

Are Conservatives Less Likely to be Prosocial Than Liberals? From Games to Ideology, Political Preferences and Voting

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Abstract: Do political preferences reflect individual differences in interpersonal orientations? Are conservatives less other-regarding than liberals? On the basis of past theorising, we hypothesised that, relative to individuals with prosocial orientations, those with individualistic and competitive orientations should be more likely to endorse conservative political preferences and vote for conservative parties. This hypothesis was supported in three independent studies conducted in Italy (Studies 1 and 2) and the Netherlands (Study 3). Consistent with hypotheses, a cross-sectional study revealed that individualists and competitors endorsed stronger conservative political preferences than did prosocials; moreover, this effect was independent of the association between need for structure and conservative political preferences (Study 1). The predicted association of social value orientation and voting was observed in both a four-week (Study 2) and an eight-month (Study 3) longitudinal study. Taken together, the findings provide novel support for the claim that interpersonal orientations, as measured with experimental games rooted in game theory, are important to understanding differences in ideology at the societal level. Copyright © 2011 John Wiley & Sons, Ltd.

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Predicting political voting is not easy. Traditionally, social and behavioural scientists have emphasised the role of economic growth versus decline, public opinion and persuasiveness of political parties and their leaders during campaigns. More recent theorising and research reveal that political ideologies are strongly associated with basic psychological needs, values and dispositions (Jost, Nosek, & Gosling, 2008; Jost, Federico & Napier, 2009). Conservatives tend to adhere more strongly to traditional values, conformity and stability, whereas liberals reveal a stronger openness to experience and a stronger aversion to inequality (e.g. Caprara, Schwartz, Capanna, Vecchione, & Barbaranelli, 2006; Jost, 2006; Pratto, 1999; for meta-analytic reviews, see Jost, Glaser, Kruglanski, & Sulloway, 2003; Van Hiel, Onraet, & De Pauw, 2010). Such findings indicate that political preference and voting may flow from a *cognitive-motivational* system that serves to reduce uncertainty and threat (Jost et al., 2008, 2009).

There is also some research providing initial evidence for the idea that political preferences and voting might be rooted in an interpersonal system, which underlies and shapes our social interactions in dyads and groups. For example, more than conservatives, liberals report having greater sympathy for people less fortunate than themselves (Zettler & Hilbig, 2010), self-reported altruism (Zettler, Hilbig, & Haubrich, 2011), as well as measures derived from the Honesty–Humility dimension of the HEXACO model of personality (e.g. Chirumbolo & Leone, 2010; Lee, Ashton, Ogunfowora,

Bourdage, & Shin, K., 2010; cf. Ashton & Lee, 2007; De Vries, De Vries, De Hoogh, & Feij, 2009). In a related vein, it is interesting to note that the Honesty–Humility dimension of judgement is also relevant to our understanding of prejudice, which is an important aspect of political preferences and ideology (Sibley, Harding, Perry, Asbrock, & Duckitt, 2010; see also Duckitt & Sibley, 2009, 2010).

These approaches have revealed new evidence that personality differences that seem at least partially influenced by social interaction experiences might shape (and reinforce) differences in ideology, political preferences and voting. Indeed, there is increasing evidence that the values or goals of solidarity and egalitarianism, along with materialism, as measured with questionnaires and self-appraisals, are predictive of ideology and political preference (e.g. Van Hiel, Cornelis, & Roets, 2007; Zettler, Hilbig, & Haubrich, 2011). In the present research, we built on these recent scientific developments by examining the association (cross-sectionally and longitudinally) between the concept of social value orientation (differences in prosocial, individualistic and competitive orientations) and ideology, preferences and voting. Our basic thesis is that differences in political preference and voting can be traced to basic interpersonal differences in prosocial, individualistic and competitive orientations, both in terms of theory and methodology, which are grounded in interdependence and social interaction processes (Kelley et al., 2003; Van Lange & Rusbult, 2011).

Rather than focusing on self-reports of items assessing prosociality or altruism, the present research focuses on a so-called decomposed game measure that forces people to choose among different allocations of hypothetical outcomes

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for self and others (e.g. Messick & McClintock, 1968; Van Lange, Otten, De Bruin, & Joireman, 1997). This measure has been well-supported in four decades of research but has received relatively little attention in research on classic or emerging societal issues. As such, the present research seeks to break new ground by examining whether conservatives are on average less other-regarding regarding than are liberals. In particular, we are interested in examining whether conservatives, relative to liberals, are more likely to hold individualistic and competitive orientations and less likely to hold prosocial orientations. In what follows, we illuminate the historical, theoretical and methodological inspirations to this question.

FROM GAMES TO POLITICS: THEORETICAL AND METHODOLOGICAL CHALLENGES

Throughout the past several decades, issues relevant to prosocial behaviour, such as cooperation and competition, have been thoroughly examined using experimental games, which in the contemporary literature is also referred to as 'economic games'. This tradition of research, which is theoretically and methodologically rooted in game theory (i.e. Luce & Raiffa, 1957; Von Neumann & Morgenstern, 1944), has contributed enormously to our understanding of the cognitive and motivational underpinnings of cooperation and competition in dyads and small groups. Notwithstanding its important contribution to our understanding of cooperation and competition, the game approach can be characterised by two broad limitations.

A first limitation is largely *theoretical* in nature. As a foundation for theory and analysis, the game approach is based on the assumption of *rational self-interest*, arguing that people tend to pursue their personal well-being, with little or no regard for other people's well-being. This assumption has been widespread in several sciences but is now complemented with the notion that people might pursue broader goals. A case in point is interdependence theory, which explicitly assumes that social interaction needs to be understood in terms of not only concern with own outcomes (i.e. self-interest) but also broader social or interpersonal concerns, such as concern with joint outcomes, concern with partner's outcomes and concern with equality in outcomes (e.g. Kelley & Thibaut, 1978; Van Lange & Rusbult, 2011, Van Lange, De Cremer, Van Dijk, & Van Vugt, 2007).

A second limitation is largely *methodological* in nature. Experimental games are 'strongly controlled' situations that do not tend to capture a psychological richness that is assumed to be present in real-life situations. This lack of mundane realism has been acknowledged and recognised for a long time, and several theorists and researchers have suggested the importance of bridging the gap between 'games' and more 'mundane' or everyday forms of interpersonal behaviours. For example, after reviewing 30 years of research on experimental games, Pruitt and Kimmel (1977) underlined the need and importance of studies, which 'take us well beyond the gaming laboratory' allowing us 'to assess

how far each research finding can be pushed in explaining other social behavior' (p. 387). Similar or even stronger recommendations have been advanced in more recent reviews (e.g. Allison, Beggan, & Midgley, 1996; Komorita & Parks, 1995). Despite these recommendations, the empirical literature on the ecological validity of experimental games, or specific tools rooted in this long tradition of research, is remarkably small.

In light of both limitations, it would be important to demonstrate that individual differences in prosocial, individualistic and competitive orientations might be predictive of political preference and voting. From a theoretical perspective, it would provide support for the idea that people differ in terms of the orientations that they adopt to social interaction situations as well as broader societal issues. And from a methodological perspective, we would be able to provide novel evidence that the measurement using experimental games is able to predict political preferences and voting. This is interesting not only because it would take well beyond the gaming laboratory (as noted earlier) but also because game theory more generally is often viewed as framework that has modest relevance to predicting interpersonal or societal phenomena in the 'real life'. And, of course, supportive results would highlight the importance of personality processes captured by measurements developed within the game theoretical approach to understanding social beliefs and behaviour.

As alluded to earlier, we focus on three major types of interpersonal orientations, including (i) prosocial orientation, which seeks to enhance own *and* other's outcomes as well as equality in outcomes; (ii) individualistic orientation, which seeks to enhance outcomes for self, and being largely indifferent to outcomes for another person; and (iii) competitive orientation, which seeks to enhance the difference between outcomes for self and other in favour of the self (Messick & McClintock, 1968; Van Lange, Agnew, et al., 1997; Van Lange, Otten, et al., 1997). Thus, relative to individualists and competitors, prosocials tend to be more other-regarding in that they are more strongly oriented toward helping others and pursuing equality in outcomes (Van Lange, 1999).

This argument is supported in a variety of experimental tasks, such as iterated prisoner's dilemmas, negotiation tasks or resource dilemmas in small groups (e.g. Kramer, McClintock, & Messick, 1986; Parks & Rumble, 2001; Van Dijk, De Cremer, & Handgraaf, 2004; Van Kleef & Van Lange, 2008; for a recent meta-analysis, see Balliet, Parks, & Joireman, 2009). The typical finding is that relative to individualists and competitors, prosocials are more prone to behave cooperatively, expect cooperation from others and engage in constructive negotiation. Individualists can be motivated to cooperate if there are instrumental reasons for doing so—that is, if it is in their long-term self-interest to do so (see Kuhlman & Marshello, 1975; Van Lange, Klapwijk, & Van Munster, 2011). It is more complex to lure competitors into cooperative behaviour (but Sheldon, 1999).

Further, prosocials are likely to interpret interpersonal behaviour in terms of morality and fairness, whereas individualists and competitors tend to evaluate interpersonal

behaviour in terms of competence and strength (Liebrand, Jansen, Rijken, & Suhre, 1986; Van Lange & Kuhlman, 1994). This may also help to explain why prosocials tend to be so averse to violations of justice (Van Dijk et al., 2004; Van Lange, 1999; for neuroscientific evidence, see Haruno & Frith, 2009). And prosocials are more likely to engage in self-sacrificial behaviours in their ongoing relationships, tend to have more siblings (especially sisters) and tend to feel more strongly attached to others (for a review, see Van Lange, De Cremer et al., 2007).

FROM SOCIAL VALUE ORIENTATION TO POLITICAL PREFERENCES, VOTING AND IDEOLOGY

Although primarily developed in an attempt to explain behaviour and social interactions in dyads and small groups, we suggest that differences in interpersonal orientations may also help us understand preferences at the societal level, such as political preferences and behaviour. Recall that prosocials are concerned not only with their own outcomes but also with other's outcomes and equality in outcomes, whereas other people are primarily concerned with their own outcomes, either in an absolute (individualists) or relative sense (competitors). Such orientations may form a basis for different ideological worldviews.

One key aspect of liberal versus conservative ideologies is a focus on equality (liberalism) versus a focus on hierarchy and tolerance of inequality (Jost et al., 2008; Giddens, 1998). Relative to individualists and competitors, prosocials should be more likely to endorse political preferences that are aimed at helping others (especially those in need, such as the poor and the sick: 'solidarity') and restoring or maintaining equality in outcomes ('justice'). In contrast, individualists and competitors are more likely to favour options that emphasise individual freedom, reward individualistic goals, and may therefore be more accepting of inequality. Hence, we predicted that, relative to prosocials, individualists and competitors should be more likely to adopt conservative preferences as well as more likely to vote for conservative parties.

In addition, in a more exploratory vein, we examined potential differences between individualists and competitors. For example, it is possible that competitors are more likely than individualists to endorse right-wing conservative preferences. One argument would be that relative to individualists, competitors are more strongly oriented toward 'outperforming others', and therefore, more accepting of inequality. Another argument could be that tendencies toward outperforming others might be even more strongly conflicting with the goal of solidarity. At the same time, it possible that competitors might find it easier to 'switch' from hurting to helping others (given that their orientation is quite interpersonal), whereas the orientation adopted by individualists (i.e. being indifferent to other's outcomes) might be more stable across situations. In past research on social value orientation, we often have witnessed pronounced differences between

prosocials versus individualists and competitors, along with smaller or no differences between individualists and competitors (for an overview, see Balliet et al., 2009; Van Lange, De Cremer et al., 2007). For example, for more specific noble donations (e.g. donating by supporting a race or donation of money by a bank), we witness strong differences between prosocials versus individualists and competitors and no or smaller differences between the latter two groups (Van Lange, Bekkers et al., 2007). Thus, the predictions focus primarily on the differences between prosocials versus individualists and competitors, whereas we explore potential differences between individualists and competitors.

PAST RESEARCH

As noted earlier, most past work on personality and political preferences and voting have focused on cognitive-motivational aspects of personality, examining dispositions such as need for closure, need for structure, openness to experience, as well as earlier research on authoritarianism, social dominance orientation and uncertainty avoidance (Jost et al., 2003; Van Hiel, Onraet et al., 2010; Van Hiel, Roets et al., 2010; see also Duckitt & Sibley, 2010; Onraet, Van Hiel, Roets, & Cornelis, 2011; Sidanius & Pratto, 2001).

Moreover, there has been some recent work on the link between political preferences and interpersonal orientations that we briefly reviewed. It is important to note, though, that most of this research focuses on (i) self-reported forms of altruism or prosociality, thereby relying on language and appraisals rather than behavioural choices, and (ii) prejudice (as well as right-wing orientation and social dominance) rather than political preferences or the actual voting. However, there are exceptions. In addition to recent research by Zettler, Hilbig, and colleagues (Zettler & Hilbig, 2010; Zettler et al., 2011), one older example is a study by Farwell and Weiner (2000), which revealed that conservatives are less likely than liberals to provide help to others in need. This finding is in line with recent findings revealing that prosocials are more likely to provide help to the needy (who suffer from poverty or health issues) and to volunteer in experiments than do individualists and competitors (e.g. Van Lange, Bekkers et al., 2007; Van Lange, Schippers, & Balliet, 2011).

We could locate only one published study that directly speaks to the association of social value orientation and political preferences or voting. In particular, Sheldon and Nichols (2009, Study 4) found that 49 out of 64 prosocials identified themselves as democrat (77%) rather than republican (23%). In contrast, they found that 43 out of 71 individualists and competitors (combined in a so-called proself category) identified themselves as democrat (61%) rather than republican (39%). This study was conducted among law students in the USA, which may to some degree account for the relatively large number of democrats in the sample. These findings provide evidence for the idea that differences in social value orientation might be predictive of political preference or ideology.

PRESENT RESEARCH AND HYPOTHESES

Although promising, the findings by Sheldon and Nichols (2009) should be regarded as preliminary, because the sample might have influenced the results in unforeseen ways, and because the findings are cross-sectional (and so it is possible that other mechanisms might underlie the findings, including a temporary, state-related mindset). Also, it is not clear whether the findings might generalise to climates other than that of the USA, in which two ideologies are pitted against each other (democrats versus republicans) rather than multi-party systems that are more characteristic of the political options or landscape of various countries in Europe.

The present research is expected to complement and extend these findings in several ways. First, the present research included samples in Italy and the Netherlands. These countries differ in a number respects (such as historical development, population size, climate, dominant religion as well as levels of individualism and collectivism), and thus provide a nice complement to the US sample.

Second, the present research did not rely on students as participants but sought to include participants who have actual working experience at organisations. Indeed, such experiences might also shape political preferences, especially if uncertainty and threat are key issues. In fact, while Studies 1 and 2 included working adults, Study 3 sought to include a sample representative of the adult population in the Netherlands.

Third, the present research focused not only on preferences but also made an attempt to examine actual voting, by conducting the study immediately after the political elections in Europe or the Netherlands. Fourth, although our hypothesis predicts differences between prosocials versus individualists and competitors (as tested by Sheldon and Nichols, 2009), we used sample sizes that allowed us to test differences between individualist and competitors as well.

And last but not least, we felt it important to examine the link between the measurement of individual differences (here, social value orientation) and behaviour in a cross-sectional as well as longitudinal design. Indeed, from a classic personality perspective, we considered it important to provide evidence that moves us beyond state-dependent differences in political preferences.

Study 1

The primary purpose of Study 1 is to test the hypothesis that relative to prosocials, individualists and competitors endorse more strongly conservative political preferences. Moreover, we explored whether these effects, if observed, are independent of the well-established association between need for structure and political preferences. As noted, earlier, the need for structure is one of the key predictors of political preferences and voting (see Neuberg & Newsom, 1993).

Moreover, the need for structure is closely associated with other epistemic motives, such as the need for closure (Webster & Kruglanski, 1994) that are known predictors of conservatism (Kossowka & Van Hiel, 2003) and voting (e.g. Chirumbolo & Leone, 2008). Last but not least, Jost

et al. (2003) observed that several threats to 'structure' seem to be not only negatively correlated with political conservatism, such as attempts at innovation but also very concrete or specific manifestations of the need for structure versus openness to complexity or novelty, such as preferences for complex paintings, poems, music or literary texts.

METHOD

Participants

Four hundred and one participants took part in Study 3 (194 men, 207 women). They were recruited at various settings, including public settings such as waiting areas at train and bus stations, public squares, shopping centres and university cafeterias. The sample included mainly university students (26.2%), employees (34.2%), professionals (e.g. people having their own company or business; 9.5%) and housewives (11.2%). The average age was 35.02 years ($SD = 13.57$).

Procedure

Participants completed a questionnaire containing an instrument measuring social value orientation and the need for structure. We also measured political preferences, as well as a scale assessing attitudes regarding conservative values and progressive (or liberal) attitudes.

Individual differences in *social value orientation* were assessed with the triple-dominance decomposed game (for precise instructions, see Van Lange *et al.*, 1997). The instructions state that (i) 'the other was said to be someone that they did not know and that they would never knowingly meet in the future' so as to examine participants' general tendencies toward others, and (ii) 'the other will be making choices' so as to induce some interdependence between the participant and the other. Also, outcomes were presented in terms of points, and participants were asked to imagine that the points had value to themselves as well as to the other person.

An example of a decomposed game is the choice among three options: Option A, 480 points for self and 80 points for other; Option B, 540 points for self and 280 points for other; and Option C, 480 points for self and 480 points for other. In this example, option A represents the competitive choice because it provides a largest difference between one's own and the other's outcomes; option B represents the individualistic choice because one's own outcomes are largest; and option C represents the prosocial choice because it provides the greatest joint outcome and the smallest discrepancy between own and other's outcomes.

Participants were classified if they made six or more choices that were consistent with a particular social value orientation. Accordingly, we identified 130 prosocials, 83 individualists and 50 competitors. In total, 138 participants made fewer than six consistent choices and were not classified. The Need for Structure (12 items, $\alpha = .77$) scale was adapted from previous research (see Chirumbolo, Areni, & Sensales, 2004; Chirumbolo, Livi, Mannetti, Pierro, A., & Kruglanski 2004).

Political attitudes and preference

Political preferences were measured with two items. In the first item, participants were asked ‘Considering the current political context in Italy, how would you describe your political orientation?’ A 7-point response scale was used (1 ‘extreme left’, 2 ‘left’, 3 ‘centre-left’, 4 ‘centre’ 5 ‘centre-right’, 6 ‘right’, 7 ‘extreme right’). The second item was ‘Personally, from a political point of view, I describe myself as a:’ followed by 7-point scale anchored at the extremes by 1 ‘left winger’, and 7 ‘right winger’. Scores were averaged ($r = .88$) with high scores indicating a conservative-right orientation. Twelve participants had missing values (i.e. failed to state their political orientation).

We assessed two distinct political attitudes that constitute classic political attributes that traditionally span the left (i.e. progressive or liberal attitudes) and the right (i.e. conservative attitude) extremes of the political spectrum (Chirumbolo, Areni et al., 2004). *Conservative* attitude (24 items, $\alpha = .87$) was assessed items tapping diverse facets of the conservative ideology, such as individualism (‘Values of individual success are the most important guides for one’s behavior’), preference for strong political leaders (‘What our country needs most is a strong and brave leader that people can trust’), law and order concerns (‘More order and discipline for everybody are needed’) and anti-immigrants stands (‘Since immigrants started entering Italy crime has apparently increased’).

Progressive attitude (16 items, $\alpha = .73$) was assessed with items measuring pluralistic, multicultural and egalitarian views of the world and society. Examples of the items are ‘No race is superior to another’; ‘All the races, religions and nations of the world have the same value’; ‘A truly pluralistic state should encourage diversity and the freedom of cultural, philosophical and political expression’; ‘We should take into account the requests of minority groups’; ‘School should teach more about the culture and religion of other countries’; ‘The cultural and social features of minority groups are collective resources’.

RESULTS AND DISCUSSION

Our analyses preceded several stages. First, we conducted a one-way analysis of variance, which revealed a significant main effect of social value orientation on political preference, $F(2, 237) = 4.46, p < .01$. As predicted, individualists and competitors exhibited stronger conservative preferences (or less strong liberal preferences) than did prosocials (for means, see Table 1). Planned comparisons indeed revealed a significant contrast of prosocials versus individualists and competitors, $F(1, 237) = 8.68, p < .01$, whereas differences between individualists and competitors were not significant, $F(1, 237) = 0.25, ns$.

Parallel findings were observed for conservative attitudes, with individualists and competitors exhibiting stronger conservative attitudes than prosocials, $F(2, 237) = 5.05, p < .01, \eta^2 = .04$. Planned comparisons indeed revealed a significant contrast of prosocials versus individualists and competitors,

Table 1. Means for political preferences, attitudes, need for structure, and need for closure among prosocials, individualists and competitors (Study 1)

Dependent variable	Social value orientation		
	Prosocials	Individualists	Competitors
Political preference	3.09 (1.86)	3.84 (1.69)	3.67 (1.91)
Conservative attitude	3.71 (1.14)	4.17 (1.78)	4.07 (0.90)
Progressive attitude	5.77 (0.77)	5.51 (0.65)	5.68 (1.00)
Need for Structure	4.29 (1.06)	4.55 (0.79)	4.69 (0.74)

$F(1, 237) = 10.74, p < .01$, whereas differences between individualists and competitors were not significant, $F(1, 237) = 0.61, ns$. Finally, prosocials tended to exhibit somewhat greater progressive attitudes than did individualists and competitors, $F(2, 237) = 2.63; p < .07$. This effect was weaker, but the contrast of prosocials versus individualists and competitors was significant $F(1, 237) = 3.84; p < .05$, and the difference between individualists and competitors was not, $F(1, 237) = 1.43; ns$. Taken together, these findings provide good evidence in support of the hypothesis that prosocials tend to be less conservative, and somewhat more progressive, in their political preferences and attitudes than are individualists and competitors.

Second, correlational analyses revealed that the need for structure and political preferences were significantly correlated, $r(140) = .24, p < .001$. In line with past research, a greater need for structure is associated with higher levels of conservative preferences.

Third, we examined the link between social value orientation and the need for structure. A one-way analysis of variance revealed a main effect of social value orientation on the need for structure, $F(2, 237) = 3.61, p < .05$. Individualists and competitors ($M_s = 4.55$ and $4.69; SD_s = 0.79$ and 0.75) exhibited greater need for structure than did prosocials ($M = 4.29, SD = 1.08$). Indeed, planned comparisons revealed a significant contrast of prosocials versus individualists and competitors, $F(1, 237) = 6.61, p < .05$, whereas the contrast between individualists and competitors was not significant, $F(1, 237) = 0.61, ns$.

And finally, we explored whether the association between prosocials versus individualists and competitors and political preference could be accounted for by differences in need for structure. A one-way analysis of variance with social value orientation as independent variable and the need for structure as a covariate, revealed a significant effect for the covariate, $Beta = .22, t = 3.51, p < .01$. The analysis also revealed that main effect of social value orientation remained significant, $F(2, 236) = 3.12, p < .05$, and that the planned comparison of prosocials versus individualists and competitors also remained significant, $F(1, 236) = 5.74, p < .05$ (while, not surprisingly, the contrast of individualists and

competitors remained nonsignificant, $F(1, 236)=0.48$, ns). These findings provide evidence in support of the general notion that political preferences are predicted by individual differences in prosocial versus individualistic and competitive orientation, above and beyond differences in the need for structure.

Study 2

The primary aim of Study 2 was to examine the association of social value orientation and political preferences *and* voting. Specifically, we assessed social value orientations and political preference prior to the 2004 European election (12–13 June) and their actual voting during the week after the election.

METHOD

Participants

This study included 497 participants (247 men, 250 women), who were recruited at various public settings (e.g. waiting areas, squares, shopping centres and university cafeterias). About half of the participants were university students (49.7%), whereas the rest of the sample mainly included employees (22.5%), professionals, or people having their own company or business, or freelancers (7.5%) and housewives (6.2%), unemployed (3.6%) and retired people (2.4%). The average age was 32.17 years ($SD=13.11$).

Procedure

In the *pre-election phase*, conducted one to four weeks prior to the 2004 European elections, participants completed the nine-item triple-dominance measure of social value orientation that we used in Study 1. We identified 136 prosocials, 142 individualists and 99 competitors; 120 participants made fewer than six consistent choices and hence were not classified. This distribution includes somewhat more individualists and competitors, and fewer prosocials, than one might see in research using samples that are assumed quite representative of adult population (at least in the Netherlands, see Van Lange, Otten *et al.*, 1997).

Political preference was measured with two items. The first item asked was ‘Considering the current political context in Italy, how would you describe your political orientation?’ A 7-point response scale was used (1 ‘extreme left’, 2 ‘left’, 3 ‘centre-left’, 4 ‘centre’ 5 ‘centre-right’, 6 ‘right’, 7 ‘extreme right’). The second item asked was to rate themselves on a 7-point scale ranging from 1 ‘left winger’ to 7 ‘right winger’. We averaged the score for both items ($r=.81$) so that higher scores indicated stronger conservative preferences.

Post-election phase

During the week after the elections, participants were contacted again to assess their actual voting. Participants were asked to report the party they voted for in the last European

elections. Political voting was then recoded according to four broad categories that capture the distinct differences among the various parties in Italy (see Caprara *et al.*, 1999; Caprara *et al.*, 2006). The four categories are referred to as (i) *left* (representing communist and green parties), (ii) *centre-left* (representing left-democratic party and left-wing Catholics), (iii) *centre-right* (representing *Forza Italia*, a conservative party led by Berlusconi, and right-wing Catholics), and (iv) *right* (representing the former neo-fascist party, *Alleanza Nazionale*). Sixty-eight participants could not be re-contacted and hence were not included in the data.

RESULTS AND DISCUSSION

An analysis of variance revealed a main effect of social value orientation for political preference, $F(2, 374)=13.22$, $p<.001$. Consistent with our hypothesis, relative to prosocials ($M=2.79$, $SD=1.44$), individualists ($M=3.77$, $SD=1.72$) and competitors ($M=3.57$, $SD=1.77$) exhibited stronger conservative-right preferences. Subsequent planned comparisons revealed indeed a significant contrast between prosocials versus individualists and competitors, $F(1, 374)=25.53$, $p<.001$, and no significant contrast between individualists and competitors, $F(1, 374)=0.92$, ns.

Perhaps even more importantly, there was a significant association between social value orientation and political voting, $\chi^2(6, N=309)=23.52$, $p<.001$. As can be seen in Table 2, the percentages of prosocials gradually decreased as one moves from the left-liberal parties (52.8%), via the centre-left and right parties (40.6% and 25.8%, respectively) to the right-conservative parties (14.3%). In contrast, the percentages of individualists gradually increased from the left-liberal parties (22.2%), via the centre-left and right parties (37.6% and 45.2%, respectively) to the right-conservative parties (54.8%). Finally, the competitors were fairly equally distributed among the four categories, constituting around 25% of the voters (ranging from 21.8% to 31.0%). Thus, findings provide good support for our hypothesis, in that prosocials were more likely to vote for left-wing, liberal parties,

Table 2. The distribution of the number (and percentages) of prosocials, individualists and competitors among four political categories (Study 2, European Elections in Italy in June 2004)

	Political vote				Total
	Left	Centre-left	Centre-right	Right	
Social orientation					
Prosocials	38 52.8%	54 40.6%	16 25.8%	6 14.3%	114 36.9%
Individualists	16 22.2%	50 37.6%	28 45.2%	23 54.8%	117 37.8%
Competitors	18 25.0%	29 21.8%	18 29.0%	13 31.0%	78 25.2%
Total	72 100%	133 100%	62 100%	42 100%	309 100%

whereas individualists were more likely to vote for right-wing, conservative parties.

We also examined links between political preferences, voting, gender and age. Correlational analyses revealed that political preferences and voting were strongly correlated, $r(377) = .63$, $p < .001$. Further, political preferences were not significantly correlated to either gender or age, $r(377) = -.04$ and $.04$, ns. Political voting was not correlated with gender, $r(377) = -.08$, ns, but was correlated with age, $r(377) = .11$, $p < .05$, revealing that increasing age is associated with stronger tendencies to vote for conservative, right-wing parties. Next, we examined whether the associations between social value orientation and preferences and voting remained significant after controlling for gender and age. Both appeared to be the case, which should not be surprising given the weak associations of preferences and voting with gender and age. The association of social value orientation and political preferences remained significant after including gender and age as covariates in the analysis of variance, $F(2, 363) = 12.70$, $p < .001$. Also, the contrast of prosocials versus individualists and competitors remained significant, $F(1, 363) = 24.53$, $p < .001$, whereas the contrast between individualists and competitors was not, $F(1, 363) = 0.82$, ns.

Moreover, the association between voting and social value orientation remained significant when gender and age were included as covariates. In a multinomial logistic regression analysis in which right-wing and left-wing categories were compared, the contrast prosocials versus individualists and competitors remained significant after controlling for gender and age, $B = 1.86$, $Wald\ Chi^2(1, 309) = 13.63$, $p < .001$. Also, this contrast was also significant when right-wing and centre-left were compared, $B = 1.37$, $Wald\ Chi^2(1, 309) = 8.19$, $p < .001$, but not when the right-wing and centre-right were compared, $B = 0.70$, $Wald\ Chi^2(1, 309) = 1.74$, ns. Clearly, these effects are primarily due to comparisons of prosocials and individualist, as competitors are about equally represented in the four categories (see Table 2). Thus, above and beyond gender and age, these findings provide good support for the prosocials are more represented in the liberal left-wing parties, whereas individualists are more strongly represented in the conservative, right-wing parties.

Study 3

Study 3 examined the association of social value orientation and political preferences and actual voting and sought to complement Studies 1 and 2 in several important respects. First, as noted earlier, Study 3 was conducted in the Netherlands rather than Southern Italy.

Second, Study 3 used a sample that is assumed to be representative of the adult population in the Netherlands. In fact, the study was conducted by an organisation, which is considered one of the best (i.e. most accurate) at predicting political voting in the Netherlands. This also allowed us to examine whether social value orientation contributes to predicting political preferences and voting above and beyond differences

in gender, age, level of education and religiosity in a sample that is representative of the Dutch adult population.

Third, Study 3 assessed social value orientation eight months prior to the general elections, thereby complementing Study 2, which extended a four-week time interval (and the cross-sectional study, Study 1). Last but not least, the data were collected in May 2002 and January 2003, spanning a period in which the Netherlands faced important political changes partially because of Pim Fortuyn—the political leader who started his own political party, which attracted 26 seats in the 150-seat parliament in May 2002, nine days after he was killed (6 May 2002; Andeweg, 2008). As such, we combined two datasets to provide a unique opportunity to test the ability of social value orientation to predict voting at a time of political change in which, so we assume, people are especially likely to develop, consider and reconsider their political preferences.

METHOD

Participants

A total of 1472 individuals [721 men, 751 women, age $M = 46$ years (18–89)] participated in this study. They were recruited by a polling institute as members of a pool of about 70 000 participants for online survey research. The pool is representative of the Dutch population on key socio-demographic variables (gender, age, education and religiosity).

Procedure

In May 2002, the participants completed the nine-item social value orientation measure as part of an online survey conducted by Taylor Nelson Sofres / Nederlands Instituut voor Publieke Opinie (TNS/NIPO). Using the same criteria as in Study 1 (six or more consistent choices), we identified 761 prosocials, 545 individualists and 166 competitors. Political preferences were measured with the question 'In politics, would you say you are strongly oriented to the left, somewhat to the left, neither to the left nor to the right, somewhat to the right, or strongly oriented to the right?'. In total, 2.3% considered themselves to be strongly left-wing oriented, 23.4% as somewhat left-wing, 30.7% as neither left-wing, nor right-wing oriented, 31.4% as somewhat right-wing oriented, 2.2% as strongly right-wing oriented; and 9.9% indicated that they had no opinion. Participants indicating 'no opinion' were considered as neither left-wing nor right-wing oriented and were assigned to the middle category. We also assessed their level of education, and categorised them into one of seven categories, ranging from very low education (i.e. highest completed degree is elementary school) to very high education (i.e. highest completed degree is at least an MA at a university). And we assessed religiosity by asking whether they are member of church or religious community. In total, 857 participants considered themselves not religious, whereas 615 participants considered themselves religious.

In the second phase, completed by a subset of the participants ($N = 857$) after the general elections of January 2003,

we asked ‘What did you vote in the recent general elections?’ In the Netherlands, the political landscape is believed to consist of three basic clusters (e.g. Andeweg, 2008), including (i) the left-wing, which includes the Socialist Party (5.7%), the Green Left Party (4.4%), the Christian Union (3.4%) and the Labour Party (25.6%); (ii) the centre parties, which include the Democrats (D66, 3.0%) and the Christian Democratic Party (CDA, 25.6%); and (iii) the right-wing, which includes the Liberal Conservatives (VVD, 16.5%) and the List Pim Fortuyn (LPF, 5.1%). Further, 0.6% reported a vote for another (unspecified) party, 7.4% respondents reported not having cast a vote and 2.4% reported not to remember or refused to report the party they voted for or voted blank.¹

RESULTS AND DISCUSSION

Political preferences

As predicted, an analysis of variance revealed a main effect of social value orientation on political preferences, $F(2, 1469) = 8.05$, $p < .001$. Relative to prosocials, $M = 3.01$, $SD = 0.86$, individualists, $M = 3.15$, $SD = 0.83$, and competitors, $M = 3.26$, $SD = 0.87$, exhibited stronger conservative-right preferences. Indeed, the planned comparison involving the contrast of prosocials versus individualists and competitors was significant, $F(1, 1469) = 13.29$, $p < .001$, whereas the contrast between individualists versus competitors was not significant, $F(1, 1469) = 2.22$, ns.

Voting

We observed a significant association between social value orientation and voting, $\chi^2(4, N = 769) = 18.03$, $p < .001$. As can be seen in Table 3, the percentages of prosocials gradually decreased as one moves from the left-liberal parties (57.1%), via the centre parties (53.5%), to the right-conservative parties (39.2%). In contrast, the percentages of individualists gradually increased from the left-liberal parties (32.2%), via the centre parties (35.5%), to the right-conservative parties (49.7%). Finally, as in Study 2, the competitors were fairly equally distributed among the categories (10.7%, 11.0% and 11.1%, as one moves from left-liberal to right-conservative). The differences in the distributions for individualists and competitors were not statistically significant, $\chi^2(1, N = 373) = 1.73$, $p = .189$. Thus, findings provide good support for our hypothesis, in that prosocials were more likely to vote for left-wing, liberal parties, whereas individualists were more likely to vote for right-wing, conservative parties.

Controlling for gender, education, gender and religiosity

It is interesting to note that conservative, right-wing preferences were not significantly associated with gender, $r(1472) = -.028$,

¹A comparison with the actual votes cast reveals that non-voters were underrepresented in the survey. In the elections, 20.20% of those eligible to vote did not vote. Among voters, none of the political parties was overrepresented or underrepresented. However, this did not create a bias because non-voting was not related to social value orientation, $\chi^2(2, N = 761) = 2.18$, $p = .337$.

Table 3. The distribution of the number (and percentages) of prosocials, individualists, and competitors among three political categories (Study 3, General Elections in the Netherlands)

	Political vote			
	Left	Centre	Right	Total
Social value orientation				
Prosocials	191 57.1%	131 53.5%	74 39.2%	396 51.5%
Individualists	108 32.2%	87 35.5%	94 49.7%	289 37.6%
Competitors	36 10.7%	27 11.0%	21 11.1%	84 10.9%
Total	335 100%	224 100%	189 100%	769 100%

Note: The table does not include those who voted for very small parties (0.6%), the non-voters (7.4%) and those who failed to recall their vote (2.0%).

ns, or age, $r(1472) = .040$, ns, but were significantly associated with lower levels of education, $r(1472) = -.073$, $p < .005$; and religiosity, $r(1472) = .162$, $p < .001$. However, the associations of prosocial, individualistic and competitive orientation with political preference or voting remained significant after controlling for gender, education, age and religiosity. An analysis of variance in which gender, education, age and religiosity were used as covariates yielded a significant main effect of social value orientation, $F(2, 1465) = 10.84$, $p < .001$, including a significant contrast between prosocials versus individualists and competitors, $F(1, 1465) = 20.24$, $p < .001$.

Although preferences and voting eight months later were strongly correlated, $r(769) = .557$, $p < .001$, it appeared that only age exhibited a significant association with conservative, right-wing voting, $r(769) = .140$, $p < .001$. Gender, education and religiosity, were not associated with conservative, right-wing voting, respective $r_s(769) = -.028$, $.045$, $.010$, ns. In a multinomial logistic regression analysis in which right-wing and left-wing categories are compared, the contrast prosocials versus individualists and competitors remained significant after controlling for gender, education, age and religiosity, $B = -.79$, $\text{Wald } \chi^2(1, 769) = 17.10$, $p < .001$. Further analyses revealed that it is the difference between prosocials versus individualists, $B = -.81$, $\text{Wald } \chi^2(1, 769) = 16.95$, $p < .001$, rather than the difference between prosocials versus competitors, $B = .41$, $\text{Wald } \chi^2(1, 769) = 1.77$, $p = .182$, that accounted for the association of social value orientation and voting for left-wing versus right-wing parties. Similarly, differences between prosocials versus individualists were also significant in comparisons of right-wing versus centre parties, $B = .65$, $\text{Wald } \chi^2(1, 769) = 9.72$, $p < .005$. In contrast, differences between prosocials versus individualists were not significant in comparisons of left-wing versus centre parties, $B = .16$, $\text{Wald } \chi^2(1, 769) = 0.77$, $p = .38$.

Thus, for actual voting it are differences between prosocials versus individualists in their tendencies to vote for right-wing parties (versus non-right-wing parties) that are significant—these effects are very similar to those observed

in Study 2. This effect, along with the social value orientation differences in preferences, is significant when controlling for gender, education, age and religiosity. The latter variables represent a constellation of interrelated, biographical variables that have been shown to be associated to political preferences and voting (e.g. Giddens, 1998; Pratto, 1999), and so the present findings suggest that social value orientation represents an interpersonal variable that accounts for unique variance in predicting—and understanding—political preferences and voting.

GENERAL DISCUSSION

One cross-sectional and two longitudinal studies revealed novel evidence in support of the hypothesis that people with individualistic and competitive orientations are more likely to hold conservative political preferences and to vote for conservative parties than are people with prosocial orientations. The association of such interpersonal orientation and voting was observed even when voting was assessed eight months later using a sample that is assumed to be representative of the adult population in the Netherlands. Together, these studies indicate that political preferences and voting are partially rooted in interpersonal orientations, which have been demonstrated to guide social interactions in dyads and small groups. As such, the present findings underscore the importance of individual-level psychology in predicting macro-level phenomena.

How can we understand the present findings? We assumed that the basic orientations that guide our interactions with others are also associated with a network of broader belief systems, including ideology and political preferences. Both the conceptualization and the measurement of interpersonal orientations focus on individual-level orientations that are inherently dyadic—how individuals allocate outcomes to themselves and *one* other person. Moreover, as suggested by the integrative model of interpersonal orientations (Van Lange, 1999), we reasoned that prosocial orientation resembles tendencies toward assigning both positive weight to other's outcomes ('solidarity') and positive weight to equality in outcomes ('egalitarianism'). Indeed, there is strong evidence that prosocials, individualists and competitors differ in terms of such social preferences when deciding how to approach another person; and such preferences are also relevant to understanding how they interact with them and their emotional responses during interactions (e.g. whether they seek to maintain equality in outcomes over repeated interactions, Stouten, De Cremer, & Van Dijk, 2005; Van Dijk et al., 2004; Van Lange, Bekkers et al., 2007; Van Lange, De Cremer et al., 2007).

Clearly, the concepts of solidarity and egalitarianism tend to have a somewhat broader meaning in the mission statements of political parties than in the social preference models that are used in social psychology and decision making. However, there is good evidence that one key difference between 'the right' and 'the left' of the political spectrum is well-captured by both solidarity and egalitarianism (see Caprara et al., 2006; another aspect might be resisting versus

advocating social change; Jost et al., 2008). At the same time, we should acknowledge that the dichotomy of 'right' versus 'left' is an oversimplification of the political spectrum (see Greenberg & Jonas, 2003), yet one that voters (and scientists alike) often use (still) as the more central dimension of which political parties differ. As such, this line of reasoning suggests that solidarity and equalitarianism are goals or values that help people navigate in the interpersonal world of social interactions, as well as societal world of political attitudes and beliefs that seem to guide their voting. Moreover, this line of reasoning is in line with research on the personalization of politics, which shows that political choices become increasingly personalised and that voters' traits, values and perceptions of politicians are no less important than traditional socio-demographic characteristics in explaining political preferences (e.g. Caprara & Zimbardo, 2004; Jost et al., 2008).

How could the present findings be understood from the perspective of human cooperation and game theory? Most past research has focused on *elementary* forms of cooperation, examining variables that help predict and understand costly actions that provide a direct benefit to the other person or to the group as a whole (Komorita & Parks, 1995). This focus has been complemented by research examining *instrumental* forms of cooperation, or second-order forms of cooperation, such as providing punishment to those who free-ride on the efforts of others, or providing reward to people who cooperated (Fehr & Gächter, 2002; Yamagishi, 1988). Our political preferences and beliefs often speak to the perceived benefits and costs of such systems, with the liberals often favouring stronger forms of regulation if these help to increase solidarity and equality among people. These issues deserve future research as they might help us understand when (and why) people sometimes favour strong regulation and sometimes favour de-regulation by local authorities and the government. And from a different angle, they may help us understand when people might be inclined to engage in acts of costly punishment of noncooperators, and how much they appreciate such actions from an authority (see Balliet, Mulder, & Van Lange, 2011).

Given that experimental games have been criticised for lacking mundane realism (i.e. using a methodology focusing on 'points' and 'hypothetical others'), it becomes important to ask why such measurement is able to predict political preferences and voting, as well as forms of prosocial behaviour in the real world. We suggest two interrelated benefits. One benefit may be that the decomposed game approach follows the logic of 'forced-choice' methodology, in which the prosocial, individualistic and competitive options are pitted against each other. Such *choice*-related measures (see Pruitt & Kimmel, 1977) measures may provide a useful complement to measures focusing on language and self-ratings, because frequently prosocial behaviour in the real world is about making *choices* (e.g. whether to help others versus save time for oneself, whether to donate money or save money for oneself). A second benefit may glean from the fact that the experimental game methodology does not rely very strongly on language, in that it focuses on allocation of points. We regard this to be especially important in the domain

of prosocial (and selfish) behaviour, because self-evaluations regarding such issues might well be sensitive to social desirability in responding, which may constrain its validity at least somewhat. To overstate, an item asking 'do you consider yourself selfish?' may be more sensitive to social desirability, because of the strong evaluative connotations of concepts such as selfishness, cooperation and competition. The fact that the assessment of social value orientation takes only a couple of minutes, is unrelated to instruments assessing tendencies to socially desirable responding (see Van Lange, Agnew *et al.*, 1997), and can be fruitfully used in samples other than convenience samples underscores the notion that games are 'easy to employ and economical' (Pruitt & Kimmel, 1977, p. 366) and hence of great practical utility for a variety of scientific and societal purposes.

We think that the present findings may help to illuminate some societal issues. One interesting implication is that liberals and conservatives might differ in terms of the frameworks they use to evaluate people's behaviour. As alluded to earlier, past research has shown that prosocials tend to view cooperative and noncooperative behaviour more strongly in terms of morality, associating cooperation with goodness and noncooperation with badness (Joireman, Kuhlman, Van Lange, Doi, & Shelly, 2003; Liebrand *et al.*, 1986; for some additional evidence, see Hilbig & Zetler, 2009). Conversely, individualists and competitors tend to view cooperative and noncooperatively behaviour more strongly in terms of 'might', associating cooperation with weakness and noncooperation with strength. Such different interpretations in terms of might versus morality, which may be used in heuristic manner (De Dreu & Boles, 1998), may bring about communication issues between liberals and conservatives. For example, reaching agreement in negotiations about specific issues (e.g. whether or how to support the homeless) may be more challenging if political leaders differ in terms how they view the problem—for example, as a moral issue or a practical issue. Also, it may be quite a challenge to attract new voters, if many of the new voters use a different language or framework for understanding and resolving various societal issues. Such topics are intriguing issues for future research.

It is interesting to consider the present findings in light of some recent work on political psychology. To begin with, differences between people in tendencies toward enhancement of joint outcomes (closely related to solidarity) and minimization of absolute differences in outcomes (closely related to egalitarianism) can also be meaningfully linked to the value of materialism. For example, tendencies toward materialism, defined in terms of believing in the importance of possessions in one's life (e.g. Richins & Dawson, 1992), might be linked to social value orientation, in that it is likely that individualists (and competitors) view material possessions as more important goals in life than do prosocials (cf. Roets *et al.*, 2006). For example, the value of materialism is likely to be linked to the number of individualistic choices, because concern with material outcomes typically is linked to the goal to enhance outcomes for the self. In other words, it makes sense that, exceptions side, a concern with material outcomes is linked to the self, and less so to enhancing possessions for others or pursuing equality in possessions. In

contrast, one might speculate that prosocials value interpersonal relationships more so than individualists and competitors. If this is true, then perhaps the link between social value orientation and political preferences and voting might be mediated by the valuing of possessions versus relationships. Needless to say, this line of reasoning suggests the importance of distinguishing between material outcomes and immaterial outcomes, and the value of relationships is more closely related to the latter than the former (for more discussion, see Van Lange & Rusbult, 2011).

A second issue we like to address is that prosocials, individualists and competitors differ in terms of trust in humankind in general and even trust in specific others that one might encounter (e.g. Kuhlman, Camac, & Cunha, 1986). Moreover, such beliefs tend to be confirmed (rather than disconfirmed), because through interactions (and acting upon such beliefs), prosocials, individualists and competitors tend to find support for their prosocial, selfish or competitive motives of others (cf. Kelley & Stahelski, 1970). Indeed, the motives and beliefs of individualists, and especially competitors, are likely to support a view of the world that may be described as a jungle and dangerous place (e.g. jungle and dangerous worldviews; cf. Duckitt & Fisher, 2003; Duckitt & Sibley, 2010; Van Hiel *et al.*, 2007). As a case in point, there is recent evidence indicating that, relative to prosocials, both individualists and competitors exhibit higher scores on social dominance orientation and right-wing extremism (Chirumbolo & Leone, 2009).

Competitors are the ones that not only focus on winning but also believe that most other people are competitive, and such beliefs tend to be deeply felt and held with great confidence (see Van Lange, 1992). From this perspective, competitors are the ones that are likely to score highly on worldviews characterised by distrust, competition and the struggle for scarce resources. As such, what needs to be illuminated are specific differences between individualists and competitors, especially as they might be linked to distrust, worldviews, and to how members of out-groups ('them') should be viewed and treated (e.g. immigrants). Speculatively, it may well be that differences between prosocials versus individualists and competitors are most relevant when issues of equality and solidarity (e.g. social security) are salient in political voting, whereas differences between competitors versus individualists and prosocials might be most relevant when issues relevant to intergroup competition (i.e. immigration policy, international warfare) are most salient. Such issues deserved to be addressed in future research, especially as they might help us understand the intricate associations between social value orientations, trust and differences aspects of ideology.

We suspect that, on average, individualists resemble competitors in their worldviews more so than prosocials, because individualists predominantly expect selfishness from others, whereas prosocials tend to expect greater prosociality from others. In light of such global beliefs, individualists are more prepared than prosocials to view the world as a jungle and as dangerous, especially when external circumstances give rise to such views (such as external threats, Duckitt & Fisher, 2003; see also Jost *et al.*, 2008, Van Hiel, Onraet

et al., 2010; Van Hiel, Roets et al., 2010). At the same time, there is some evidence suggesting that prosocials can become very upset and crossed when their beliefs in prosociality are violated (e.g. Haruno & Frith, 2009; Stouten et al., 2005).

In terms of future research, it would be very interesting to explore whether and how social interaction experiences—such as the experience of feeling gypped by another person—might differentially influence the worldviews of prosocials, individualists and competitors. We offer the speculation that the worldviews of competitors ('everybody is competitive') and individualists ('most people are self-interested') are quite stable and persist even in the face of contradictory evidence (when others 'appear' cooperative). In contrast, the world views of prosocials might be somewhat more 'plastic' and strongly shaped by recent social interactions that they experienced. Contradictory evidence for them (when others behave noncooperatively, greedy or exploitative) is likely to be interpreted as evidence that there are people out there who are primarily motivated by self-interest rather than by prosocial goals.

CONCLUDING REMARKS

There is intriguing recent evidence revealing that a rich world of social and personality psychology underlie ideological belief systems, emphasising their role in coping with uncertainty and threat (Jost et al., 2008, Van Hiel, Onraet et al., 2010; Van Hiel, Roets et al., 2010) and psychological bases of political affinities (Jost et al., 2009). Also, there is a longstanding tradition of research showing that interpersonal orientations are essential to understanding how we approach others and interact with them (e.g. Van Lange, Bekkers et al., 2007; Van Lange, De Cremer et al., 2007). The present research helps us realise that interpersonal orientations, which presumably are partially rooted in social interaction experiences, are also important to predicting political preferences. The bridging of interpersonal and societal systems opens several new avenues for future research, such as how specific social interactions in the past may underlie the development of political ideology. For example, might experiences of social exclusion or exploitation eventually shape our political beliefs?

We close by outlining that the present research also yields strong support for the idea that experimental games, which grew out of game theory, provide powerful tools for predicting political preferences and voting. Such findings strengthen our confidence in the societal utility of game theory, which has been the key aim from the very beginning (e.g. Von Neumann & Morgenstern, 1947). Having said that, the present findings also show that game theory should relax the assumption of rational self-interest, because the goals of solidarity and egalitarianism seem more 'intrinsic' than we may be inclined to think. Moreover, the present findings also help to understand why self-interest is not the one and only motive underlying political preferences and voting, as persuasively outlined by Sears and Funk (1991). After all, it is the variation in the concern for others and equality that helps us predict and understand whether one is inclined to gravitate to the left or to the right.

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