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## Chapter 9

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# Beyond Self-interest: A Set of Propositions Relevant to Interpersonal Orientations

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### ABSTRACT

After describing limitations of the assumption of rational self-interest, which has dominated considerable theory in the social and behavioral sciences, I advance six propositions relevant to our understanding of interpersonal orientations. Based on empirical research, as well as principles of interdependence theory, it is argued that the power of individualistic orientation, while important, tends to be overestimated (Proposition 1), and that this orientation needs to be complemented by the orientations of cooperation (enhancement of joint outcomes), egalitarianism (enhancement of equality in outcomes), generosity (enhancement of other's outcomes), and competition (enhancement of relative advantage over other's outcomes) (Proposition 2). Three further propositions focus on the inter-relatedness of prosocial orientations (Proposition 3), the social development of prosocial orientation (Propositions 4 and 5), and situational and dispositional views of interpersonal orientations (Proposition 6). Evidence in support of these propositions, especially the latter three propositions, is evaluated by classic and/or recent research. I close by outlining four lines of research that are important for understanding the implications of the propositions discussed in this chapter.

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What interpersonal orientations drive social interactions? While many philosophers have addressed issues relevant to cooperation and competition, Thomas Hobbes is often acknowledged as among the first who explicitly addressed this issue. In *Leviathan* (1651) he raised the interesting problem of why societies and collectivities are able to function at all, if—so he believed—humankind is basically self-interested. The Hobbesian paradox is central to much theory developed in the social and behavioral sciences. It deals with relationships between the individual and the society at large, but also to smaller-scale issues, such as the relationships between individuals in dyads or small groups, and to relationships between groups. How have the social and behavioral sciences sought to solve the Hobbesian paradox?

## THE ASSUMPTION OF THE BENEFICENT INVISIBLE HAND

Over a century after Hobbes's writings, Adam Smith (1776) sought to solve the Hobbesian problem by his famous notion of the beneficent "invisible hand", assuming that private and collective interests tend to correspond rather than conflict. Indeed, Adam Smith assumed that collectivities and societies are well-functioning *because* individuals pursue their self-interest (which, as an unintended consequence, enhances collective interest). It is now widely acknowledged that Adam Smith's notion of the beneficent "invisible hand" is too limited to elucidate the features of the situations we are confronted with in everyday life. In contrast to Adam Smith's assumptions, it is far more plausible that the functioning of relationships, organizations, and societies is challenged by conflicts between self-interest and collective interest. Examples abound. Should we commute by car or train, provided that both are viable options? How much time should we invest in preparing for a business meeting? How often should we forego pleasant activities that do not correspond with a partner's well-being? For many, self-interest is probably best served by commuting by car, by not devoting too much time to preparing for a meeting, and by not foregoing all or most pleasant activities that a close partner does not appreciate. Yet, if we were to act according to our own direct self-interest, the quality of the environment is likely to deteriorate, the meeting is unlikely to be very productive, and the relationship may become somewhat distressed.

In fact, conflicts between self-interest and collective interests are so pervasive in everyday life that one can go so far as to claim that the most challenging task that governments, organizations, and even partners in a relationship face is to successfully manage conflicts between self-interest and collective interest. This realization is revealed in a strong line of research on the pris-

oner's dilemma, social dilemmas, and resource dilemmas (for overviews, see Komorita & Parks, 1995; Van Lange & Messick, 1996). Contrary to Adam Smith's "invisible hand", it is more plausible that, *because* conflicts between own interest and collective interest are so prevalent, these situations afford or evoke important social interaction experiences (e.g., cooperative interactions vs. conflictual interactions), which in turn are likely to shape our interpersonal orientations. This issue will be discussed later, when advancing a series of propositions relevant to interpersonal orientations.

## THE ASSUMPTION OF SELF-INTEREST

As many of his contemporaries, Thomas Hobbes assumed that humankind is basically self-interested, suggesting that humankind involves little (if any) motivation to enhance the well-being of others, to enhance the well-being of the collective, or to enhance equality in outcomes. This assumption of "rational self-interest" has dominated much of the traditional theories relevant to interpersonal and intergroup behavior, including early formulations of game theory (Luce & Raiffa, 1957; Von Neuman & Morgenstern, 1947) and social exchange theory (Homans 1961; Blau, 1964). Within the domain of psychological theory, this assumption of rational self-interest is embedded in several key constructs, such as reinforcement, the pursuit of pleasure, utility maximization (as developed in the context of behavioristic theory, including social learning theory), psychoanalytic theory, and theories of social decision making. The assumption of rational self-interest has influenced not only the very foundation of psychological theory, but also our thinking of how to solve conflicts of interests in relationships and organizational practice. Perhaps the best example is Hardin's (1977) advice for policy makers: "Never ask a person to act against his own self-interest" (p. 27).

Despite this accepted wisdom, there is good reason to believe that the rational self-interest assumption is too limited to account fully for social interaction. Indeed, several distinct programs of research have yielded findings which strongly conflict with this basic assumption, and some of this research will be discussed later in this chapter. Hence, it seems likely that much theory overestimates the influence of self-interest on attitudes and behavior. The same may actually hold for lay-persons as well, as recently demonstrated by Miller and Ratner (1998). For example, participants overestimate the impact of financial rewards on their peers' willingness to donate blood (study 1), as well as the power of social rewards (as assessed by group membership; studies 2-5) on their peers' attitudes. Thus, we need a broader model of interpersonal orientations, one that includes orientations that, at the very least, complements the orientation of self-interest.

## INTERPERSONAL ORIENTATIONS: SIX PROPOSITIONS

Which interpersonal orientations help us understand interpersonal behavior and social interaction phenomena? What types of interpersonal orientations, other than selfishness or individualism, should be meaningfully distinguished? Briefly, I suggest the importance of three prosocial orientations (cooperation, equality, and generosity) and two proself orientations (individualism and competition). The theoretical basis for these orientations is largely derived from interdependence theory (Kelley & Thibaut, 1978) and early research and theory of social value orientation (Messick & McClintock, 1968; McClintock, 1972; MacCrimmon & Messick, 1976). It is interesting to note that this early research and theory by Messick, McClintock, and their colleagues has inspired the transition of a model of social exchange, which largely departed from the assumption of rational self-interest (Thibaut & Kelley, 1959), to the theory of interdependence, which assumes that individuals may “transform” a given situation according to broader orientations, such as cooperation, equality, and competition (Kelley & Thibaut, 1978).

Interdependence theory describes these four non-individualistic orientations in terms of outcome transformations, delineating enhancement of joint outcomes (MaxJoint), minimizing differences between own and other's outcome (MinDiff), enhancing outcomes for other (MaxOther), and enhancing relative advantage over others (MaxRel). Specifically, the theory argues that given settings of interdependence (i.e., the given matrix) may be transformed according to these orientations to yield an reconceptualized scheme (i.e., the effective matrix) which is more strongly predictive of behavior and social interaction. The given matrix is typically a function of basic, but non-social, preferences, such as whether a person prefers to watch Movie X or Movie Y. When two partners differ in their preferences, but want to go to the theater together, they may take broader preferences into account. Such broader preferences are inherently social, because the individual takes account of the partner's preferences, which then yields a reconceptualization of the given matrix. That is, through transforming the given matrix by orientations such as cooperation, equality, generosity, or competition, the individual constructs an effective matrix, which may account for how the individual seeks to solve this interdependence problem (e.g., whether to give in, whether to persist in his/her initial preferences) as well as how the two partners eventually reach a solution (which movie they attend). The broader considerations, or transformations may be the product of systematic information processing, shallow or heuristic processing, or even virtually no processing at all (automaticity; Bargh, 1996). In fact, because we encounter several types of interdependence situations quite regularly, often with the same or similar partners, it is plausible that such transformations frequently take place in a fairly habituated, automatic manner. For example, parents may fairly automatically respond to the basic

**Table 9.1** An overview of six propositions*Proposition 1*

Most people pursue good outcomes for self, either in the short-term, the long-term, or both (individualism), but this is often not the sole orientation that people adopt to interaction situations

*Proposition 2*

Interpersonal orientations reflect not only individualism (enhancement of own outcomes), but also cooperation (enhancement of joint outcomes), equality (enhancement of equality in outcomes), generosity (enhancement of other's outcomes), and competition (enhancement of relative advantage over others)

*Proposition 3*

The three prosocial orientations (cooperation, equality, and generosity) frequently operate in a concerted or interactive manner. That is, these orientations tend to go hand in hand, and it is the interplay of various prosocial orientation that best accounts of behavior and interaction in settings of interdependence

*Proposition 4*

Interpersonal orientations are partially rooted in different patterns of social interaction as experienced during the periods spanning from early childhood to young adulthood

*Proposition 5*

Interpersonal orientation are further shaped by different patterns of social interaction as experienced during early adulthood, middle adulthood, and old age

*Proposition 6*

Interpersonal orientations are a function of situational features and personal dispositions

needs and preferences of their children, friends may fairly automatically help each other without a lot of thought, and the desire "to compete" with others may sometimes come into being without any deliberation.

We advance six propositions relevant to interpersonal orientations. The term "proposition" is a deliberate choice, as I believe that alternative concepts are either too broad and too remote from the empirical world (e.g., assumptions) or too specific and too closely linked to direct empirical tests (e.g., hypotheses). The empirical literature relevant to these propositions focuses on basic work in social psychology, along with some specific empirical illustrations derived from our own ongoing program of research. Table 9.1 presents an overview of the propositions advanced in this chapter.<sup>1</sup>

<sup>1</sup> There are several theoretically important issues that are important to the six propositions. Two issues concern the comprehensiveness of the analysis of interpersonal orientations: (a) should orientations other than outcome-distribution orientations should be part of the analysis of interpersonal orientations (e.g., dominance vs. submission), and (b) should aggression, or MinOther, also be included in the analysis of interpersonal orientations. I believe that both issues are quite fundamental, and there is reason to believe that both questions should be answered in the confirmatory. I will not further discuss these issues as they are beyond the scope of this chapter. The same holds for two additional issues, which concern the "explanations" for prosocial

## The Integrative Model of Interpersonal Orientation: Propositions 1-3

### *Proposition 1*

This states that “most people pursue good outcomes for self, either in the short-term, the long-term, or both (individualism), but this is often not the sole orientation that people adopt to interaction situations”. This first part of this proposition is shared by most other theories, as noted earlier. That is, I do not disregard the existence of rational self-interest as a powerful motivation. Indeed, there is good evidence from different lines of research that self-interest underlies various psychological processes, including social-cognitive processes (e.g., self-serving attributions, self-presentation), affective processes (e.g., coping with disappointment and stress), and social interactions. As to the latter, given matrix preferences (i.e., individualistic preferences) are an important determinant of behavior and social interaction, and people indeed tend to maximize rewards and minimize costs for the self in interdependence settings. Thus, selfishness is an important orientation. However, I assume that the power of self-interest is overestimated by many theories which depart from the assumption of rational self-interest, and that such overestimation is often accompanied by a neglect of other important interpersonal orientations (see Proposition 2).

### *Proposition 2*

This states that “interpersonal orientations reflect not only individualism (enhancement of own outcomes), but also cooperation (enhancement of joint outcomes), equality (enhancement of equality in outcomes), generosity (enhancement of other’s outcomes), and competition (enhancement of relative advantage over others)”. The work by Messick and McClintock (1968) has inspired considerable research that also reveals that cooperative and competitive orientations underlie much social interactions. For example, Kuhlman and Marshello (1975) have demonstrated that individuals with cooperative orientation 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 non-cooperative behavior, best serves

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orientation and prosocial behavior: (a) whether prosocial orientation and behavior may be to some degree be mediated by concrete self-rewards (e.g., enhancement of mood; the desire to uphold a moral principle), and (b) whether prosocial orientation and behavior to some degree may reflect the goal of enhancing long-term personal outcomes (i.e., the issue of “time”). Generally, there is reason to believe that specific forms of prosocial behavior are guided by the pursuit of specific self-benefits as well as broader considerations of long-term self-interest. Whether these mechanisms contribute to our understanding of the development and maintenance of relatively stable prosocial orientations has yet to be explored. So far, these issues allow for speculation but do not permit any firm answers.

their own personal outcomes. For example, unlike individualists, competitors do not tend to behave cooperatively in response to a tit-for-tat strategy, which begins with a cooperative choice and subsequently makes the same the choice as they other did in the previous interaction situation. Competitors' responses to a tit-for-tat strategy can be understood because cooperative behavior does not enhance relative advantage over the other's outcomes (even though cooperative behavior does enhance personal outcomes). The existence of egalitarianism or equality may be derived from various lines of research. For example, in allocating outcomes to self and others, people often use "fairness" or an equal split as a guideline for their allocations (e.g., Allison & Messick, 1990). Research on justice reveals that equality guides individuals' behavior in various interpersonal settings. Even the fairness of procedures for allocating outcomes to self and others is an important ingredient in peoples' experiences, evaluations, and behavior (Tyler, 1994; cf. Thibaut & Walker, 1975). Finally, there is increasing evidence that generosity embodies an orientation that shapes interactions with close others, as well as with "relative strangers" with whom we empathize (e.g., Batson, 1998). Thus, there is support for the existence of at least three prosocial orientations: cooperation, equality, and generosity. Furthermore, there is evidence in support of the existence of not only individualism (enhancing outcomes for self) but also competition (enhancing relative advantage over other's outcomes). The latter two orientations can be conceptualized as prosocial orientations, in that they focus on enhancing outcomes for self, either in an absolute manner (individualism) or in a relative manner (competition; see also Van Lange & Liebrand, 1991).

### *Proposition 3*

This states that "the three prosocial orientations (cooperation, equality, and generosity) frequently operate in a concerted or interactive manner. That is, these orientations tend to go hand in hand, and it is the interplay of various prosocial orientations that best accounts of behavior and interaction in settings of interdependence". This proposition, in particular, is relevant to the integrative model of interpersonal orientation, because it seeks to "integrate" three prosocial orientations to account of behavior and social interaction. The integrative model following from this proposition will be discussed in greater detail later.

Is there evidence relevant to the first part of this proposition? Yes, there is, although this evidence is somewhat indirect. In a prisoner's dilemma, the quality of joint outcomes is greatest when both individuals exhibit cooperation, followed by cooperative behavior by one individual and non-cooperative behavior by the other, and the quality of joint outcomes is smallest when neither individual exhibits cooperation. Thus, if the cooperative orientation were the only motivation, individuals with cooperative orientations should

always behave cooperatively, even when the other fails to cooperate. However, this has virtually never been observed. Rather, quite a few individuals (often termed cooperators) reciprocate another's non-cooperative behavior, at least in the context of iterated (or repeated choice) prisoner's dilemmas. This phenomenon has also been termed behavioral assimilation (Kelley & Stahelski, 1970; for similar findings, see Kuhlman & Marshello, 1975; McClintock & Liebrand, 1988). I suggest that the orientations of cooperation and equality provide the motivational basis for such forms of reciprocity in prisoner's dilemmas. That is, individuals do not merely want to enhance joint outcomes; they also want to enhance equality in outcomes. In this particular case, it is plausible that individuals seek to enhance joint outcomes, provided that the outcomes are fairly equally distributed between the self and the other. That is, when there is a strong violation of equality in outcomes, the motivation to enhance joint outcomes is likely to be substantially weakened or deactivated, so that individuals with prosocial orientation respond primarily or exclusively to variations in equality in outcomes.

#### *Empirical Illustrations: Tests of the Integrative Model*

In a recent study (Van Lange, 1999), I compared three models of outcome transformations (OT). All three models assume that prosocials, individualists, and competitors should assign a positive weight to outcomes for self (see also Proposition 1). The three models differ in terms of the types of specific prosocial orientations they specify, whether prosocial orientation (vs. individualistic and competitive orientations) is best captured by enhancing: (a) outcomes for other (Model 1); (b) equality in outcomes (Model 2); or (c) both outcomes for other and equality in outcomes (Model 3).

$$OT = W_1 (\text{Outcomes for Self}) + W_2 (\text{Outcomes for Other}) \quad (\text{Model 1})$$

*Model 1* conceptualizes prosocial transformation in terms of the weights assigned to outcomes for self and outcomes for other (MaxOwn + MaxOther = MaxJoint). That is, prosocials should assign a positive weight to outcomes for other; individualistic orientation should assign very little weight to outcomes for other; and competitors should assign a negative weight to outcomes for other. The three orientations do not differ in the weight assigned to outcomes for self (i.e., they all assign a positive weight to outcomes for self). This model equates prosocial orientation with *cooperation* (MaxJoint), in that prosocials are assumed to differ from individualists and competitors in their positive consideration of the sum of outcomes for self and outcomes for other. This model was formalized by Griesinger and Livingston (1973) and others (e.g., Liebrand & McClintock, 1988), and formed the formal basis of most research on social value orientation. It is interesting that this model, as such, cannot account for the phenomenon of behavioral assimilation, observed by

Kelley and Stahelski (1970) and since replicated several times. That is, if prosocials were indeed merely oriented toward enhancing joint outcomes, they should make a cooperative choice, even if the other does not make a cooperative choice.

$$OT = W_1 (\text{Outcomes for Self}) + W_2 (\text{Equality in Outcomes}) \quad (\text{Model 2})$$

*Model 2* equates prosocial orientation with *egalitarianism* (MinDiff), conceptualizing prosocial orientation in terms of the pursuit of equality in outcomes. This model can actually account for behavioral assimilation; that is, people who seek to enhance outcomes for self and equality in outcomes should favor the outcomes following from mutual non-cooperation over the outcomes following from non-cooperation by one of the two individuals. This model has received a fair amount of support in several studies on social decision making (e.g., Loewenstein, Thompson, & Bazerman, 1989; Messick & Sentis, 1985), social dilemmas (Van Dijk & Wilke, 1993; Wilke, 1991), and social value orientation (e.g., Grzelak, 1982; Knight & Chao, 1991; Knight & Dubro, 1984). Yet in most of these studies, the pursuit of equality in outcomes is believed to operate in a manner independent of other orientations. *Model 3* seeks to address this issue.

$$OT = W_1 (\text{Outcomes for Self}) + W_2 (\text{Outcomes for Other}) \\ + W_3 (\text{Equality in Outcomes}) \quad (\text{Model 3})$$

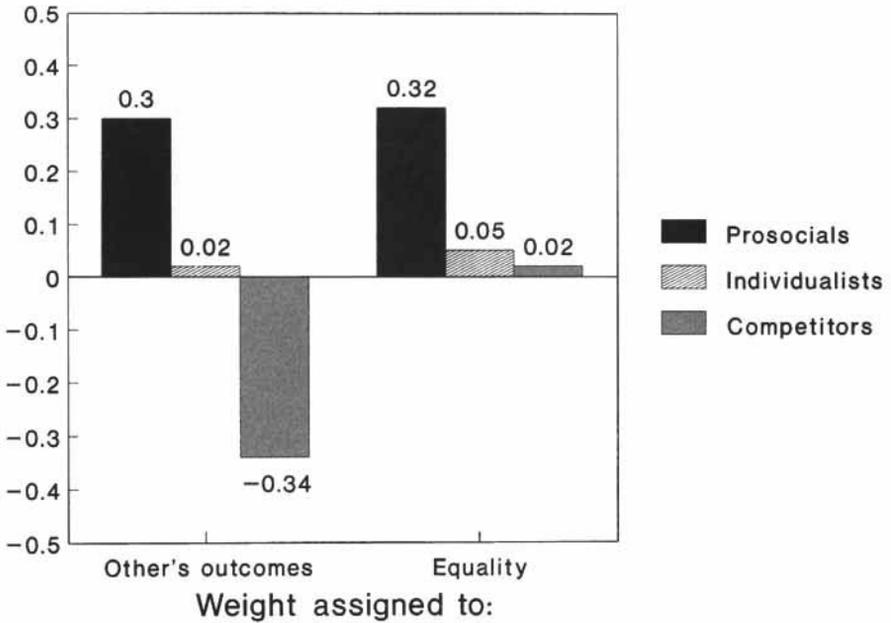
*Model 3*, the integrative model of outcome transformation, conceptualizes prosocial orientation in terms of both *cooperation* (MaxJoint) and *egalitarianism* (MinDiff). That is, prosocials should assign a positive weight to outcomes for other and a positive weight to equality in outcomes. Like *Model 2*, *Model 3* can account for behavioral assimilation (for a theoretical illustration, see Van Lange, 1999).

Given that *Models 2* and *3* can account for behavioral assimilation, the key question becomes: which model is the better model? Given that *Model 2* does not include enhancement of joint outcomes, whereas *Model 3* does, the question is whether enhancement of joint outcomes is an orientation linked to prosocial orientation. Although there is no direct evidence, previous research suggests that the enhancement of joint outcomes is a goal that is consistent with the behavior of prosocials. Previous research on judgments of own behavior and attributions of other's behavior has demonstrated that "to get as many points as possible for the both of us" (McClintock & McNeel, 1966) and "concern for other" (Van Lange, Liebrand, & Kuhlman, 1990) reflect the existence of this specific prosocial orientation in at least "individuals' minds", making it plausible that cooperation is a prosocial orientation that underlies people's actual behavior and social interactions. Thus, there is reason to believe that the integrative model of interpersonal orientation (i.e., *Model 3*), embodying both cooperation and equality, is the more accurate model.

We examined the link between interpersonal orientation and the weights assigned to outcomes for self, outcomes for other, and equality in outcomes (Van Lange, 1999, study 1). Interpersonal orientation was assessed with a series of nine decomposed games, which is presented in Appendix 1. As can be seen in Appendix 1, a prosocial choice can be guided by (a) cooperation alone, (b) equality alone, or (c) both cooperation and equality. For example, in game 1, option C should be preferred over options A and B, because option C represents the greatest joint outcomes and a smallest (absolute) difference between outcomes for self and outcomes for other. As in much research on interpersonal orientation, participants are classified if they make at least six choices that are consistent with a prosocial, individualistic, or competitive orientation (see Van Lange *et al.*, 1997b). The weights assigned to outcomes for self, outcomes for other, and equality in outcomes were assessed using the Ring Measure of Social Values (Liebrand *et al.*, 1986). Briefly, this instrument allows one to assess the three weights in an orthogonal manner, and examines allocations in situations in which own outcomes are larger than other's outcomes, as well as in situations in which other's outcomes are larger than own outcomes; thus, there is nothing in the measurement itself that creates a correlation among the three weights (for details, see Van Lange, 1999).

As can be seen in Figure 9.1, prosocials assigned a greater weight to outcomes for other than did individualists, and competitors assigned a negative weight to outcomes for other. Moreover, relative to individualists and competitors, prosocials assigned a greater weight to equality in outcomes. Thus, consistent with the integrative model of interpersonal orientation, prosocial orientation is best understood in terms of cooperation and equality (one could also argue that prosocial orientation to some degree reflects generosity, because prosocials do assign substantial weight to outcomes for other). It was also interesting to see that there was a positive association between the weight assigned to outcomes for other and the weight assigned to equality in outcomes ( $r = 0.31$ ); this association appeared to be somewhat stronger when both weights were corrected for the weight assigned to outcomes for self ( $r = 0.36$ ). The correlations, too, indicate that cooperation and equality—although theoretically distinct—go hand in hand. It is also noteworthy that these findings are based on a large sample ( $n = 2360$ ) that is fairly representative of the adult population in The Netherlands, thereby underscoring the validity of these findings across multiple categories of participants.

We also conducted two complementary studies, focusing on reciprocity in a single-trial social dilemma task. Recall that the phenomenon of behavioral assimilation (which may also be termed reciprocity) has been observed in the context of iterated social dilemmas. In such repeated choice situations, reciprocity could be guided by a multitude of specific considerations, following from an interplay of other's past choices (or past interactions) and individuals' long-term interaction goals (e.g., the perceived feasibility of attaining



**Figure 9.1** Mean weights assigned to outcomes for other and equality in outcomes by prosocials, individualists, and competitors

particular interaction goals). For example, a partner’s past actions may to some degree influence considerations relevant to long-term interaction goals, because the partner’s past actions (e.g., non-cooperative choices) might bring about beliefs regarding the feasibility of attaining particular long-term interaction goals (e.g., diminished confidence in the feasibility of establishing patterns of mutual cooperation). Thus, because considerations regarding the past, present, and future are inextricably linked to patterns of choice in iterated prisoner’s dilemmas, it is difficult to understand the specific considerations and motivations that underlie patterns of reciprocity.

Such accounts are irrelevant to a single-trial social dilemma, in which participants make only one choice. In such contexts, the only basis for choice follows from the present (the immediate present), and not from the past or the future. In one such study, participants made a choice after the other had made a choice (Van Lange, 1999; study 2). This study manipulated information about the other’s choice, having participants believe that the other either gave away either one chip, two chips, or three chips from a total of four chips, which were more valuable to the self than to the other. The participant himself or herself also possessed four chips, which were more valuable to the other

than to the self. This situation represents a prisoner's dilemma, because giving away chips is costly, but both would be better off to the degree that they exchanged a greater number of chips.

Our analysis focused on reciprocity choices, giving away exactly the same number of chips as the other had given away. Across the three conditions, prosocials exhibited greater reciprocity (64%) than did individualists (33%) or competitors (17%). In another study, I 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; Study 3). Reciprocity choices were operationalized as giving away 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%).

Taken together, these studies provide good support for the integrative model of interpersonal orientation. Enhancement of joint outcomes and enhancement of equality tend to go together, and are characteristic of how prosocials approach situations of interdependence. Indeed, these data provide good support for Propositions 1–3. One might further speculate about the relative importance of cooperation and equality. 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 non-cooperation is preferred to even weak forms of unilateral cooperation (or weak forms of generosity), whereby one behaves—or expects to behave—somewhat more cooperatively than the other. That is, prosocials may be cooperative up to the point that it violates equality in outcomes too strongly. Indeed, it was interesting to see that in the latter two studies, the percentages of choices whereby the participants exhibited greater cooperation than they believed the other did was very low (3% in Study 2, where such beliefs were manipulated; and 10.4% in Study 3, where such beliefs were self-generated). The latter seems at odds with the assumption that generosity does exist (Propositions 2 and 3). However, one has to keep in mind that participants in these experiments shared no history of interaction and anticipated no shared future of interaction; as such, there was no basis for psychological attachment, commitment, or empathy. To repeat an earlier point, I suggest that generosity does come into being when there is a basis for attachment, commitment, or empathy.

## **The Development of Interpersonal Orientation**

### *Propositions 4 and 5*

Proposition 4 states that “interpersonal orientations are partially rooted in different patterns of social interaction as experienced during the periods spanning from early childhood to young adulthood”, and Proposition 5 states that

“interpersonal orientations are further shaped by different patterns of social interaction as experienced during early adulthood, middle adulthood, and old age”. Clearly, different individuals experience different histories of social interaction. For example, young children who have repeatedly experienced interactions in which parents are very attentive to their elementary needs are likely to develop trust and security, which may promote prosocial orientation. Conversely, children who have repeatedly experienced interactions in which parents are not very attentive to their needs are likely to develop distrust and insecurity, which may enhance self-centered orientations. As another example, relative to individuals raised in small families, individuals raised in large families may have acquired greater experience with situations entailing some conflict of interest (e.g., scarcity of material or immaterial resources, such as the sharing of toys and attention from parents) which produce patterns of social interaction that in turn may shape interpersonal orientations. Such social interaction experiences presumably are central to the development of prosocial vs. proself orientations.

The development of prosocial vs. proself orientations is assumed to be further shaped by further interaction experiences. For example, in some professions (e.g., jobs where helping and social service is quite central), cooperation, equality, and generosity may be quite functional, whereas in other professions (several types of business, where one often must compete with competitors) a fair amount of individualism and competition might be functional. Furthermore, one might argue that the life phases of individuals call for different social interaction experiences. For example, young adulthood might be associated with scarce resources, as individuals have to “compete” in at least two important life domains, a professional life domain (i.e., competition for jobs) and personal life domain (i.e., competition for romantic partners). During middle and late adulthood, such demands on individualism and competition presumably are less pronounced, and might be to some degree replaced by demands on prosocial orientation (e.g., raising children, helping junior colleagues). Moreover, it may be that the pursuit of individual outcomes (e.g., individual achievement) become somewhat less important over a lifetime, either because of good outcomes in the past (“I know what it is like”), or because of the lack of such success may lead individuals to derogate to importance of such outcomes (“There is more in life than [own] success”). This, too, may replace a focus on own outcomes by a focus on more collective outcomes.

### **Empirical Illustrations: Number of Siblings and Prosocial-Growth**

Recently, some studies were conducted to explore the development of prosocial, individualistic, and competitive orientations. Of particular relevance, here, are two studies, examining (a) the link of interpersonal orientation with and

the number of siblings (Van Lange *et al.*, 1997b; Study 3), and (b) whether the prevalence of prosocial, individualistic, and competitive orientations systematically vary over the course of a lifetime (Van Lange *et al.*, 1997b; Study 4). As evidenced by the above lines of reasoning, Propositions 4 and 5 deal with the development of interpersonal orientations. It is, however, important to keep in mind that the empirical illustrations are indeed illustrations, and even preliminary ones, rather than direct tests of developmental processes. As the reader will see, these studies use cross-sectional designs, rather than longitudinal designs, in illuminating possible developmental processes. Of course, longitudinal designs are preferred to directly test developmental processes, and this work did not control for various third variables that might also underlie a possible link between interpersonal orientation and number of siblings, as well as the possible link between interpersonal orientations and age. Thus, several other effects, particularly cohort effects or third-variable effects, cannot be excluded, and the studies should therefore be read as preliminary illustrations relevant to Propositions 4 and 5.

### *The Sibling Study*

What might be the theoretical rationale for why interpersonal orientation might be linked to (or, to some degree rooted in) early interactions shaped by the number of siblings? That is, how might different transformational tendencies develop in the context of few vs. many other siblings? I propose that the number of siblings has a substantial influence on interaction experiences, particularly during childhood. Number of siblings should be linked to the frequency—and possibly the intensity—with which one is confronted with situations characterized by intermediate or low correspondence of outcomes (i.e., by intermediate or high conflict of interests). The greater the number of siblings, the more likely that individuals face situations in which particular resources have to be “shared”, resources that provide the basis for outcomes, material outcomes (e.g., toys, space) as well as “psychological” ones (e.g., attention from parents; cf. Bar-Tal, 1976; Hoffman, 1991).

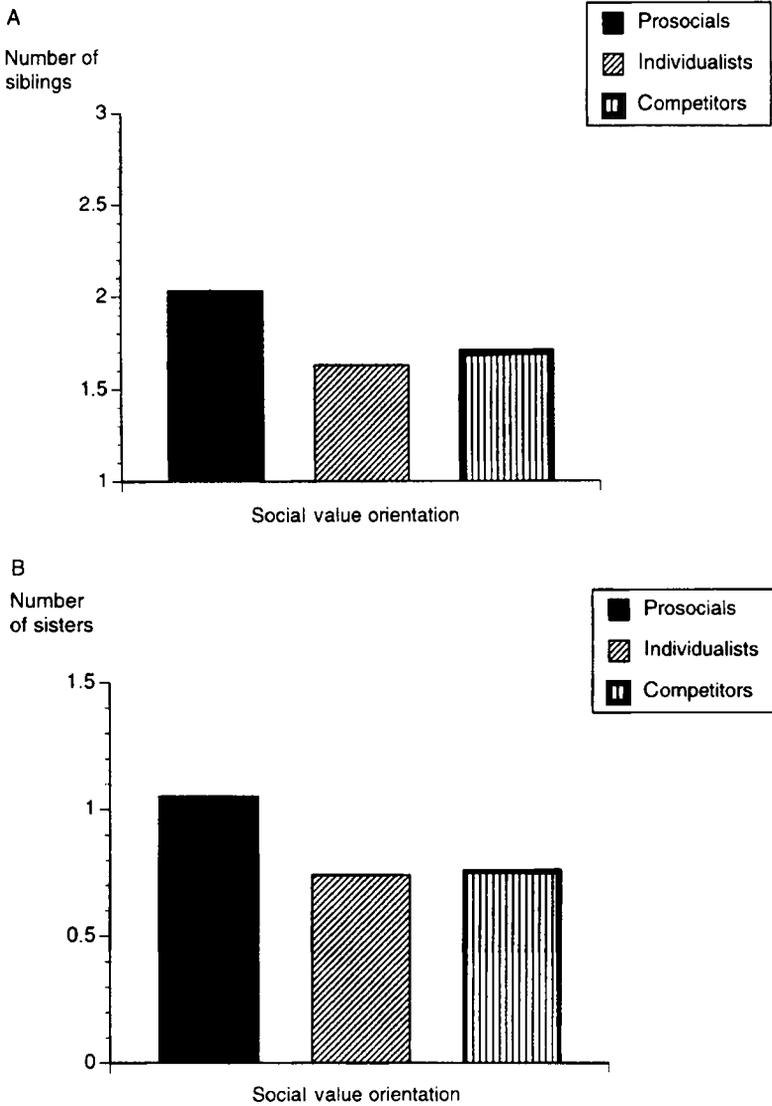
Given repeated experience with situations of intermediate or low correspondence, individuals may adapt in such a manner as to approach these situations in a cooperative and coordinating manner, thereby gradually learning or detecting the functional value of acting in a collectively beneficial manner. This reasoning suggests that individuals raised in larger families are more likely to develop prosocial orientation. Indeed, the well-established finding that children raised in cultures characterized by high levels of collectivism and interdependence tend to exhibit greater cooperation than children raised in cultures characterized by relatively low levels of collectivism and interdependence is consistent with this argument, in that the former children typically were raised in larger families than the latter children (e.g., children

raised in rural parts of Mexico vs. children raised in the USA; Madsen & Shapira, 1977). Thus, this reasoning leads one to expect that prosocials have a greater number of siblings than individualists and competitors (i.e., *sibling-prosocial hypothesis*).

An alternative line of reasoning suggests that repeated experience with situations of intermediate or low correspondence, especially in the context of larger groups, gives rise to non-cooperative interaction experiences. For example, prior research on social dilemmas has demonstrated that cooperative interactions decline as groups are somewhat larger in size (e.g., in comparisons of groups of two, three up to seven persons; e.g., Bonacich, Shure, Kahan, & Meeker, 1976; Hamburger, Guyer, & Fox, 1975). If true, such non-cooperative interaction experiences should give rise to somewhat lower levels of trust and increased pessimism regarding individuals' willingness and ability to act in a collectively beneficial manner, thereby instigating the development of proself (i.e., individualistic and competitive) orientation. Thus, this reasoning leads one to expect that prosocials have a smaller number of siblings than individualists and competitors (i.e., *sibling-proself hypothesis*).

Using a large sample of primarily university students ( $n = 631$ ), we found evidence in support of the sibling-prosocial hypothesis. As can be seen in Figure 9.2A, prosocials were raised in larger families (average number of siblings,  $M = 2.03$ ) than were individualists ( $M = 1.63$ ) or competitors ( $M = 1.71$ ). We further decomposed the "number of siblings" into four categories, including (a) number of brothers, (b) number of sisters, (c) number of older siblings, and (d) number of younger siblings. It was striking to see that it was the number of sisters, rather than the number of brothers, that was the basis of this finding (see Figure 9.2B). The number of sisters was greater for prosocials ( $M = 1.05$ ) than for individualists ( $M = 0.74$ ) and competitors ( $M = 0.75$ ). We also found that the number of older siblings was associated with interpersonal orientation, whereas the number of younger siblings was not. As can be seen in Figure 9.2C, individualists ( $M = 0.67$ ) had a smaller number of older siblings than did prosocials ( $M = 0.96$ ) or competitors ( $M = 0.90$ ). There were no significant links between interpersonal orientation and number of brothers, or number of younger siblings.

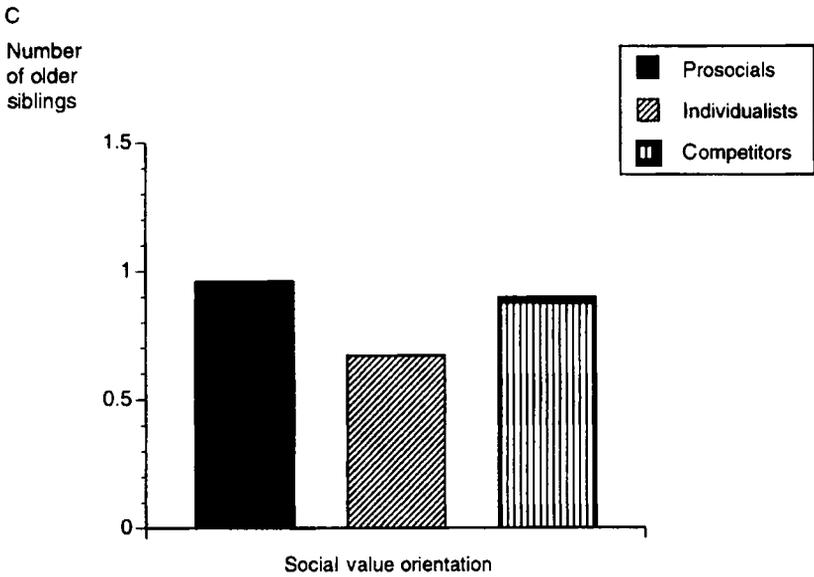
Why did we find support for the sibling-prosocial hypothesis (and why did we not find support for the sibling-proself hypothesis)? As noted earlier, it is plausible that a greater number of siblings is associated with a greater frequency (and, possibly, intensity) with which one is confronted with conflicts of interest (i.e., individuals are more strongly forced to share important resources). Presumably, such repeated experiences may force children (and parents) to develop cooperative and coordinating interaction styles, thus adapting in a collectively-beneficial manner, thereby promoting prosocial orientation. The finding that individualists are reported to have fewer older siblings relative to prosocials is congruent with the prosocial-growth hypothesis,



**Figure 9.2** (A) Mean number of siblings, (B) sisters, and (C) older siblings, among prosocials, individualists, and competitors. From Van Lange *et al.* (1997), with permission. Copyright © 1997 by the American Psychological Association

and suggests that prosocial orientation is less likely to develop when fewer other siblings are around in the first couple of years.

Interestingly, prosocials are reported to have a greater number of sisters than individualists and competitors. Why is the number of sisters (rather than



**Figure 9.2** (continued).

the number of brothers) related to interpersonal orientation? There is some evidence that the prevalence of prosocials is somewhat greater—and that of individualists somewhat smaller—among women than among men. One explanation would thus be that because sisters are more likely to be prosocial than brothers, individuals are more likely to adopt a prosocial orientation as the number of sisters increases (e.g., through patterns of reciprocity or modeling). A second, and somewhat more stereotypical, explanation would be that sisters more than brothers adopt a “mother role”, a repertoire of behaviors that involves nurturing, helping, and caring, thereby promoting prosocial orientation in the receiver (or the observer). While these lines of reasoning are highly speculative, it is interesting to note that the current findings are in agreement with a recent finding indicating that, relative to fathers with no or a few sisters, fathers with many sisters devote greater time to raising their children (Duindam & Spruijt, 1997).

*The Prosocial Growth Study*

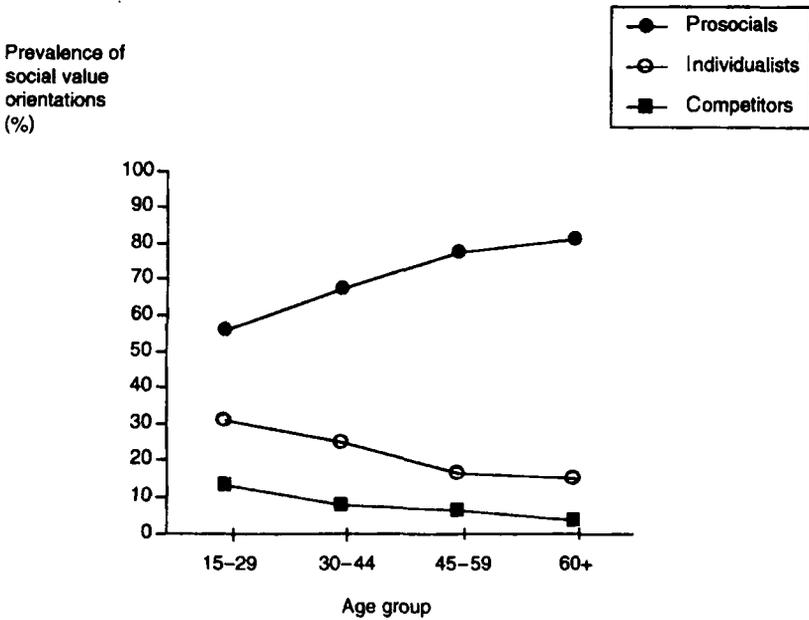
Might interpersonal orientations be further shaped by different patterns of social interaction as experienced during early adulthood, middle adulthood, and old age? There are reasons why a relationship between these variables is plausible. Several lines of reasoning would support the hypothesis that the

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percentage of prosocials increases with age, whereas the percentage of individualists and competitors decreases with age (i.e., *prosocial-growth hypothesis*). Yet there is also a logic that would give rise to an alternative hypothesis, suggesting that the percentage of prosocials decreases with age, whereas the percentage of individualists and competitors increases with age (i.e., *proself-growth hypothesis*).

What logic would underlie the prosocial-growth hypothesis? I suggest four complementary lines of reasoning. First, the functionality explanation assumes that, relative to individualistic and competitive orientations, prosocial orientation is more functional in terms of enhancing long-term personal well-being and collective well-being (cf. Axelrod, 1984). This explanation contends that over time and extended experience with interdependence situations and interaction partners, individuals increasingly detect the functional aspects of prosocial orientation. Second, the “change-in-interdependence” explanation assumes that the nature of interdependence situations and social interaction changes and evolves during a lifetime, suggesting that situations characterized by conflicts of interest may become less prevalent with increasing age, whereas situations calling for helping and being helped may become more prevalent with increasing age (cf. Levinson, 1986). Third, the “cohort” explanation centers on the cultural-historical determinants of prosocial orientation. For example, many Western societies have become more urban and less collectivistic (or less rural and more individualistic) over the past several decades, which may account for the finding that prosocial orientation is more prevalent among more mature individuals. A fourth explanation could be labeled as the “longevity explanation”. This explanation assumes that the life expectancy is smaller for individualists and competitors than for prosocials, arguing (or speculating) that due to their benevolent interpersonal orientation, prosocials may have developed healthier social networks (i.e., availability of social support) than individualists and competitors. Given that the availability of social support exhibits a positive association with mental and physical health as well as with longevity (Stroebe & Stroebe, 1996), it is possible that the life expectancy of prosocials is longer than that of individualists and competitors. Prosocial orientation may therefore be more prevalent among the more mature age groups, especially the oldest age group. Although the longevity explanation is speculative, the interpretation is congruent with the finding that the most interpersonal aspect of Type A personality—namely, hostility—is most strongly predictive of the risk of subsequent coronary heart disease (for a review, see Smith, 1992).

What logic would underlie the proself-growth hypothesis? One might assume that individuals assign greater weight and attention to patterns of interaction that are harmful to their own well-being than to those that are helpful to their own well-being (cf. Fiske, 1980; Peeters & Czapinski, 1990; Skowronski & Carlston, 1989). Given that the cumulative experience with inci-



**Figure 9.3** The prevalence of interpersonal orientations (in percentages) among groups differing in age. From Van Lange *et al.* (1997), with permission. Copyright © 1997 by the American Psychological Association

dents of harm in settings of interdependence increases with age, one might argue that levels of trust in prosocial motivation of others tend to gradually decline with age (although I am not aware of any study which directly addresses the link between age and trust). If there is such a decline in trust, then it may be associated with a decline in prosocial orientation, and an increase in individualistic or competitive orientations (cf. Kuhlman *et al.*, 1986; Pruitt & Kimmel, 1977).

The findings reveal support for the prosocial-growth hypothesis, rather than the proself-growth hypothesis. As can be seen in Figure 9.3, the percentages of prosocials systematically elevated with increasing age (varying from 55.9%, 67.3%, 77.5%, to 81.5%), whereas the percentages of individualists (varying from 30.7%, 24.9%, 16.3%, to 15.1%) and competitors (varying from 13.3%, 7.8%, 6.2%, to 3.3%) decreased with increasing age. These findings are consistent with the general assumption that interpersonal orientations are shaped by different patterns of social interaction, as experienced during the periods spanning early adulthood, middle adulthood, and old age.

Clearly, the findings are mute as to the specific explanation for the prosocial-growth hypothesis. Each of the four explanations (functionality,

change-in-interdependence, cohort, and longevity) may account for this pattern of results, and it awaits future research to tease these explanations apart (which is, of course, easier said than done). Theoretically, I am inclined to favor the former two explanations over the latter two. How so? First, the functional value of prosocial orientations is often underestimated or overlooked, perhaps because people place so much weight on the possibility of getting exploited. For example, recent computer simulations, following Axelrod's (1984) classic work, suggests that strategies which are somewhat more generous and benevolent than tit-for-tat fare quite well in various interpersonal contexts, in that such strategies yield better personal outcomes as well as better collective outcomes (e.g., Kollock, 1993). One might speculate that people, like much theory within the social and behavioral sciences, are more likely to overlook the functional aspects of cooperation, equality, and generosity. Yet they may implicitly or explicitly detect the functional aspects of such prosocial orientation only over time (i.e., after accumulating experience with multiple situations and multiple interaction partners). The second explanation, focusing on change in interdependence situations, is quite plausible as well. Moreover, this account is also highly complementary to the functionality explanation. After all, most of us would agree with the claim that young adulthood is characterized by stronger conflicts of interest, contexts in which it might well be functional to adopt a more proself orientation. Settling in terms of both partners and professions is more characteristic of middle adulthood; moreover, children and junior colleagues are more likely to call for prosocial orientation.

Setting aside the specific explanations for the prosocial-growth hypothesis, two issues deserve brief attention. First, the findings do not support the proself-growth hypothesis, a prediction which was based on the notion that levels of trust may decrease with increasing age. In retrospect, it might be questionable (a) whether individuals continue to assign greater weight to potentially harmful behavior, (b) if so, whether individuals draw firm conclusions about humankind on the basis of such experiences, and (c) whether lower levels of trust necessarily translate in a movement away from prosocial orientation (cf. Parks, 1994). It could be that with increasing age, individuals become more prosocial, even though they (increasingly) believe that most people are not prosocial. Second, there is a fair amount of evidence suggesting that people tend to become happier over a lifetime (for a review, see Mroczek & Kolarz, 1998). The phenomenon is primarily explained in terms of intrapersonal mechanisms, particularly the role of personality differences in emotion regulation. However, it is plausible that *interpersonal* mechanisms also, to some degree, contribute to explaining this phenomenon. For example, one might speculate that because people tend to become more prosocial over time, they might evoke more positive interaction experiences, which in turn may explain why people become happier over the course of a lifetime.

## Situational and Dispositional Sources of Interpersonal Orientations

### *Proposition 6*

This states that “interpersonal orientations are a function of situational features and personal dispositions”. To most social psychologists this proposition should not come as a surprise, in that it adds very little (if anything at all) to what most of us already assume. Indeed, this proposition is identical to the well-known formula advanced by Lewin, in which behavior is assumed to be a function of the person and the environment. And McClintock (1972), too, advanced this proposition. So, why is the proposition stated at all? The reason is that I want to illustrate “the power of the situation” (the situational view) as well as seek to clarify some issues relevant to “influences” of personal dispositions (the dispositional view). Both goals are all the more important because, empirically, interpersonal orientations are primarily addressed from the dispositional standpoint. I begin my discussion with the situational view.

In their review of interdependence processes, Rusbult and Van Lange (1996) advance three sources of interpersonal orientation, arguing that interpersonal orientations are manifested in at least three general forms: (a) *interpersonal dispositions*, or person-specific inclinations to respond to particular patterns of interdependence in a specific manner across numerous interaction partners; (b) *relationship-specific motives*, or partner-specific inclinations to respond to particular patterns in a specific manner within the context of a given relationship; and (c) *social norms*, or rule-based inclinations to respond to particular patterns of interdependence in a specific manner, either across numerous interaction partners (e.g., never be the first to “defect”) or within the context of a given relationship (e.g., never betray your best friend). Clearly, relationship-specific motives and social norms form an important situational basis of interpersonal orientations. For example, a relationship-specific motive may be derived from commitment to a partner, embodying feelings of attachment, intent to persist, and long-term orientation (Rusbult, Verette, Whitney, Slovik, & Lipkus, 1991; see also Agnew, Van Lange, Rusbult, & Langston, 1998). Commitment is ultimately a product of previous social interaction experiences, and broadly shaped by satisfaction with relationships, alternatives to a relationship, and investments to a relationship. Importantly, relative to partners to whom we feel not very committed, partners to whom we feel strongly committed are more likely to elicit or activate prosocial orientations (Rusbult *et al.*, 1991; Van Lange, Rusbult, Drigotas, Arriaga, Witcher, & Cox, 1997a). Similarly, the degree to which social norms activate prosocial vs. proself orientations is powerfully linked to differences in situations. For example, in some situations, such norms are very strong and often habituated, whereas in other situations such norms may be less salient or may be more ambiguous (i.e., when two or more social norms tend to conflict). For example, the

“equality norm” is a powerful norm in informal, communal situations, whereas other norms, such as equity, might be more important in formal, business-like situations.

There is even good reason to believe that prosocial orientations (or proself orientations) are fairly easily activated by relatively subtle situational differences. For example, slight variations in the degree to which another person is perceived as likeable or unlikeable, close or not so close, similar or dissimilar, might exert considerable influence on the activation of prosocial vs. proself orientations (cf. Kaufman, 1967). Similarly, slight variations in the degree to which equality is made salient (or other types of norm) in a given situation, might exert considerable influences on the activation of prosocial vs. proself orientations. In fact, during a summer school at Leuven (1998), sponsored by the European Association of Experimental Social Psychology, a study was conducted which revealed that the priming of moral norms through scrambled sentence procedures affected the degree to which individuals made prosocial vs. proself choices in an allocation task (Utz, Bovina, Green, & Waldzus, 1999). Thus, there is little doubt that the situation (even subtle situational differences, I believe) may exert powerful influences on the activation of prosocial vs. proself orientations.

At the same time, decades of early research on the prisoner’s dilemma and related situations revealed a remarkable consistency in individuals’ orientations. That is, across various situational manipulations, some individuals tended to behave in a prosocial manner, whereas other individuals tended to behave in a proself manner. These observations inspired several researchers to examine individual differences in interpersonal orientations. Indeed, the important line of research on social value orientation (e.g., Messick & McClintock, 1968) provided the methodological tools for assessing prosocial vs. proself orientations. Subsequent research has demonstrated that even brief measures involving allocational choices (such as the nine-item decomposed-game instrument, see Appendix 1), are predictive of cooperative and non-cooperative behavior in various settings, including two-person prisoner’s dilemmas, social dilemmas, resource dilemmas, and actual forms of helping behavior. An example of the latter is that individuals with prosocial orientations are more likely to donate time to the university than do individualists and competitors (McClintock & Allison, 1989). There is also evidence that these differences are linked to motivations for willingness to sacrifice in ongoing relationships (Van Lange *et al.*, 1997c), and to various forms of prosocial behavior in the context of large communities (e.g., donation to noble causes; Van Lange *et al.*, 1999).

Some researchers and theorists might believe that the situational view is inconsistent with the dispositional view, thinking that it is an “either-or” matter. I regard both views as perfectly consistent as well as perfectly complementary, and believe that theoretical analyses would benefit from taking

account of *both* views, rather than focusing on either point of view. How so? First, it is the situation that *affords* interpersonal orientations. That is, it is the situation that dictates the relevance of a particular interpersonal orientation, and determines which orientations are at conflict with one another. For example, the prisoner's dilemma, especially the single-trial prisoner's dilemma, affords cooperative orientations vs. self-interested orientations. A coordination situation, on the other hand, affords none of the orientations outlined in this chapter. Thus, first and foremost, it is important to analyze and define situations in terms of "affordances": what is it that the situation calls for?

Second, within a domain of situations that afford cooperative vs. non-cooperative orientations (e.g., so-called mixed-motive situations), the distinction between "strong" and "weak" situations, advanced by Snyder and Ickes (1985; see also Mischel, 1977), becomes important. Strong situations are ones that "provide salient cues to guide behavior and have a fairly high degree of structure and definition, whereas weak situations do not tend to have salient cues to guide behavior and are relatively unstructured and ambiguous" (Snyder & Ickes, 1985, p. 904). Strong situations are the ones in which situational influences should be large, whereas weak situations are the ones in which dispositional influences should be large. Applying these concepts to the domain of mixed-motive situations, it is important to note that, by their very structure, mixed-motive situations are almost by definition ambiguous. Indeed, they often represent "dilemmas". Thus, the structure itself, by its affordances, is weak, and therefore suggests the importance of dispositional influences. This may explain why the "remarkable consistency in individuals' orientations" in mixed-motive situations should in fact not be all that remarkable. However, even mixed-motive situations have the capacity to become strong. In particular, they may become strong because of relationship-specific motives (e.g., commitment) or because of social norms (which, presumably, may even be activated through some subtle priming procedures). Under such circumstances, the dispositional influences should be substantially weaker.

The implication for research is that when one compares strong with weak situations, one should obtain statistical interactions of disposition-and-situation (Magnusson and Endler, 1977), because the influences of dispositions should be greater in weak, rather than strong situations. For example, pre-existing differences in interpersonal orientation do predict willingness to sacrifice in close relationships when one's commitment to the relationship is relatively weak, but fail to predict willingness to sacrifice in close relationships when one's commitment to the relationship is strong (Van Lange *et al.*, 1997c). Such statistical interactions should also be found when one compares mixed-motive situations in which social norms are weak or ambiguous (e.g., at conflict with one another) with the same mixed-motive situations in which these norms are strong and unambiguous (for another illustration, see Kramer *et al.*, 1986).

Third, the dispositional view does not hold that there is always a perfect correspondence between orientation and behavior. This applies even to very “weak” situations that by their structures afford cooperative behavior vs. non-cooperative behavior; that is, when there is in fact a perfect match between orientations and the situational features. For example, the correspondence between prosocial (vs. proself) orientation and cooperative (vs. non-cooperative) behavior should not be perfect, even in a single-trial prisoner’s dilemma. Why not? First, it is unlikely that one particular orientation is completely independent of some other orientation. Indeed, Proposition 3 suggests that there is a correspondence between enhancement of joint outcomes and enhancement of equality in outcomes. Second, and perhaps more importantly, the more accurate characterization of the dispositional view is that people differ in the *probability* with which one or more of the interpersonal orientation will be activated. This base-rate view of personal dispositions is reasonable because people behave in a variety of different interaction situations. Experience accumulates across interaction situations as well as across multiple interaction partners, which is likely to shape a “probability distribution of interpersonal orientations”. Indeed, it would appear to be dysfunctional or maladaptive if people had to rely on only a single orientation in their interactions with others, even if the situational features were the same. The base-rate view 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 above-described situational and dispositional views also have implications for the temporal stability of interpersonal orientations, as will be discussed next.

### **Empirical Illustrations: Temporal Stability of Interpersonal Orientations**

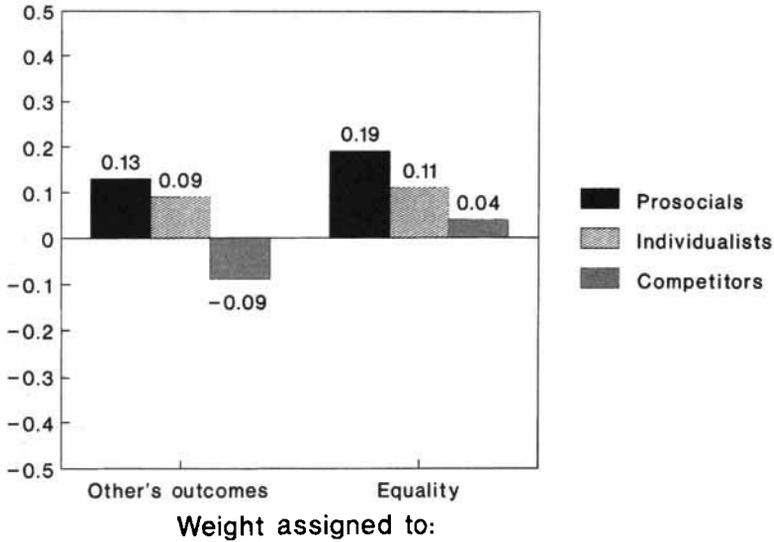
One could, of course, ask how stable such differences are? Once developed, do people stick to the same interpersonal orientation over years and years, or decades and decades? I think not. Theoretically, this point of view is unrealistic because: (a) interpersonal orientations should be further shaped by future patterns of social interactions (see Propositions 4 and 5); (b) our dispositional view holds that individuals differ in the probability with which a particular set of interpersonal orientations is activated (see Proposition 6); and (c) the situational view holds that even relatively small variations can sometimes make the situation considerably “stronger”, such that dispositional influences should become weaker (cf. Proposition 6). Methodologically, this point of view is unrealistic because slight variations within an individual across time (e.g., vari-

ation in day-to-day mood) might affect the probability with which prosocial vs. proself orientations are activated, thus tempering the test-retest reliability of interpersonal orientations.

In a recent study involving a small sample size (Van Lange & Semin-Goossens, 1998), we addressed the temporal stability over the course of 6 months. It appeared that 18 out of 24 classifiable participants (75%) at time 1 expressed the same interpersonal orientation at time 2, including 10 prosocials, six individualists, and two competitors ( $\kappa = 0.60$ ). In another study (Van Lange, 1999; study 1), I also collected data relevant to the temporal stability. In this case, the sample was large, and fairly representative of the Dutch adult population, and the time lag between measurement sessions was 19 months. Also, I should note that there were small differences in the instructions for measuring interpersonal orientation at time 1 and time 2. Specifically, at time 2 each decomposed game presented on the screen was accompanied by the statement "recall that the other is an unknown other" (for specific reasons, see Van Lange, 1999). Despite these differences, there was a significant relationship between time 1 and time 2 interpersonal orientation: it appeared that 342 of 581 participants (58.8%) expressed the same interpersonal orientation at time 1 and time 2 ( $\kappa = 0.19$ ). Clearly, the stability of interpersonal orientation is somewhat lower than one would expect from a "stable dispositional" point of view, yet comparable to that found for other individual difference variables (e.g., adult attachment styles; Shaver & Brennan, 1992), which are argued to be relatively stable.

Turning back to the integrative model of interpersonal orientation, I also assessed the link between interpersonal orientation measured at time 1, and the weights assigned to outcomes for self, outcomes for other, and equality in outcomes, measured at time 2, 19 months later (Van Lange, 1999; study 1). As can be seen in Figure 9.4, the weight assigned to outcomes for other as well as the weight assigned to equality in outcomes was greater for prosocials than for individualists and competitors. This finding, based on the measurement of interpersonal orientation at time 1, 19 months earlier, does provide evidence in support of the view that, with a reasonable stability over time, some interpersonal orientations are more easily activated in some people than in others.

Taken together, these studies suggest that interpersonal orientation reflects dispositions that are at least somewhat stable, yet open to modification, particularly over a relatively longer period of time. I did not expect perfect test-retest reliability, for a variety of reasons. As noted earlier, interpersonal orientations reflect to some degree dispositions whereby individuals differ in the *probability* with which prosocial, individualistic, or competitive orientations are activated. Indeed, it is plausible that virtually all people do at times reveal prosocial preferences, individualistic preferences, or competitive preferences, and even relatively subtle situational variables or mechanisms (e.g.,



**Figure 9.4** Mean weights assigned to outcomes for other and equality in outcomes (assessed at time 2) by prosocials, individualists, and competitors (assessed at time 1, 19 months earlier)

day-to-day variation in mood) might account for the activation of one or another interpersonal orientation. Indeed, I suggest that each of these interpersonal orientations can be activated in people. But importantly, I suggest at the same time that some orientations are activated more easily in some people than in others (cf. Proposition 6).

## ISSUES FOR FUTURE RESEARCH

Thus far, I have illustrated six propositions by classic research and some recent research. This is not to imply that the implications of these propositions, and the combinations of these propositions, are well understood. Below, I outline four lines of future research, thereby seeking to extend the experimental game paradigm for the study of interpersonal orientations. This extension is useful because the vast majority of the studies reviewed in this chapter come from research using experimental games. Generally, I suggest that the experimental game paradigm could be (a) expanded by examining psychological processes and principles that have been understudied in previous research (see “from games to cognition and affect” and “from games to locomotion”), or (b) complemented by alternative paradigms, which allow one to examine psy-

chological processes and principles that are directly relevant to everyday life situations of interdependence (see “From Games to Relationships” and “From Games to Societal Issues”).

### **From Games to Cognition and Affect**

Interpersonal orientations are likely to be linked not only to interpersonal behavior and social interaction, but also to the *cognitive* processes and *affective* processes that are relevant to understanding behavior and interaction. Indeed, Fiske (1992) has already noted that “thinking is for doing”, a truism which may be extended to *feeling is for doing* (Rusbult & Van Lange, 1996). If people differ in their goals for interpersonal “doing”, then it becomes plausible that they think differently about situations, and feel differently about situations, that they think and feel differently about other’s behavior, and that they think and feel differently about the outcomes following from interactions with others.

There is in fact a fair amount of research that has addressed the link between interpersonal orientations and cognition. For example, there are fairly strong links between interpersonal orientation and (a) beliefs regarding an other’s interpersonal orientation (Kuhlman & Wimberley, 1976), as well as the level of confidence held in such beliefs (Van Lange, 1992), and (b) judgments of an other’s cooperative and non-cooperative behavior, in terms of might (strength vs. weakness), morality (goodness vs. badness; cf. the Might vs. Morality effect, Liebrand *et al.*, 1986; McClintock & Liebrand, 1988), as well as rationality and intelligence (the Goal-Prescribes-Rationality principle; Van Lange & Kuhlman, 1994; Van Lange *et al.*, 1990; Van Lange & Liebrand, 1991).

Future research could benefit from addressing the link between interpersonal orientation and cognitive processes that may (or may not) accompany their interpersonal behavior and social interactions. The same argument could be advanced for the link between interpersonal orientation and affective processes, which have received very little empirical attention. For example, prosocials should feel happy when the outcomes are distributed fairly and when the outcomes served both their own and others’ well-being; individualists and competitors should feel more happy when they attain good outcomes for themselves, in an absolute sense or relative sense.

### **From Games to Locomotion**

The experimental game literature, as well as research on prosocial behavior, has focused almost exclusively on allocational choices, which are frequently labeled as “cooperation” and “competition”. However, behaviors in settings of interdependence are frequently more multifaceted. People often may adapt

to interdependence situations in ways by which they implicitly or explicitly change features of those situations (e.g., seeking greater independence, withdrawal, excluding others from one's group). Following Lewin (1935), such responses may be referred to as "*locomotion*", which Van Lange and Visser (1999) defined as "goal-directed activity causing change in the interdependence structure underlying an interaction situation (or patterns of interaction situations) involving two or more individuals".

Importantly, locomotion entails situation-seeking activities, and interpersonal orientation should be revealed in such activities (Snyder & Ickes, 1985). For example, people should exhibit tendencies toward avoidance when they believe they are unable to attain their primary interaction goals, and exhibit tendencies toward approach when they believe they are able to attain their primary interaction goals. Previous research has shown, for example, that competitors tend to decrease levels of interdependence with others pursuing tit-for-tat (Van Lange & Visser, 1999). The plausible explanation is that competitors cannot successfully enhance relative advantage over others, when such others pursue tit-for-tat, because tit-for-tat immediately reciprocates both cooperative and non-cooperative choices (i.e., except for the very first trial, tit-for-tat is "unbeatable"). This is also interesting because it seems that, by its interaction features, tit-for-tat drives away competitors, which is yet another reason why tit-for-tat is quite an effective strategy in eliciting stable patterns of mutual cooperation.

Future research could examine various forms of locomotion, such as withdrawal choices in prisoner's dilemmas (e.g., Miller & Holmes, 1975; Schopler & Insko, 1992), selection of alternative partners (Dawes & Orbell, 1992; Yamagishi *et al.*, 1994), or exclusion of particular others in small groups (Kerr, *in press*). There is good reason to believe that locomotion serves as an important (and often effective) means toward attaining different interpersonal goals (see Kelley, 1984, 1997; Van Lange, 1997).

### **From Games to Relationships**

Previous research on interpersonal orientation and related interpersonal orientation has focused on experimental games in which the interdependent other is a "relative stranger", with whom there is no shared history of interaction and no anticipation of a future of interaction. Of course, one could advance the argument that iterated games provide a context in which people create a "history of interactions" while anticipating a "future of interaction". I agree. Yet if one wants to capture the broad range of interpersonal orientations, such as generosity, then it will become important to provide a richer basis for the history and future of interactions. Indeed, I believe that experimental games (involving relative strangers) might to some degree underestimate the

importance of prosocial orientations, especially an orientation such as generosity. This is particularly likely because there is often no basis for interpersonal attachment, commitment, or empathy.

We assume that attachment, commitment, and empathy (or at least sympathy) are key concepts toward understanding interactions in ongoing relationships (e.g., relationships among colleagues, friends, siblings, and close partners), and these three concepts in particular might evoke various prosocial orientations. Future research would benefit from a careful examination of antecedents and consequences of interpersonal orientation in the context of ongoing relationships. One might speculate that cooperation, equality, and generosity all contribute to the well-being and stability of such relationships, and perhaps ultimately to the individuals' own well-being as well (for some evidence, see Van Lange *et al.*, 1997a).

### **From Games to Societal Issues**

Experimental game methodology is to some degree inspired by important societal problems (e.g., the cold war, the oil crisis, environmental pollution). These large-scale social dilemmas can to some degree be modeled in the laboratory. Perfect examples of such approaches are the resource dilemmas and public good dilemmas, which simulate some of the key features of some social dilemmas in the real world (Messick & Brewer, 1983). Recent laboratory and field research suggests that interpersonal orientations are fairly consistently linked with judgments and behavior in such large-scale social dilemmas, including studies on commuting by train vs. car (Van Lange, Van Vugt, Meertens, & Ruiters, 1998; Van Vugt, Van Lange, & Meertens, 1996), donations to noble causes (Van Lange *et al.*, 1999), and consumption of scarce resources (Kramer *et al.*, 1986).

An interesting and potentially promising line of research would focus on the way in which individuals respond to the various measures implemented by authorities and governments. Policy measures may focus on psychological solutions which do not alter the situation (e.g., public education) or structural solutions, which do alter the situation (e.g., subsidizing society-friendly behaviors, taxing society-unfriendly behaviors, implementing a carpool priority lane, implementing legal changes for penalizing society-unfriendly behaviors). As noted by Samuelson and Messick (1995), the solutions may differ in terms of various attributes, such as efficiency (how well do the solutions enhance collective outcomes?), fairness (how fair are the solutions?), freedom (to what degree is my personal freedom curtailed by these solutions?), and self-interest (will the solution provide good or bad outcomes for me personally?). It is plausible that interpersonal orientations often affect how people evaluate and eventually respond to these solutions. For example, the attributes of

efficiency and fairness should be important to prosocials, whereas the attributes of freedom and self-interest might be relatively more important to individualists and competitors (for some evidence, see Samuelson, 1993).

In closing, it should be clear that the pursuit of self-interest is too limited to fully explicate the ways in which we behave and interact in settings of interdependence. It is, therefore, all the more surprising that many or most theories and models of interpersonal behavior do not seek to broaden their foundations so as to include prosocial and competitive orientations. There are theoretical advantages for doing so, but most importantly, a broader foundation provides a more accurate account of what we observe in our experimental and field research. As I hope to have illustrated, several novel programs of research could be developed, which I believe will eventually underscore the significance of cooperation, equality, generosity, and competition in understanding social interaction. A greater understanding of these orientations is of utmost importance to a truly *social* social psychology, as well as to several other disciplines which address fundamental aspects of social life.

## ACKNOWLEDGEMENTS

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## APPENDIX 1. AN INSTRUMENT TO MEASURE INTERPERSONAL ORIENTATION

In this task we ask you to imagine that you have been randomly paired with another person, whom we will refer to simply as the "Other". This other person is someone you do not know and that you will not knowingly meet in the future. Both you and the Other person will be making choices by circling either the letter A, B, or C. Your own choices will produce points for both yourself and the Other person. Likewise, the other's choice will produce points for him/her and for you. Every point has value: the more points you receive, the better for you, and the more points the Other receives, the better for him/her.

Here's an example of how this task works:

	A	B	C
You get	500	500	550
Other gets	100	500	300

In this example, if you choose A you would receive 500 points and the other would receive 100 points; if you chose B, you would receive 500 points and the other 500; and if you chose C, you would receive 550 points and the other 300. So, you see that your choice influences both the number of points you receive and the number of points the other receives. Before you begin making choices, please keep in mind that there are no right or wrong answers—choose the option that you, for whatever reason, prefer most. Also, remember that the points have value: the more of them you accumulate the better for you. Likewise, from the other's point of view, the more points he or she accumulates, the better for him or her.

For each of the nine choice situations, circle A, B, or C, depending on which column you prefer most:

- |   |     |     |     |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
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| <table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">A</td> <td style="text-align: center;">B</td> <td style="text-align: center;">C</td> </tr> <tr> <td>(1) You get</td> <td style="text-align: center;">480</td> <td style="text-align: center;">540</td> <td style="text-align: center;">480</td> </tr> <tr> <td>Other gets</td> <td style="text-align: center;">80</td> <td style="text-align: center;">280</td> <td style="text-align: center;">480</td> </tr> </table><br><table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">A</td> <td style="text-align: center;">B</td> <td style="text-align: center;">C</td> </tr> <tr> <td>(2) You get</td> <td style="text-align: center;">560</td> <td style="text-align: center;">500</td> <td style="text-align: center;">500</td> </tr> <tr> <td>Other gets</td> <td style="text-align: center;">300</td> <td style="text-align: center;">500</td> <td style="text-align: center;">100</td> </tr> </table><br><table style="width: 100%; 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border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">A</td> <td style="text-align: center;">B</td> <td style="text-align: center;">C</td> </tr> <tr> <td>(5) You get</td> <td style="text-align: center;">560</td> <td style="text-align: center;">500</td> <td style="text-align: center;">490</td> </tr> <tr> <td>Other gets</td> <td style="text-align: center;">300</td> <td style="text-align: center;">500</td> <td style="text-align: center;">90</td> </tr> </table> |     | A   | B   | C | (1) You get | 480 | 540 | 480 | Other gets | 80 | 280 | 480 |  | A | B | C | (2) You get | 560 | 500 | 500 | Other gets | 300 | 500 | 100 |  | A | B | C | (3) You get | 520 | 520 | 580 | Other gets | 520 | 120 | 320 |  | A | B | C | (4) You get | 500 | 560 | 490 | Other gets | 100 | 300 | 490 |  | A | B | C | (5) You get | 560 | 500 | 490 | Other gets | 300 | 500 | 90 | <table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">A</td> <td style="text-align: center;">B</td> <td style="text-align: center;">C</td> </tr> <tr> <td>(6) You get</td> <td style="text-align: center;">500</td> <td style="text-align: center;">500</td> <td style="text-align: center;">570</td> </tr> <tr> <td>Other gets</td> <td style="text-align: center;">500</td> <td style="text-align: center;">100</td> <td style="text-align: center;">300</td> </tr> </table><br><table style="width: 100%; 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border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">A</td> <td style="text-align: center;">B</td> <td style="text-align: center;">C</td> </tr> <tr> <td>(9) You get</td> <td style="text-align: center;">480</td> <td style="text-align: center;">490</td> <td style="text-align: center;">540</td> </tr> <tr> <td>Other gets</td> <td style="text-align: center;">100</td> <td style="text-align: center;">490</td> <td style="text-align: center;">300</td> </tr> </table> |  | A | B | C | (6) You get | 500 | 500 | 570 | Other gets | 500 | 100 | 300 |  | A | B | C | (7) You get | 510 | 560 | 510 | Other gets | 510 | 300 | 110 |  | A | B | C | (8) You get | 550 | 500 | 500 | Other gets | 300 | 100 | 500 |  | A | B | C | (9) You get | 480 | 490 | 540 | Other gets | 100 | 490 | 300 |
|   | A   | B   | C   |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
| (1) You get   | 480 | 540 | 480 |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
| Other gets  | 80  | 280 | 480 |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
|   | A   | B   | C   |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
| (2) You get   | 560 | 500 | 500 |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
| Other gets  | 300 | 500 | 100 |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
|   | A   | B   | C   |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
| (3) You get   | 520 | 520 | 580 |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
| Other gets  | 520 | 120 | 320 |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
|   | A   | B   | C   |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
| (4) You get   | 500 | 560 | 490 |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
| Other gets  | 100 | 300 | 490 |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
|   | A   | B   | C   |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
| (5) You get   | 560 | 500 | 490 |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
| Other gets  | 300 | 500 | 90  |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
|   | A   | B   | C   |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
| (6) You get   | 500 | 500 | 570 |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
| Other gets  | 500 | 100 | 300 |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
|   | A   | B   | C   |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
| (7) You get   | 510 | 560 | 510 |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
| Other gets  | 510 | 300 | 110 |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
|   | A   | B   | C   |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
| (8) You get   | 550 | 500 | 500 |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
| Other gets  | 300 | 100 | 500 |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
|   | A   | B   | C   |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
| (9) You get   | 480 | 490 | 540 |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |
| Other gets  | 100 | 490 | 300 |   |             |     |     |     |            |    |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |    |  |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |  |   |   |   |             |     |     |     |            |     |     |     |

*Note:* Participants are classified when they make six or more consistent choices. Prosocial choices are: 1c, 2b, 3a, 4c, 5b, 6a, 7a, 8c, 9b; individualistic choices are: 1b, 2a, 3c, 4b, 5a, 6c, 7b, 8a, 9c; and competitive choices are: 1a, 2c, 3b, 4a, 5c, 6b, 7c, 8b, 9a.