undermines cooperation	Encouraging cooperation within groups
Aggression	MinOther	Undermines cooperation	Restoring fairness by punishing non-cooperation
Temporal orientations			
Immediate	MaxPresent	Undermines cooperation	Motivating cooperation if consequences are immediate
Future	MaxFuture	Promotes cooperation	Reducing cooperation if consequences are only immediate

Note: MaxOther = maximization of other’s outcomes; MaxJoint = maximization of joint outcomes; MinDiff = minimization of absolute differences in own and other’s outcomes; MaxOwn = maximization of own outcomes; MaxRel = maximization of own outcomes relative to other’s outcomes; MinOther = minimization of other’s outcomes; MaxPresent = maximization of present outcomes; MaxFuture = maximization of future outcomes.

the difference between own and others’ outcomes), and aggression (minimizing others’ outcomes). Also relevant are two temporal orientations, namely a present time orientation and a future time orientation (e.g., Strathman, Gleicher, Boningen, & Edwards, 1994; Zimbardo & Boyd, 1999). In an effort to highlight their policy implications, we first review the logical effects of the eight orientations in question. We then turn to their paradoxical effects, and end with a discussion of their policy implications.

Basic Principles of Social and Temporal Orientations

The theoretical basis for the eight orientations we discuss is largely derived from interdependence theory (Kelley & Thibaut, 1978; Kelley et al., 2003), which concerns itself with how people make decisions in interdependent settings (i.e., when an individual’s outcome is based not only on his/her own decision, but the decisions of others as well). According to interdependence theory, when making socially interdependent decisions, people “transform” what is commonly referred to as the “given decision matrix” into an “effective decision matrix” that is more

closely linked with behavior. To illustrate, people playing a social dilemma (like the prisoner's dilemma) are "given" a payoff matrix by an experimenter. The payoffs in this matrix correspond to the standard payoffs in a prisoner's dilemma, where (a) a noncooperative, self-regarding choice yields greater outcomes for self than a cooperative, other-regarding choice, yet (b) both individuals' outcomes are greater if they both make a cooperative choice than when they both make a noncooperative choice. To account for the fact that some people do cooperate in situations like the prisoner's dilemma, interdependence theory assumes that people utilize broader considerations to transform the "given matrix" into an "effective matrix" that is more closely associated with behavior.

In the real world, the given matrix is typically a function of basic, but nonsocial, preferences, such as whether a person prefers movie X or movie Y. When two partners differ in their preferences, but want to go to the theater together, they may take into account "broader considerations." For example, one partner may seek to maximize the well-being of the other partner (altruism) by choosing to see the movie that their partner wishes to see, or the partners may alternate who gets to choose the movie on a certain occasion (which in the long run may be an example of maximizing the motive of equality). In sum, when making interdependent decisions, people utilize "broader considerations" to transform the given situation (or matrix) into an effective situation (or matrix) that is more closely linked with behavior (for a more complete discussion, see Van Lange, De Cremer, Van Dijk, & Van Vugt, 2007).

Our goal in this article is to consider how a set of these "broader considerations"—the six social orientations and two temporal orientations—can shape decision making in social dilemmas. If viewed purely as individual differences, there may be little policymakers can do to encourage people to draw on such "broader considerations." However, it is possible to consider these different orientations as susceptible to situational variation (and hence, intervention) based on a slot machine metaphor of these social and temporal orientations.

Slot Machine Metaphor of Social and Temporal Orientations

It is not uncommon for scientists and laypeople alike to assume (often implicitly, we believe) that a disposition or orientation must translate directly into behavior. Perhaps due to the human need for predictability and control, we parsimoniously tend to believe that "prosocial people behave (almost) always prosocially" just as "competitive people behave (almost) always competitively." Rather than taking a deterministic perspective, a more accurate characterization of the dispositional view is probabilistic, based on the assumption that people differ in the *probability* with which one or more of the interpersonal orientations will be activated. As a metaphor, we prefer to frame this process in terms of the *slot machine*

*model of social and temporal orientations.*² We suggest that for relatively stable orientations (as dispositions or as partner-specific orientations), people differ in terms of the percentages of slots that represent the various social and temporal orientations—just as slot machines represent different frequencies of bananas, lemons, and oranges (so we assume). For example, a cooperative person is a person with a relatively high percentage of cooperative slots (let's say, 70%), and relatively low percentages of individualistic and competitive slots (let's say, 20% and 10%). The reverse pattern is likely to hold for a competitive person, while an individualistic person may take an intermediate position (with 60% individualistic slots, 20% cooperative slots, and 20% competitive slots).

The slot machine metaphor of interpersonal orientations is reasonable because people behave in a variety of different interaction situations, even with the same partner. Experience accumulates across interaction situations, which is likely to shape a “probability distribution of interpersonal orientations.” Indeed, it would appear to be dysfunctional or maladaptive if people relied on only a single orientation in their interactions with others, even if the situational features are the same. The slot machine model of interpersonal orientation is also plausible (a) because there is variation in the external (and impersonal) circumstances to which individuals may respond in some way (e.g., the weather, noise), and (b) because there is a fair amount of variation within an individual even on a day-to-day basis, which may also exert influences on the activation of a particular orientation (e.g., differences in mood states, or differences in energy levels on a particular day).

The slot machine metaphor emphasizes “probability distributions” involving all orientations” that we discuss in this article. Further, the process can take the form of a random process, as illustrated in the examples above (e.g., day-to-day fluctuation) or a nonrandom process. These processes come into being when a particular situational or interpersonal force (e.g., another's smile) systematically is more likely to activate a particular orientation (e.g., enhancing joint outcomes) rather than another orientation (e.g., enhancing relative advantage over the other). Clearly, it is still possible, if not plausible, that a smile is more likely to activate

² We realize that the concept of “slot machine” may carry the connotation of randomness, and that the reader might think that a shift from one slot to another is a strictly random process (as it seems to be in a real slot machine—from lemons to cherries). The slot machine as used metaphorically here is a model that states that people differ in the relatively availability (or percentages) of the social and temporal orientations that we highlight in this article. Specifically, people differ in the probability distributions with which the various social and temporal orientations might be activated. The activation of a particular orientation (e.g., prosocial orientation) itself is often *not* a random process—rather, it is more likely that this a functional “response” (conscious or not) to aspects of the other person (e.g., is the other a person I like or trust?) or aspects of the situation (e.g., this is a situation in which I do not have complete information, let's give the other the benefit of the doubt by making an other-regarding choice). Further, it is also likely that “neighboring orientations” (such as cooperation and egalitarianism) are more likely to be activated in concert (as we discuss later), and may be more likely to be the two social orientations between people shift. The latter issue would represent an intriguing topic for future research, but is at present a matter of speculation.

prosocial responses in individuals with “prosocial” orientations than in those with competitive orientations. But the overall point is that the slot machine model assumes not only random processes but also nonrandom process, so that the “opposing” orientations (i.e., the orientations that seem conflicting with one’s personality) may be activated. Both random and nonrandom processes are often not recognized in models that are more deterministic in nature.

One reason we introduce the slot machine metaphor is that it holds potentially very important practical implications. One implication is that the metaphor assumes *flexibility and adaptation*. Recall that much past theorizing implicitly assume that individuals with prosocial orientation would virtually be alien to a competitive motivation, just as individuals with competitive orientations would virtually be alien to any of the prosocial motivations. As an “antidote” to thinking in terms of such “one-to-one” links between individual differences in orientations and the activation of such orientations, the slot machine suggests that the “opposing” orientations can in fact be activated in people—albeit with a smaller probability than the orientation that is more typical of that individual. Further, if a person were to repeatedly (and rigidly) adopt the same orientation across multiple partners, or even to one and the same important partner, the person would be unlikely to adapt to small-but-important changes in the situation or to small-but-important changes in the partner’s behavior. Indeed, rigidity would probably imply that one does not even notice certain changes in the situations (e.g., new possibilities for effective communication) or changes in the partner’s behavior (e.g., increased tendency toward cooperation, increased tendency toward “cheating”). Hence, social and temporal orientations require flexibility to be adaptive—and indeed, if we were to be the slave of a particular orientation, our adaptive quality, and hence survival opportunities, would be very slim.

A second implication of the slot machine metaphor is that people will have experience with different *motivational states* corresponding to the eight orientations we discuss. This is important, because it suggests that people should be able to change perspectives, when called for. For example, it has been shown that prosocials (altruists, cooperators, and egalitarians combined) are more likely than individualists and competitors to evaluate other’s cooperative and noncooperative actions in terms of “good versus bad” associating cooperation with goodness and noncooperation with badness—they adopt readily a morality perspective. Conversely, individualists and competitors are more likely than prosocials to evaluate other’s actions in terms of strength and weakness, associating cooperation with weakness and noncooperation with strength—they adopt readily a “might” perspective (Liebrand, Jansen, Rijken, & Suhre, 1986; Van Lange & Kuhlman, 1994). According to the slot machine metaphor, people should not find it hard to change perspectives: Prosocials should not find it difficult to adopt a perspective whereby competing is construed as a sign of strength, while competitors should not find it difficult to see that cooperation is often the right (or good) thing to do. People

should also adapt by changing perspectives when dealing with their close partner than when dealing with a second-hand car salesman (or at least the stereotype thereof). While it may be seen as immoral to misinform your close partner, it may be seen as fairly “smart” to do so when buying (or selling) a secondhand car.

But is there empirical evidence for the slot machine model of social and temporal orientations? Although the evidence is very indirect, we can think of three complementary sources of empirical support. First, as discussed earlier, relatively subtle cues or associations seem to be able to activate one orientation rather than another. For example, instructions that subtly bring to mind concepts such as morality, fairness, competence, power, and competition have been shown to affect behavior in prisoner’s dilemmas; also, even merely describing a situation as a business transaction may be enough to evoke more self-interested behavior (Batson & Moran, 1999; see also Elliott, Hayward, & Canon, 1998). In a similar fashion, it is possible to impact whether people adopt a short-term (present) time orientation versus a long-term (future) time orientation, and these variations in time orientation have important implications for whether people cooperate in social dilemma-type settings (e.g., Murnighan & Roth, 1983).

A second source of indirect support is that the temporal stability of social and temporal orientations is good but far from excellent. While it is true that there are often high levels of intrapersonal stability within various types of social dilemmas that is partially accounted for by measures of social value orientation, the test–retest reliability of social value orientation is not excellent. For example, in one recent study with a 19-month lag between assessments, only 342 out of 581 participants (58.8%) expressed the same social value orientation at Time 1 and Time 2 (Van Lange, 1999, Study 1). Similarly, Strathman et al. (1994) reported a 5-week test–retest correlation for individual differences in the consideration of future consequences of .72, which is reasonable, but again leaves room for variability in temporal orientations over time and across situations.

Third, within the context of specific partners, we tend to see considerable variation in the interpersonal orientations we adopt. Clearly, some key relational constructs, such as commitment and trust, are able to predict various propartner behaviors that align with altruism, cooperation, and fairness (see also Holmes, 2002; Rusbult & Van Lange, 2003). Yet even when the relational circumstances are ideal, we witness behavior that resembles individualism or even competition. Conversely, even when the relational circumstances are bad, we may witness inherent forms of propartner behavior. And despite decades of research on social dilemmas and the like, no empirical overview can point at one variable that is most certainly going to direct all (or even most) people into making cooperative or noncooperative choices. The only exception may be when a relationship partner repeatedly engages in noncooperative behavior (for a classic illustration, see Kelley & Stahelski, 1970).

Taken together, there is growing evidence in support of the slot machine model of social and temporal orientations. That is, the most accurate characterization of “consistent” differences in social and temporal orientations is by conceptualizing these differences in terms of the *probability* with which a particular orientation may be activated. In doing so, the model also emphasizes flexibility, and “adaptive value” in responding to different partners and different situations.

Links with Alternative Typologies of Social Goals

Readers may note that our focus on these social and temporal orientations shows some meaningful links with other typologies relevant to classifying social goals. For example, Kenrick and colleagues suggest that much of human behavior occurs in the service of six fundamental goals, including coalition formation, gaining status, self-protection, mate selection, relationship maintenance, and promoting the well-being of kin (Kenrick, Becker, Butner, Li, & Maner, 2003). Further, Fiske (1992) has argued that all relationships can be categorized into one of four forms, including communal sharing, authority ranking, equality matching, or market pricing. To a large extent, these goals and types of relationships are considered universal (everyone has them, and everyone experiences them). By contrast, we are talking about plasticity in the way people approach interdependent relationships. We do not believe, however, that our approach necessarily conflicts with these other ways of looking at fundamental goals and types of relationships. Indeed, we suspect that the social and temporal orientations that we have outlined (altruism, cooperation, equality, individualism, competition, aggression, immediate and future orientation) impact the relative importance of these goals (e.g., status seeking may be most important for people with a high propensity toward competition; Joireman & Duell, 2005), and the way people approach the basic types of relationships (e.g., certain individuals may be more inclined to reciprocate within an equality-matching type of relationship; Van Lange & Semin-Goossens, 1998).

Logical Effects (Social Orientations)

Having outlined some basic principles underlying social and temporal orientations, we now turn to an examination of the logical and paradoxical effects of these orientations. Social orientations impact the weight individuals attach to their own and others' well-being in situations of social interdependence (McClintock, 1972; Messick & McClintock, 1968). Based on theory and research, we consider six social orientations including altruism, cooperation, egalitarianism, individualism, competition, and aggression.

Altruism. The claim that altruism should be considered an interpersonal orientation is rather controversial. Indeed, there has been a fair amount of debate

about the existence of altruism both within and beyond psychology. Much of the controversy, however, deals with definitions of altruism, which across disciplines, range from behavioral definitions (i.e., acts of costly helping are considered altruistic; Fehr & Gächter, 2002) to definitions that seek to exclude any possible mechanism that may be activated by some consideration that may not be free of self-interest (e.g., Cialdini, Brown, Lewis, Luce, & Neuberg, 1997). If we limit our discussion, for parsimony's sake, to research on cooperation, competition, and resource allocation measures, then we see that altruism is not very prominent. For example, in assessments of interpersonal orientations in a specific resource allocation task, the percentage of people who should be classified as altruistic (i.e., assigning no weight to their own outcomes while assigning substantial weight to other's outcomes) is close to zero (Liebrand & Van Run, 1985). Similarly, when people who play a single-choice prisoner's dilemma observe that the other makes a noncooperative choice, the percentage of cooperation drops to 5% or less (Van Lange, 1999).

But this evidence should not be interpreted as if altruism does not exist. In fact, what is more likely is that it does not exist under the (impersonal) circumstances that are common in this tradition of research. People usually face a decision-making task, be it a social dilemma task, a resource allocation task, or a negotiation task in which they are interdependent with a "relative stranger" in that there is no history of social interaction or other form of relationship. Accordingly, there is no basis for feelings of interpersonal attachment, sympathy, or relational commitment. We suggest that when such feelings are activated, altruism may very well exist. In fact, relative strangers (even animals) can elicit empathy even in younger people (e.g., 4-year olds, whose perspective-taking abilities are still developing), as we know from some movies (e.g., the killing of Bambi's mother in the movie *Bambi*).

As a case in point, Batson and Ahmad (2001) had participants play a single-trial prisoner's dilemma in which the other made the first choice. Before the social dilemma task, the other shared some personal information that her romantic partner had ended the relationship with her, and that she found it hard to think about anything else. Batson and Ahmad compared three conditions, one of which was a high-empathy condition in which participants were asked to imagine and adopt the other person's perspective. The other conditions were either a low-empathy condition, in which participants were instructed to take an objective perspective on the information shared by the other, or a condition in which no personal information was shared. After these instructions, participants were informed that the other makes a noncooperative choice. Batson and Ahmad found that nearly half of the participants (45%) in the high-empathy condition made a cooperative choice, while the percentages in the other low empathy and control conditions were very low, as shown in earlier research (less than 5%, as in Van Lange, 1999). Hence, this study provides an interesting demonstration of the power of empathy in activating choices that can be understood in terms of altruism, in that high-empathy

participants presumably assigned substantial weight to the outcomes for the other at the expense of their own outcomes (for further evidence on dispositional forms of empathy, see Joireman, Daniels, George-Falvy, & Kamdar, 2006; Joireman, Kamdar, Daniels, & Duell, 2006).

Cooperation. A second social orientation relevant within social dilemma settings is a desire to maximize joint outcomes, typically referred to as cooperative orientation. A desire to maximize joint outcomes can arise from several sources. To begin, there is a fair amount of research showing that a notable percentage of people (46%) adopt a cooperative orientation in dilemma type settings even when there is no strategic reason to do so (e.g., no anticipated future interaction) (Au & Kwong, 2004). The enhancement of joint outcomes may also arise out of strategic self-interest, as when individualists cooperate with a partner pursuing a tit-for-tat strategy (Kuhlman & Marshello, 1975). The tit-for-tat strategy begins with a cooperative choice and then reciprocates the choice the other made in the previous interaction, and has been shown to be highly effective at eliciting cooperative behavior (for impressive evidence supporting its power to elicit cooperation, see Axelrod, 1984; for some limitations, see Van Lange, Ouwerkerk, & Tazelaar, 2002). People may also seek to enhance joint outcomes out of a desire to enhance the well-being of their group as a whole (a tendency sometimes referred to as collectivism, Batson, 1994), and/or because they strongly identify with their group (e.g., Brewer & Kramer, 1986; Gaertner & Dovidio, 2000; Van Vugt & Hart, 2004). A classic case in point is research by Brewer and Kramer (1986), in which participants were categorized as psychology students (i.e., the actual participants, hence strong group identity) or economics students (i.e., weak group identity). Using a resource dilemma, Brewer and Kramer showed that under conditions of strong identity, individuals were more likely to behave cooperatively when it was essential to the group (i.e., when the resources were near depletion). Such cooperative efforts were not observed when group identity was low. It has been suggested that under conditions of strong identity, there may be a blurring of the distinction between personal outcomes and collective outcomes—that is, me and mine becomes we and ours, just as we and ours becomes me and mine (e.g., Van Vugt & Hart, 2004). In sum, a desire to enhance joint outcomes can arise out of several different processes, and this desire to enhance joint outcomes typically enhances people's willingness to cooperate in social dilemmas.

Egalitarianism. The existence of egalitarianism or equality may be derived from various lines of research. To begin with, several experiments have been conducted within the realm of resource-sharing tasks to examine the factors that may determine different "rules of fairness." In these tasks, a group of people shares a resource and the problem that these decision makers are confronted with is how to optimally use the resource without overusing it. Research by Allison and Messick

(1990) provided a powerful demonstration of what happens in such situations. That is, their results showed that when participants (in a group of six people) are asked to harvest first from the common resource, people almost without exception use the equal division rule. Individuals tend to favor equality in outcomes (rather than more complicated rules of fairness). Allison and Messick (1990) suggested that equality represents a decision heuristic that has the advantages of being simple, efficient, and fair. As such, equality has great potential to promote the quality and effectiveness of interpersonal relationships, and therefore can be considered as a “decision rule” that is deeply rooted in people’s orientations toward others.

Another powerful illustration of equality in interdependence situations is when people have to negotiate allocations (e.g., how to allocate monetary outcomes). This problem is often addressed in research on ultimatum bargaining games, an exceedingly popular paradigm in experimental economics for over two decades (see Güth, Schmittberger, & Schwarze, 1982). In this negotiation setting, two players have to decide on how to distribute a certain amount of money. One of the players, the allocator, offers a proportion of the money to the other player, the recipient. If the recipient accepts, the money will be distributed in agreement with the allocator’s offer. If the recipient rejects the offer, both players get nothing. Some of the first studies using this research paradigm demonstrated that allocators generally proposed an equal distribution (i.e., a 50–50 split) of the money (for an overview, see Camerer & Thaler, 1995).

Although equality is in the eye of many the prime example of fairness, fairness might also take different forms, independent of outcomes per se. More precisely, allocating outcomes is always accompanied by procedures guiding allocation decisions (Thibaut & Walker, 1975; see also Van den Bos, Wilke, & Lind, 1998). The focus on procedural fairness was further inspired by research showing that when people are asked to talk about their personal experiences of injustice they are usually found to talk primarily about procedural issues, in particular about being treated with a lack of dignity and politeness when dealing with others (e.g., Mikula, Petri, & Tanzer, 1990; Schroeder, Steel, Woodell, & Bembenek, 2003). To conclude, egalitarianism has received attention in distinct literatures, often supporting the notion that equality in outcomes and treatment is deeply rooted in our system in that equality often serves as a powerful, highly internalized norm as well as a heuristic for own actions and expectations regarding other’s actions.

Cooperation and egalitarianism combined. While we have presented them as separate orientations, the prosocial orientations of cooperation and egalitarianism frequently go hand in hand. For example, prosocials frequently reciprocate the behavior of others in social dilemmas, a phenomenon known as *behavioral assimilation* (Kelley & Stahelski, 1970). Theoretically, if prosocials were only interested in maximizing joint outcomes, they should behave cooperatively, regardless of their partner’s behavior. However, this is not the case, which suggests

that the broader construct of a prosocial orientation captures more than simply maximizing joint outcomes; it must also include a concern with maximizing equal outcomes. Consistent with this line of reasoning, research suggests that prosocials tend to be more inclined than proselves (individualists and competitors) to reciprocate the behavior of others. For example, Van Lange (1999) assessed participants' social value orientation and then had participants decide how many chips to give to their interaction partner after the partner had already made their own contribution choice. Because chips given to the other were worth more than chips kept for the self, the best option for maximizing joint gain was to give all one's chips to the other. In this study, participants were led to believe that the other gave away one, two, or three chips from a total of four chips, and reciprocity was defined as giving away exactly the same number of chips as the other had given away. Across the three contribution conditions, prosocials exhibited greater reciprocity (64%) than did individualists (33%) or competitors (17%). In another study, we examined reciprocity in the context of a single-trial social dilemma in which the participant and the other made their choices simultaneously (Van Lange, 1999). Reciprocity choices were operationalized as giving exactly the same number of chips as they expected the other to give away. In this study too, prosocials (79.6%) exhibited greater reciprocity than did individualists (58.4%) and competitors (45.4%).

In another line of studies, Van Beest, Wilke, and Van Dijk (2003) compared bargaining behavior of prosocials and proselves in a three-person negotiation game. In this game, group members could form two-person coalitions by excluding a third party from the coalition, or a three-party coalition. If they chose to exclude a third party, the two parties forming a coalition would get larger outcomes, while the excluded party would receive lower outcomes because he/she does not benefit from the coalition. Alternatively, if they chose to form a grand coalition of all three parties, they would receive a somewhat lower outcome for each party than in a two-party coalition, but all parties would receive equal outcomes. Results indicated that prosocials were reluctant more than proselves to exclude another party from a coalition. This tendency to include all members in distributing the bargaining payoff once again suggests that prosocials are strongly motivated to obtain equality in outcomes (for further evidence, see Van Beest, Andeweg, Koning, & Van Lange, 2008).

Similar conclusions can be reached on the basis of research on social dilemmas. For example, Samuelson (1993) investigated in a resource dilemma how prosocials and proselves reacted to collective inefficiency and inequality. He investigated people's preferences for structural change when they observed that the common resource became depleted (as compared to efficient use of the resource), and when they observed that some members harvested more than others (as compared to a more equal distribution of harvests). Both dimensions—collective inefficiency and inequality—appeared to be more important to prosocials than to proselves.

Taken together, there is good support for the link between cooperation and egalitarianism. Enhancement of joint outcomes and enhancement of equality tend to go together, and are characteristic of how prosocials tend to approach social dilemmas and related situations of interdependence. One might further speculate about the relative importance of cooperation and equality. There is some initial evidence suggesting that enhancement of equality is “stronger” than enhancement of joint outcomes (e.g., Eek & Gärling, 2000; Gärling, 1999). For example, Gärling (1999) found that, relative to individualists and competitors, prosocials exhibited greater levels of universalism, an attitude closely related to equality and fairness, but no greater levels of benevolence, an attitude closely related to altruism. As noted earlier, it is plausible that in the context of prisoner’s dilemmas and related structures, the violation of equality is so strong that mutual noncooperation is preferred to even weak forms of unilateral cooperation (or weak forms of altruism) whereby one behaves—or expects to behave—somewhat more cooperatively than the other. That is, prosocials may behave cooperatively up to the point that it violates equality in outcomes too strongly. Future research could examine how, more precisely, these two orientations work in concert, and whether some of the other orientations may in some ways activate each other.

Individualism. The fact that we suggest that “self-interest” alone is too limited to fully understand social interaction is not to deny the existence of individualism. Indeed, individualism, or the concern with own outcomes, is likely to be a very prominent orientation in a variety of different contexts. In fact, individualism may well be one of the primary anchors (or points of departure) that people use to interpret interpersonal situations. In many ways, people may approach an interpersonal problem as if it is an impersonal problem, and then “add” interpersonal preferences to it. For example, in deciding whether to go to a movie with a friend, people may first consider the movie that they themselves like to see, and later think about (or inquire about) the preferences that the friend may have, and then whether, how or even why they should take account of the friend’s preferences. A concern with one’s own outcomes is an important orientation, and the literature documents numerous phenomena that align with an individualistic orientation.

Research on social dilemmas illustrate that individualism is an important orientation. For example, the success of tit-for-tat in dyadic interaction is arguably a consequence of the fact that individuals concerned with their own outcomes, now and in the future, should cooperate with a partner pursuing tit-for-tat (Kuhlman & Marshello, 1975; Van Lange & Visser, 1999). The fact that variations in the so-called “payoff structure” (e.g., reducing fear and greed) impact people’s willingness to cooperate also suggests that individualism is an important motive in social dilemmas (see Komorita & Parks, 1995).

More broadly, there are several empirically supported phenomena within the field of social psychology that suggest a strong concern with own “outcomes.” Examples are the *self-serving bias*, by which people attribute success to internal causes and failure to external causes, and self-enhancement, the belief that one is superior to others on a number of attributes, or tendencies toward thinking and reasoning in terms of I, me, and mine (rather than we, us, and ours). In sum, research both within and outside the field of social dilemmas suggests that individualism is an important human motive.

Competition. There is also strong evidence in support of competition as an orientation quite distinct from self-interest. As noted earlier, the work by Messick and McClintock (1968) has inspired considerable research that reveals that not only cooperative orientations but also competitive orientations may underlie social interactions. For example, Kuhlman and Marshello (1975) have demonstrated that individuals with cooperative orientations do not tend to exploit others who exhibit cooperation at every interaction situation, irrespective of the individual’s own behavior. They also showed that individuals with competitive orientations do not exhibit cooperation, even if cooperative behavior, rather than noncooperative behavior, best serves their own personal outcomes (e.g., the tendency to compete with a tit-for-tat partners, yielding bad outcomes; see Van Lange & Visser, 1999).

The importance of competition is even more directly shown in research on a decision-making task that represents a conflict between on the one hand cooperation and individualism (Option A) and on the other hand competition (Option B). Hence, the only consideration to choose Option B is to receive better outcomes (or less worse outcomes) than the other, even though one could do better for oneself by choosing Option A. Research using this so-called maximizing difference game has revealed that quite a few people choose the competitive alternative; it is also of some interest to note that among some (young) age groups competitive tendencies tend to be even more pronounced (McClintock & Moskowitz, 1976). Specifically, among very young children (3 years old) individualistic orientation dominates, after which competition becomes more pronounced (4–5 years), which is then followed by cooperative orientation (6–7 years).

Finally, one might wonder whether it is the aversion of “getting behind” or the temptation of “getting ahead” that underlies such competition. In a very nice study by Messick and Thorngate (1967), it was shown that the former tendency (aversive competition) is much more pronounced than the latter tendency (appetitive competition)—in other words, not losing seems a stronger motivation than winning. This early research was later extended, and generalized, by Kahneman and Tversky’s (1979) gain and loss frames in their prospect theory, and by Higgins’ (1998) distinction between prevention and promotion focus as two distinct self-regulatory systems. Recent research has also revealed that under conditions of uncertainty, competition may be especially pronounced, presumably because people really want to make sure that they do not get less than the other (Poppe

& Valkenberg, 2003). Thus, there is little doubt that competition is an important orientation that needs to be carefully distinguished from self-interest.

Aggression. The orientation of aggression has received very little attention in research on social dilemmas. It is interesting to note that, especially in comparison to the orientation of altruism, much research on aggression focuses on genetic and biological factors. Examples are not only twin studies, but also studies focusing on associations of aggression with hormonal activity, such as variations in levels of testosterone. Generally, this body of research supports the view that aggressiveness is substantially “influenced” by genetic factors and biological make-up (e.g., Vierikko, Pulkkinen, Kaprio, & Rose, 2006). For example, there is research showing that manipulations of levels of testosterone, varied as part of a treatment for sexual transformations, influence the proclivity to anger. Specifically, there is an increase in the tendencies toward anger among individuals who transform from woman to man, and a decrease in such tendencies among individuals who transform from man to woman (Van Goozen, Frijda, & Van de Poll, 1995).

Importantly, the correlation between aggressiveness and testosterone is especially pronounced for scale items assessing aggressiveness-in-response-to-provocation (Olweus, 1979), suggesting that aggression needs to be considered in terms of anger that is interpersonally activated. Indeed, the methods typically used to study aggression consist of examining aggressiveness in response to provocation by another person. Hence, anger and aggressiveness should be easily aroused by others who fail to exhibit cooperative behavior. This interpersonal basis of aggression is important, and suggests several interesting phenomena. For example, it may well be that tendencies toward aggression are most pronounced among those who do not expect others to behave selfishly. As a case in point, Kelley and Stahelski (1970) provide some evidence for what they referred to as overassimilation, the tendency for cooperative individuals (at least, some cooperative individuals) to behave eventually even more noncooperatively than the fairly noncooperative partner with whom one interacts (see also Liebrand et al., 1986). More generally, aggression may be activated by others’ noncooperative behavior, in dyads and groups, by violations of justice (broadly conceived), and perhaps by misperceiving or misunderstanding another person’s intentions. Thus, it is surprising that aggression has received so little attention in social dilemmas, because aggression seems an important orientation in social dilemmas, albeit one that seems activated primarily by the behavior of others.

Temporal Orientations

Also relevant to decision making in social dilemmas are temporal orientations, broadly defined as the extent to which people base their decisions on the immediate versus delayed consequences of their actions (Strathman et al., 1994; Zimbardo &

Boyd, 1999). One relevant construct that has received a fair amount of attention in the dilemmas literature is an individual difference construct known as the consideration of future consequences (CFC) (Strathman et al., 1994). Individual differences in CFC reflect “the extent to which people consider the potential distant outcomes of their current behaviors and the extent to which they are influenced by these potential outcomes” (Strathman et al., 1994, p. 743). Individuals low in CFC are concerned with the immediate but not the delayed consequences of their actions while individuals high in CFC are concerned with the delayed but not the immediate consequences of their actions. As reviewed below, an increasing number of studies indicate that individual differences in CFC predict decision making across a range of applied social dilemma settings with important policy implications (for a review, see Joireman, Strathman, & Balliet, 2006).

Many of these studies demonstrate support for the intuitively appealing hypothesis that individuals high in CFC are more responsible than those low in CFC. As an example, in their original study, Strathman et al. (1994) showed that individuals high in CFC were less likely than those low in CFC to support off-shore drilling for oil when it would yield long-term negative consequences, despite the fact that drilling would also yield short-term benefits. More recent studies have shown that individuals high in CFC are more likely to recycle (Ebreo & Vining, 2001), conserve natural resources (Kortenkamp & Moore, 2006), be involved in proenvironmental activism (Joireman, Lasane, Bennett, Richards, & Solaimani, 2001), prefer commuting by public transportation rather than by car (Joireman, Van Lange, & Van Vugt, 2004), support structural solutions to commuting dilemmas (Joireman et al., 2001), and resist the urge to respond aggressively when insulted (Joireman, Anderson, & Strathman, 2003). Frequently, these differences are magnified when the long-term consequences of a behavioral option are more salient, for example, when people believe that commuting by car leads to long-term environmental problems (Joireman et al., 2004), or when aggression is likely to carry future negative consequences (Joireman et al., 2003).

Paradoxical Effects

Presumably, most scientists (and policymakers) expect more desirable outcomes from prosocial orientations (altruism, cooperation, and, perhaps equality) and future orientations than from individualism, competition, or aggression, or a present orientation. Indeed, these effects are “*logical*” because social dilemmas are defined in terms of the conflict between short-term self-interest and long-term collective interest. However, as we will discuss below, there may also be *paradoxical* effects, such that altruism, cooperation, equality, and future orientation can pose a threat to desirable collective outcomes, while individualism, competition, aggression, and short-term orientation may actually promote desirable collective outcomes. Awareness of such paradoxical effects can be crucially important to

designing policy for promoting desirable behavior, and discouraging undesirable behavior.

Altruism. As noted earlier, altruism may come into being when people empathize with another person. It should be clear that several media campaigns use empathy to promote donations to poor countries, to various health organizations, and to charity (e.g., helping the homeless after a natural disaster). These forms of public education may be especially effective when they include a “story” about a victim who is in serious need. Often the victim is “individualized” by informing the public about some personal qualities. Such information may be especially likely to activate empathy and helping in turn. Activating empathy may thus be an important solution to various forms of helping, including donations, volunteering, and participation in some collective action (e.g., protesting against war).

It is interesting, however, that empathy may not always yield benefits at the collective level. In fact, there is research indicating that feelings of empathy could promote choices that benefit one particular individual in a group—at the expense of outcomes for the entire group (Batson et al., 1995). As such, empathy can sometimes form a threat to cooperative interaction, just as selfishness can. That is, feelings of empathy may lead one to provide tremendous support to one particular person, thereby neglecting the well-being of the collective. For example, as noted by Batson et al. (1995, p. 621), an executive may retain an ineffective employee for whom he or she feels compassion to the detriment of the organization. Another example is that parents may sometimes be so supporting of their children that it harms collective interest in a serious manner (e.g., not making an attempt to stop their making noise in public situations).

Cooperation. A strong concern with collective well-being—cooperation—almost always supports actions that are collectively desirable. There is, however, one very important exception to this rule, namely when social dilemmas take the form of a multilayered social dilemmas in which “cooperation” is good for one’s own group, but bad for another group—and bad for the entire collectivity (see Bornstein, 1992). Consider, for example, the soldier fighting for his (or her) own country, but killing soldiers from the other country, thereby causing bad effects for the entire collective. It is this type of “cooperation action” that often is supported and respected by in-group members that threatens collective well-being (for evidence, see Insko & Schopler, 1998). In that sense, cooperation can be a risky orientation, especially because intergroup conflicts, once started, are often very hard to resolve.

Equality. Often equality supports collectively desirable actions. In fact, sometimes donations, volunteering, and related forms of helping may be rooted in “a sense of fairness”: to enhance the situation of those who are worse off than

oneself. Indeed, campaigns aimed at fostering helping behavior could sometimes emphasize not only empathy but also feelings of justice—does it feel right when we do not stop the suffering? Also, when a majority of people makes a cooperative choice (e.g., not overusing water) then policymakers could indeed make salient that important fact—because getting more than others for the wrong reasons simply does not feel good, and it is very difficult to justify to oneself or to others.

Despite its benefits, equality can also entail risks to collective outcomes. First, if individuals are primarily concerned with equality, then they may show an aversion to being taken advantage of, and end up following “bad apples” in the group who choose not to cooperate (e.g., Rutte & Wilke, 1992). Indeed, violations of equality will be especially salient in other’s actions, and such actions are likely to occur in large groups. As such, small violations of equality (e.g., a self-regarding choice) may set off noncooperative responses by the many members of the group, thereby running the risk of creating an atmosphere of distrust and concern with self.

Second, on a related note, a strong concern with equality may harm collective outcomes because people do not want to unilaterally invest in situations where such investing cannot occur simultaneously. For example, building exchange systems often takes time and unilateral actions—an example is the exchange of expertise among colleagues. If one, a statistics expert, is very seriously concerned about equality, then he or she may not want to invest too much time into conducting complex, time-consuming analyses, if there is a bit of uncertainty that the other (an expert in writing) is not going to reciprocate. Thus, the collectively desirable outcomes (a joint high-quality product) are less likely to be obtained if it takes unilateral investment that challenges equality. And indeed, most situations of mutual helping are characterized by the very fact that one has to make a start in dyads (e.g., mutual baby-sitting among young parents) and groups (e.g., somebody has to initiate costly action to get organized for a joint activity); and so, a strong concern with equality (along with uncertainty) may undermine beneficial exchange.

Third, sometimes it may not be wise to emphasize equality in relationships, groups, and organizations. For example, in marital relationships, a discussion about equality may well be an indicator that a couple is on its way to divorce, perhaps because such discussions can undermine propartner motivation (e.g., responding to the partner’s needs; Clark & Mills, 1993). Similarly, in groups and organizations, communicating equality may lead to social bookkeeping that may undermine organizational citizenship behavior, the more spontaneous forms of helping colleagues that are not really part of one’s job but are nonetheless essential to the group or organization.

Individualism. The paradoxical effects of individualism are a little more subtle—but quite common, we suggest. Individualism is often a powerful

motivation to engage in cooperative behavior—and one that works through the reciprocity mechanism. The best illustration of this phenomenon is the classic work on the so-called tit-for-tat strategy (i.e., responding in kind, thus reciprocating cooperation and noncooperation in the next interaction), which has been shown to be so effective in eliciting cooperation from people in situations in which partners respond to one another actions for some time (Axelrod, 1984; For an empirical review, see Komorita & Parks, 1995). Indeed, it has been shown that tit-for-tat in many environments is even more effective than unconditional forms of cooperation in eliciting cooperation. Important research by Kuhlman and Marshello (1975) has subsequently shown that tit-for-tat primarily helps motivate people with an individualistic orientation to cooperate. This finding, replicated and extended in a variety of ways (e.g., across interdependent situations; McClintock & Liebrand, 1988; in situations in which people could choose to become more or less interdependent; Van Lange & Visser, 1999), is very important because it demonstrates that individualism could be a powerful motivation underlying cooperative behavior.

Similarly, in the context of ongoing relationships, it appears that prosocials are quite willing to engage in various sacrifices for their partner, irrespective of their level of commitment (which represents affect and long-term orientation) to the partner. In contrast, individualists are willing to sacrifice primarily or only if they are strongly committed to their partner (see Van Lange, Agnew, Harinck, & Steemers, 1997). This finding, too, suggests that individualistic motivation may “translate” into cooperative behavior, so as to benefit from reciprocity in the near or more distal future.

Competition. A strong concern with receiving better outcomes—and not getting worse outcomes—than others is often conflicting with good outcomes for the collective. In fact, there is some evidence indicating that it is exceptionally hard to seduce individuals with competitive orientations to behave cooperatively. As noted earlier, they do not cooperate, even if the partner pursues tit-for-tat in an iterated social dilemma. At the same time, competition can sometimes be a powerful means to cooperation. Competition can have beneficial effects in multi-layered social dilemmas that we discussed above for cooperation. When there are two (or more) well-defined groups who comprise the entire collective, then sometimes competition between the groups helps the entire collective. The competition should then deal with something desirable. For example, in the Netherlands, there is a contest among the cities aiming for the award “Cleanest City.” As another example, two departments at a university may do better (yielding greater research output and enhanced teaching) if the university provides extra resources for only excellent departments. In fact, organizations often use competition as a means to promote functioning. Sometimes such practices take explicit forms, when, for example, competitive reward structures are being implemented: your evaluations

and salary depend on your performance relative to others' performances. But even when not done explicitly, the performances of others typically matter in most organizations, because many jobs lack objective criteria, and so managers will often rely on social standards for evaluating individual performance.

Aggression. Just as a competitive orientation can sometimes yield positive outcomes, aggression may also serve a useful function in groups. As noted earlier, individuals are likely to act aggressively to another person in a dyad, or other people in the group, who fail to cooperate. As such, aggression, at least genuine forms, may often serve to regulate fairness and promote cooperation. For example, people may use "aggression" as an instrument for encouraging cooperation by exhibiting instrumental cooperation or altruistic punishment. Instrumental cooperation refers to all behaviors by which individuals contribute to the quality of a system that rewards cooperators or punishes noncooperators (Yamagishi, 1986). An example is a contribution to the maintenance of sanctioning systems such as monitoring devices needed for "publicizing" or punishing noncooperators. Altruistic punishment refers to all behaviors by which individuals are willing to engage in costly acts by which noncooperators are directly punished (Fehr & Gächter, 2002). Another form of aggression that individuals and groups may use is social exclusion or forms of marginalization by which noncooperators are in some way punished in that they are not longer part of the group. This could mean that they no longer benefit from group outcomes, but we suspect that the social aspects of even very subtle forms of exclusion can yield powerful effects on the noncooperators' feelings and behavior. Indeed, there is evidence that very subtle forms of social exclusion may activate those regions of the brain that are associated with physical pain (Eisenberger, Lieberman, & Williams, 2003). In short, while aggression is often undesirable, it may at times serve a vital function in maintaining cooperation within the larger group.

Temporal Orientations

While it seems intuitively obvious that a future orientation is always beneficial, a close inspection of the literature reveals several apparently paradoxical effects. For example, as noted earlier, Strathman and colleagues (1994) found that people high in CFC were less likely to support off-shore oil drilling when it carried short-term benefits and long-term costs. However, when the temporal ordering of the costs and benefits was reversed (i.e., drilling produced short-term costs and long-term benefits), individuals high in CFC were more likely than those low in CFC to support off-shore drilling. In a similar fashion, those high in CFC were more likely than those low in CFC to respond to an insult in an aggressive manner when they believed aggression would carry immediate negative consequences, but no long-term negative consequences (Joireman et al., 2003). Finally, two recent

studies have shown that individuals high in CFC were less likely than those low in CFC to engage in organizational citizenship behaviors when they believed they would soon be leaving an organization (Joireman, Daniels et al., 2006; Joireman, Kamdar et al., 2006). Taken together, these studies indicate that while a future orientation may often encourage cooperation in social dilemma settings, a future orientation can also have paradoxical effects under certain conditions.

Social Issues and Policy Implications

The present analysis of social dilemmas emphasizes the importance of “social orientations” and “temporal orientations” as two relatively distinct underpinnings of behavior in social dilemmas. Our analysis also assumes considerable flexibility in the activation and “use” of these orientations (as suggested by the slot machine metaphor), and suggests that the social and temporal orientations can exert logical and paradoxical effects. We now discuss broad implications that are relevant to policy and management of groups.

To begin with, from a policy point of view, it is useful to contrast the slot machine model with classic approaches that emphasize stability rather than *plasticity*. For example, it is often suggested that perspectives that assume considerable stability in personality differences are not necessarily helpful in terms of designing interventions to promote collectively desired behaviors. After all, if the orientations underlying personality differences were perfectly stable across time and situations, the degrees of freedom for bringing about change through policy would be somewhat limited. That is, the potential for policy intervention is, by and large, limited to selecting personalities (e.g., to select employees with prosocial orientation or ones who readily adopt a future orientation) or changing situations in such a powerful manner that these “fixed” orientations cannot express themselves (e.g., to install automatic light switches so that people cannot waste energy by leaving the lights on in public toilets).

Needless to say, the scientific perspective of differences in personality has been subject to enormous debate, with some emphasizing the power of situational influence and others the power of dispositional influences. However, most contemporary perspectives of personality assume continuity and change, and this seems especially true for issues that are linked to the social and temporal orientations discussed in this article. Also, in social psychology, there is increasing evidence indicating that relatively subtle differences in the (social) environment can exert pronounced differences in behavior. For example, the priming of morality concepts enhances the expectation that other will cooperate, as well as own cooperation in most people (except for highly consistent individualists and competitors; Smeesters, Warlop, Van Avermaet, Corneille, & Yzerbyt, 2003). And the priming of competence can enhance competition in those prone to compete, but less so in others (Utz, Ouwkerk, & Van Lange, 2004). Our slot machine metaphor is

consistent with these latter perspectives, and perhaps even more strongly explicates differences in the distribution of “slots”—a distribution that underlies differences in personality and differences in situation. Thus, by assuming plasticity, the slot machine model should be especially helpful in designing interventions that are effective at activating those orientations that help promote collectively desired behaviors.

Second, it is essential to note that social dilemmas may not always be what they appear to be at first glance. That is, we argue that many social dilemmas in everyday life are in fact *multiply structured* in terms of social orientations, because these social dilemmas represent different layers. For example, in multilayered social dilemmas (see team games, Bornstein, 1992; Wit & Kerr, 2002), one may distinguish among at least three “layers” or entities, including the individual, the in-group (and out-group), and the entire collective. What do these entities mean for the social orientations that may (or may not) be activated? The soldier deciding whether to fight for “his country” is faced with this layered social dilemma, as are many employees who sometimes must decide among pursuing his or her self-interest, the interests of the unit or team in which he or she is working, and the interests of the entire organization. For example, to ask for greater resources than one actually needs (e.g., very advanced computers) may at times help management appreciate the performance of one’s own unit a bit more, but an organization is obviously not served by units that are always asking for greater resources than they actually need. Thus, layered social dilemmas may bring about “problems” in that a “prosocial orientation” may well translate into cooperation with in-group members, which may exert detrimental effects for the larger collective. In fact, there is some preliminary evidence indicating that people with prosocial orientations are especially prone to cooperate with in-group members, and less so with entire collectives (Wit, De Rooij, & Van Lange, 2007), and there is some evidence suggesting that in-group cooperation (or “parochial cooperation”) accounts for most of the cooperation one can witness in natural life (cf. Henrich et al., 2005).

However, layered social dilemmas also bring about “opportunities” for promoting collectively desired behaviors. Sometimes, it is even possible to make salient a layer to the social dilemma that would otherwise remain subtle or even unnoticed. For example, the installation of an award for a group category makes that subgroup salient (e.g., the clean city award), which may eventually help the entire country. A large organization can award working units for hiring categories of people that are underrepresented, such as ethnic minorities. Thus, it is of great importance for policymakers to analyze the situation carefully in terms of differing layers, and the ways in which the interests correspond versus conflict for each pair of the layer (individual vs. in-group, individual vs. collective, and in-group vs. collective). Creative and powerful solutions to social dilemmas may be generated if one is able to induce or make salient a new of layer in the social dilemma that in

many ways serves as a psychological tool for promoting desirable outcomes for the entire collective. Given the strong effects of empathy that we discussed earlier, one promising tool may be to induce empathy with members of the “other group” (Penner, Dovidio, Piliavin, & Schroeder, 2005).

Third, in any given social dilemma in everyday life, different people are often faced with different social dilemmas. Some of the variables that do not seem to be linked with social or temporal orientations may actually activate a particular orientation. For example, differences in terms of wealth or resources (e.g., poor vs. rich) are likely to affect the social orientation or temporal orientation that one adapts to a social dilemma. For example, the poor may consider contributing less money to a shared playground for the children in their community in the hope that the rich are going to contribute more than an equal share. Or the people who have a stronger interest in the playground should contribute more than those who are less interested (Van Dijk & Wilke, 1993). In fact, in many social dilemmas in the real world, there are quite pronounced differences in the “interests” that people have in a particular public good, or differences in the “resources” (be it money, time, or help of some sort) that they can contribute to helping (e.g., Dovidio, Piliavin, Schroeder, & Penner, 2006). Fourth, a prosocial orientation is more prevalent—and individualism and competition is less prevalent—among older age groups than younger age groups—at least up to 65 years (Van Lange, Otten, De Bruin, & Joireman, 1997). In terms of policy, it is important to keep in mind that some social and temporal orientations may sometimes be strongly rooted in “demographical variables” that we may not immediately associate with social or temporal orientations. This suggests that segmenting markets based on these demographic factors may provide an opportunity for tailored interventions that promote cooperative behavior by appealing to those motives that are most important in a given segment.

On a related note, we suggest that differences in temporal orientations are often shaped by specific circumstances in combination with one’s own personal qualities (such as age, market value). For example, in the Netherlands, it is widely believed for many professions that it is exceptionally difficult to find a new job if one is older than 50 years. Such beliefs, true or not, shape a person’s orientation to the organization that he/she is currently working for. In light of such beliefs, the employee is likely to strengthen a long-term orientation to the organization. Younger people, who are believed to have greater “market value” are, quite understandably, less likely to adopt a long-term orientation. From a management point of view, in the presence of such beliefs, it may be important to include senior employees in decision making regarding the future of the organization—not only to benefit from their experience, but also because they may simply care more about the future of the organization. As another example, in communities we may often witness differences in short-term and future orientation, because some may regard their house as temporary (e.g., for those having a job that requires occasional

moving, for students who live in the community) whereas others feel their house is theirs “forever.” The latter group is, therefore, more likely to invest in the future of the neighborhood, which may be manifested in greater participation in various types of community service.

Interestingly, differences in “market value” also tend to underlie one’s commitment to an ongoing relationship. For example, a partner who judges his or her alternatives as highly promising (evaluation of being single, or degree to which attractive alternative partners are judged to be “attainable”) is somewhat less likely to take a long-term perspective to the relationship. A consequence may be that such partners are less willing to sacrifice for the partner, or even to respond constructively to relatively small hassles in a relationship (for a review, see Rusbult & Van Lange, 2003). The other side of the coin is that partners who judge their alternatives as not very good at all, may feel trapped in a relationship—and so believe that they have no choice but to remain in the relationship, even if the partner behaves in an exploitative or even abusive manner. Indeed, there is evidence that such trapped partners are often women who do not have any income, but are more or less forced to stay at home and care for children (e.g., Rusbult & Martz, 1995). From the present perspective, it would make sense if such partners invest in their own “independence” by, for example, following educational programs so that they can build on getting their own income, their own social networks, as well as additional meaning in life and appreciation by others. Needless to say, this kind of policy is very different from, and presumably far more effective than, providing counseling or other forms of often well-intended interventions that are not really helpful at enhancing a level of independence that is a strongly called for.

One final and pressing policy domain in which the current ideas apply is the area of environmental problems, especially the problem of global warming. Perhaps no one has done more to bring this issue to the forefront than Al Gore through his movie *An Inconvenient Truth*. One of the problems with motivating action to reduce global warming is that for so many years the problem seemed abstract and unlikely to affect us in our lifetimes. Not so anymore, as scientists are recognizing that climate change is occurring even faster than recent projections had anticipated. In light of this problem, policymakers must figure out how to motivate citizens to take action against climate change. Because future problems tend to be construed in a more abstract fashion (Liberman, Trope, McCrea, & Sherman, 2007), policymakers should try to highlight the more immediate and concrete consequences associated with global warming, such as quickly receding glaciers and increased flooding, and possibly the negative impact these changes will have on future generations of people we care about.

Conclusion

The health and vitality of relationships, groups, and society at large is strongly challenged by social dilemmas. Informed by various lines of research, particularly

on social value orientation and the consideration of future consequences, we argue that social and temporal orientations are essential to understanding larger societal problems. Society as a whole has been seriously threatened by environmental problems, such as pollution or massive overuse of natural resources, and intergroup conflict. Both problems are challenging because a short-term individualistic orientation seems so prevalent in such large-scale contexts. Creative solutions may be sought by, perhaps, emphasizing what small (and psychologically close) communities can do to make a difference to overcome the costs of an individualistic orientation. Alternatively, to make the future psychologically closer, it may be important to stress the costs we impose for our children—the next generation.

Solving social dilemmas between two groups may sometimes be even more challenging. After all, intergroup conflict is omnipresent in society, and its costs in terms of money, suffering, and lives are immeasurable. It is therefore not surprising that our knowledge regarding the underpinnings of intergroup conflict is accumulating. Examples include the importance of emotion, identification and attachment, common fate, (re)categorization, distrust, and perceived status differences. However, there is some new evidence suggesting that, relative to individuals, representatives of groups—who are often dealing with intergroup issues (e.g., political leaders)—tend to approach social dilemmas with a competitive mindset. Rather than pursuing self-interest in a narrow sense, they tend to make sure that their outcomes are better (and not worse) than the outcomes for the other representative, and they expect other representatives to adopt the same, competitive mindset (Reinders Folmer, Van Lange, & Klapwijk, 2007). In these situations, perhaps it helps to seek support from “third parties” whose primary (mediation) task may then be to reduce competition, as well as the undermining belief that the other representative adopts a competitive orientation. Although the ultimate roots of intergroup conflict are much more complex than we portray here, we do think that a careful understanding of the social and temporal orientations that groups and representatives adopt, and ascribe to one another, may well be an important key to solving intergroup conflict.

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