

# You're Inferior and Not Worth Our Concern: The Interface Between Empathy and Social Dominance Orientation

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## Abstract

**Objective:** This project was directed at examination of the potential reciprocal relationship between empathy and social dominance orientation (SDO), with the purpose of testing the predictions from Duckitt's highly influential dual process model of prejudice, and further examining the validity of the *mere effect* view of social dominance orientation.

**Method:** To examine this relationship, the authors employed cross-lagged structural equation modeling with manifest variables across two studies using large samples from different parts of the world. Study 1 consisted of data from two waves of 389 (83% female) Belgian university students, with each wave separated by 6 months. Study 2 consisted of two waves of data from a national probability sample of 4,466 New Zealand adults (63% female), with each wave separated by a 1-year interval.

**Results:** Results supported our expectation of a reciprocal longitudinal relationship between empathy and SDO. Moreover, the results also revealed that SDO's effect on empathy over time tended to be stronger than empathy's effect on SDO over time, countering the predictions derived from the dual process model.

**Conclusions:** These results represent the first time the possible reciprocal effects of empathy and SDO on one another have been examined using panel data rather than less appropriate cross-sectional analysis. They suggest the need to reexamine some key assumptions of the dual process model and further question the *mere effect* view of SDO.

**Keywords:** Social Dominance Orientation, Empathy, Dual Process Model

The debate regarding the most appropriate conceptual model of intergroup prejudice has been wide-ranging, heated, and thus far inconclusive. Several key questions remain unresolved. Important among these is the appropriate conceptualization of the role of personality variables in the prediction of prejudice. This debate began in the mid-twentieth century with Adorno and colleagues' *The Authoritarian Personality* (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950), which argued that prejudice could itself be seen as a personality characteristic, reflecting a broad, unidimensional, anti-democratic, proto-fascist, and politically conservative stance towards the world. More recent work, however, has argued against the existence of a unidimensional structure of prejudice directly reflecting personality. Rather, this work has suggested that two related but unique trait variables—namely, social dominance orientation (SDO; Pratto, Sidanius, Stallworth, & Malle, 1994; Sidanius & Pratto, 2001) and right-wing authoritarianism (RWA; Altemeyer, 1998)—are among the major contributors to prejudice, together accounting for as much as 50% of its variance (see Altemeyer, 1998; McFarland & Adelson, 1996).

## SDO and the Dual Process Model of Prejudice

Social dominance orientation—a variable indexing individual differences in the preference for group-based hierarchy and inequality—has been found to be one of the most powerful predictors of intergroup attitudes and behaviors (Altemeyer, 1998; Ho et al., 2012; Kteily, Ho, & Sidanius, 2012; McFarland & Adelson, 1996; McFarland, 2010; Pratto et al., 1994). SDO has been found to predict attitudes toward a wide variety of groups, endorsement of ideologies that justify social inequality, political attitudes, and occupational choice. To take just a few examples, SDO has been shown to predict political conservatism, hostile sexism, prejudice towards immigrants

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and ethnic minorities, discriminatory allocations in minimal group experiments, and the preference for hierarchy-enhancing jobs such as business executive positions and working as an FBI agent (e.g., Amiot & Bourhis, 2005; Kteily et al., 2012). John Duckitt and his colleagues have incorporated SDO within a large and increasingly popular framework explaining intergroup prejudice, labeled the dual process model (DPM; Duckitt, 2001; Duckitt & Sibley, 2010; Duckitt, Wagner, Du Plessis, & Birum, 2002). The DPM argues that right-wing authoritarianism reflects a basic desire for conformity and a perception of the world as a dangerous place, while social dominance orientation reflects a basic ruthlessness and a view of the world as a competitive, dog-eat-dog environment of winners and losers. While SDO and RWA have largely been recognized as relatively stable individual difference variables, the question of their placement in a causal model predicting prejudice has remained somewhat contentious. The DPM argues that SDO and RWA are best considered purely ideological variables, mediating the relationship between upstream personality dispositions and downstream prejudice. In particular, SDO is said to be reflective of a “tough-minded” personality, characterized by low empathy and concern for others, while RWA is predicted by low openness to experience and high conscientiousness, reflective of the desire for social conformity (Duckitt & Sibley, 2010, p. 1866).

While both social dominance theory (SDT) and the DPM posit that SDO is a causal product of tough-mindedness, or the lack of empathy, the DPM has gone one step further and argued that the causal structure of the relationship between SDO and variables such as empathy is strictly recursive. This is to say that while personality variables such as tough-mindedness and lack of empathy are thought to drive one’s level of SDO, SDO is not considered capable of having a causal effect on tough-mindedness and empathy (see Duckitt, 2001; Duckitt et al., 2002; Duriez & Soenens, 2006; Sibley & Duckitt, 2010; Duriez, Van Hiel, & Kossowska, 2005). The central goal of the current research is to test this unidirectional conceptualization of personality and SDO. Because SDO is so widely used in intergroup relations research, and because the DPM has been such an influential model of intergroup relations, the results of these studies should have important implications for the study of group conflict and prejudice.

## SDO and Personality

A good deal of recent research has confirmed the connection between SDO and broad aspects of personality. The bulk of this research has been derived from major personality frameworks, including the Big Five (John, Naumann, & Soto, 2008), the HEXACO Personality Inventory (Lee, Ashton, Ogunfowora, Bourdage, & Shin, 2010), and the “dark triad” traits of Machiavellianism, narcissism, and psychopathy (Hodson, Hogg, & MacInnis, 2009). In particular, a meta-analysis conducted by Sibley and Duckitt (2008) established a moderate relationship between SDO and agreeableness ( $r = -.29$  across

31 studies), and a weak but reliable relationship between SDO and openness to experience ( $r = -.16$  across 30 studies; see also Duriez & Soenens, 2006; Ekehammar, Akrami, Gylje, & Zakrisson, 2004). The honesty/humility component of the HEXACO model, which indexes one’s orientation toward fairness and sincerity in social relations, was also found to be negatively related to SDO (Sibley, Harding, Perry, Asbrock, & Duckitt, 2010; Lee et al., 2010).

Although the relationships between SDO and these personality traits have been relatively modest in magnitude, these personality constructs are themselves composed of more specific facets which may relate differentially to SDO. Examining the content of items used to measure agreeableness, we would expect statements such as “I am interested in people” to be relatively weakly related to SDO. On the other hand, items such as “I feel little concern for others” should be more relevant to individuals’ willingness to endorse the domination of some social groups over other groups. Consistent with this reasoning, research on the “dark triad” of personality traits (e.g., Paulhus & Williams, 2002) suggests that among the various aspects of personality, SDO is most closely related to the *callous affect* dimension of psychopathy, the inverse of empathy. In addition, studies examining specific facets of the Big Five traits found that SDO is most strongly associated with facets of Agreeableness relating to sympathy, compassion for others, and empathy (e.g., Sibley & Duckitt, in press).

## SDO and Empathy

In their original theorizing, Sidanius and Pratto (see Pratto et al., 1994; Sidanius & Pratto, 2001) suggested that the personality dimension most predictive of SDO was empathy, or concern for the welfare of others (Pratto et al., 1994; Sidanius, Pratto, Sinclair, & Van Laar, 1996; see also Pratto, 1996; Hodson et al., 2009). Since this original suggestion, a good deal of survey evidence has been found to support this hypothesized relationship (e.g., Bäckström & Björklund, 2007; Duriez & Soenens, 2006; McFarland, 2010; Sibley & Duckitt, 2010). Moreover, evidence of the relationship between SDO and empathy has recently been found even at the neural level. For example, Chiao, Mathur, Harada, and Lipke (2009) found that SDO is strongly associated with neural activity within brain regions associated “with the ability to both share and feel concern for other people’s emotional welfare” (p.175). Specifically, these researchers found strong correlations between SDO scores, on the one hand, and neural activity in the left anterior insula and anterior cingulate cortices, on the other ( $r = -.80$ , and  $r = -.81$ , respectively). Both of these brain regions are associated with affective components of empathic experience. Similarly, work by Cheon and colleagues suggests that SDO is associated with neural reactivity within the left temporo-parietal junction, a brain region specifically implicated in the relative concern for others (in particular, the welfare of ingroup versus outgroup members; Cheon et al., 2011). However, in spite of the accumulating evidence of a

substantial relationship between SDO and empathy, there is still no consensus as to the causal structure of this relationship.

In line with the theoretical expectations of both the DPM (Duckitt, 2001) and SDT (Sidanius & Pratto, 1999), there is evidence consistent with the notion that trait empathy is one source of SDO. For example, using structural equation analysis of data from Flemish-Belgian adolescents, Duriez and Soenens (2006) found results consistent with the idea that trait empathy appears to drive SDO rather than the reverse. Structural equation modeling carried out by Bäckström and Björklund (2007) led to the same conclusions concerning empathy's causal effects on SDO, rather than the reverse. In contrast, some studies have found evidence which is consistent with the view that SDO does have effects upon a broad array of trait-relevant phenomena, including empathy. For example, McFarland (2010) performed structural equation modeling using student and adult samples and found support for the view that SDO predicted the personality trait of empathy rather than the reverse.

One factor limiting the conclusions one can draw from the structural equation modeling of SDO and empathy carried out by these three research teams (i.e., Bäckström and Björklund, 2007; Duriez & Soenens, 2006; McFarland, 2010) is the fact that all of these studies employed cross-sectional data. As is well known, the certainty with which one can draw causal conclusions using cross-sectional data is somewhat limited. In order to be able to draw more convincing causal conclusions when using nonexperimental survey data, it is necessary to employ cross-lagged, longitudinal approaches.

As far as we know, only one previous study has addressed the relationship between SDO and empathy-related personality traits using such cross-lagged longitudinal data. Sibley and Duckitt (2010) found that initial levels of Agreeableness (of which empathy is one facet) predicted SDO 1 year later, even after controlling for participants' original SDO scores. Thus, these researchers provided reasonably strong evidence that a personality disposition related to empathy could influence SDO over time, a finding that is consistent with both the DPM and the assumptions of SDT. Importantly, however, by failing to measure Agreeableness at Time 2, Sibley and Duckitt (2010) were not able to conduct a fully cross-lagged analysis. That is, although they were able to test the possible effect of a personality variable conceptually linked to empathy on changes in SDO over time, their research design did not enable consideration of possible reciprocity in the relationship between SDO and empathy-related traits. If such effects could be found, it would be quite consequential for the theoretical robustness of the DPM, because as Sibley and Duckitt (2010) themselves state:

If for example, SDO and RWA are shown to predict personality over time, and these effects are of a comparable magnitude to the causal effects of personality on SDO and RWA, then this would require a substantial revision of the DPM. (p. 553)

While the DPM explicitly rejects the possibility of a causal effect of SDO upon important personality variables such as empathy, SDT would not reject this possibility. Because SDO is theorized to condition such a fundamental dimension of human social life as the overall degree of group-based hierarchy, it is no surprise that it has been found to correlate with and to help determine a wide range of socially relevant attitudes, social policies, and behaviors such as political conservatism, nationalism, system justification, endorsement of colorblindness, endorsement of legacy admissions, perceived zero sum competition, career choice, activation of the neural circuitry associated with empathy, generalized xenophobia, support for wars of domination, the death penalty, and torture (see, e.g., Chiao et al., 2009; Freeman, Aquino, & McFerran, 2009; Halabi, Dovidio, & Nadler, 2008; Ho et al., 2012; Kteily et al., 2012; Michinov, Dambrun, Guimond, & Méot, 2005; Sidanius, Mitchell, Haley, & Navarrete, 2006; Sidanius & Pratto, 2001; Sidanius, Pratto, & Mitchell, 1994) and differential social allocations to and prejudice against minimal groups (e.g., Amiot & Bourhis, 2005; Federico, 1999; Reynolds et al., 2007; Sidanius et al., 1994). As SDO has been found to be so strongly associated with and determinant of so many socially relevant behaviors and attitudes, we have reason to believe that it will not merely be an expression of empathy, but might indeed help to determine one's level of empathy as well.

It is worth noting that this conceptualization of SDO, as playing a causal role in a range of important and even basic psychological phenomena, is itself not an uncontested view. In particular, critics of SDT have gone so far as to question SDO's status as a generalized trait in its own right (see, e.g., Lehmler & Schmitt, 2007; Schmitt, Branscombe, & Kappen, 2003; Turner & Reynolds, 2003). Instead of positing it as a stable trait that predicts social psychological variables over time, these researchers claim that it is a "mere effect" of prior intergroup attitudes such as racism or sexism (Schmitt et al., 2003). That is, according to these researchers, rather than representing a general preference for group-based hierarchy across social contexts, SDO represents little more than an epiphenomenon, with participants' answers on the SDO scale simply representing their prior attitudes towards whatever particular groups they had in mind at the time. Although there is recent longitudinal data which refutes this view (i.e., Kteily, Sidanius, & Levin, 2011),<sup>1</sup> it remains a topic of debate among intergroup relations theorists.

Our study was intended to test just these important possibilities with respect to the interface between SDO and empathy. We aimed to explore the question as to whether or not SDO was a "mere effect" of personality dispositions, as suggested by the DPM, or whether it might also show evidence of, at least partly, determining one's level of empathy. In exploring these issues, we followed the practice of focusing on trait or dispositional empathy, and in particular its affective components, known as Empathic Concern (Study 1) and Compassion (Study 2).

### Hypotheses

Thus, this study tested two hypotheses. First, consistent with both SDT (e.g., Sidanius & Pratto, 2001), and the DPM (Duckitt et al., 2002), we expected to find evidence consistent with the notion that trait Empathy is a source of SDO (H1). Second, and contrary to the predictions of the DPM, we hypothesized that we would find evidence consistent with the idea that SDO has a causal effect on empathy (H2). To explore these questions, we deployed fully cross-lagged panel analyses on two large and independent samples from Belgium (Study 1) and New Zealand (Study 2).

### STUDY 1

#### Method

##### Participants

A total of 530 first-year psychology students at a large university in the Dutch-speaking section of Belgium were invited to participate in a survey spanning two measurement waves (i.e., Time 1 and 2), 6 months apart. One week prior to Time 1, participants signed a standard consent form in which they were informed that they could refuse or discontinue participation at any time. Students were assigned a unique code number to protect their confidentiality. The first data wave (Time 1) was collected during a course at the beginning of the first semester and included 458 students (Mean age = 18.60, *SD* = 2.47; 83% female). Six months later (at the beginning of the second semester), 389 of them participated at Time 2, along with a number of students who did not participate at Time 1. Analyses were restricted to people taking part in both measurement occasions (*N* = 389).

##### Measures

All items were administered in Dutch, and accompanied by 5-point Likert scales anchored by *completely disagree* and *completely agree*. SDO was measured using the 14-item SDO<sub>5</sub> Scale (see Sidanius & Pratto, 2001, p. 67). At Times 1 and 2, respectively, Cronbach's alpha was .88 (*M* = 2.31, *SD* = 0.59) and .89 (*M* = 2.35, *SD* = 0.63). Empathy was operationalized by the use of Davis's (1979) 7-item Empathic Concern subscale (EC; see also Davis, 1979, 1983). Sample items are "I often have tender, concerned feelings for people less fortunate than me," "I would describe myself as a pretty soft-hearted person," and "Other people's misfortunes do not usually disturb me a great deal" (reverse-coded). The Cronbach reliability of this scale was .74, both at Time 1 (*M* = 3.82, *SD* = 0.57) and Time 2 (*M* = 3.67, *SD* = 0.56). The test-retest reliability of SDO was .75, and the test-retest reliability of Empathic Concern was .64.

### Results and Discussion

In order to explore the cross-lagged relationships between SDO and empathic concern, we used LISREL 8.8 to analyze a

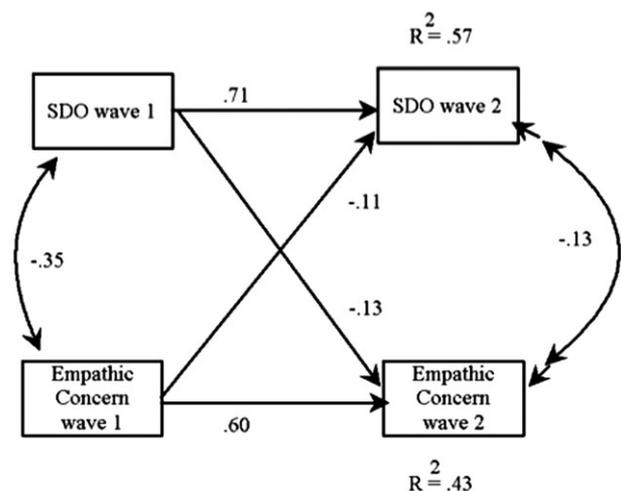
manifest variables structural equation model (SEM), employing maximum likelihood parameter estimates throughout.

The results supported both hypotheses. Consistent with the expectations of both the DPM and SDT, and prior empirical findings (Bäckström & Björklund, 2007; McFarland, 2010), SDO and Empathic Concern were significantly and strongly correlated in theoretically consistent ways at both Time 1 and 2 and the synchronous correlations were not radically different from one another (i.e.,  $r = -.35$  and  $-.44$ ,  $p = .001$ , respectively; see Table 1). Furthermore, and as predicted by H1, cross-lagged analysis revealed support for the idea that Empathic Concern is one source of SDO. Thus, even after controlling for the effects of SDO at Time 1, Empathic Concern at Time 1 had a modest, yet statistically reliable effect on SDO at Time 2. As expected, the greater one's Empathic Concern, the lower one's SDO (i.e.,  $\gamma = -.11$ ,  $p = .001$ ; see Figure 1). Most importantly, however, and contradicting the expectations of the DPM, H2 was also confirmed. Even after controlling for the effects of Empathic Concern at Time 1, SDO at Time 1 still exerted a significant effect upon Empathic Concern six months later; the higher one's level of SDO, the lower one's subsequent level of Empathic Concern (i.e.,  $\gamma = -.13$ ,  $p = .001$ ). Furthermore, we examined whether the

**Table 1** Correlations Among Variables in Study 1

Measures	1	2	3	4
1. T1-SDO	—			
2. T1-EC	-.351***	—		
3. T2-SDO	.747***	-.358***	—	
4. T2-EC	-.340***	.641***	-.437***	—

Note. T1-SDO = Time 1 SDO; T1-EC = Time 1 empathic concern; T2-SDO = Time 2 SDO; T2-EC = Time 2 empathic concern. \*\*\* $p < .001$ .



**Figure 1** Cross-lagged path model between SDO and Empathic Concern over a 6-month interval in an undergraduate Belgian sample (*N* = 389). All path estimates are standardized and statistically significant ( $p < .05$ ).

reciprocal paths between SDO and Empathic Concern were of equal strength by applying equality constraints to the two parameter estimates. The results showed that these equality constraints did not result in significant model deterioration,  $\chi^2_{(1)} = 0.147, p = .701$ . In other words, both directional paths appeared essentially of equal strength (see Figure 1).

The results of Study 1 confirmed both hypotheses. Consistent with the expectations of both the DPM and SDT, there was evidence that empathy reduced respondents' levels of SDO. Most importantly however, and at odds with the prediction of the DPM, SDO also appeared to affect one's level of empathy, a core personality trait. It is also noteworthy that the size of effect of SDO on empathy was every bit as strong as the path in the opposite direction. As far as we know, this is the first time this effect has been found in the literature using panel data. This finding tends to cast doubt on an important assumption of the DPM: namely, that SDO, as a purely downstream variable, is incapable of affecting upstream personality traits such as Empathic Concern (see Sibley & Duckitt, 2010, p. 553).

Despite the fact that these results were consistent with expectations, there are two important limitations to Study 1. First, as with many studies in psychology, all of the respondents were university students. The findings would obviously be more convincing if they could also be replicated within a sample from the general population. Second, while the time interval between Time 1 and 2 was considerable (i.e., 6 months), the conclusions reached in Study 1 could be further strengthened if the time interval between measurement occasions was extended. Additionally, given the fact that SDO appears to affect one's level of empathy has not been documented before with panel data, a replication of this finding would reassure us that our results are robust. We addressed these concerns in Study 2.

## STUDY 2

### Method

#### Participants

The initial pool of respondents consisted of 6,507 members of the New Zealand population, who responded to a national postal sample (The New Zealand Attitudes and Values Study, NZAVS-09). The NZAVS-09 was posted to 40,500 participants from the 2009 New Zealand electoral roll. Roughly 1.36% of all registered voters were contacted and invited to participate. The overall response rate for the Time 1 assessment was 16.6%. Data were available for 4,466 participants who completed a follow-up postal questionnaire 1 year later. The sample analyzed contained 1,088 males and 1,839 females, with an average age of 50.54 yrs ( $SD = 15.31$ ). In terms of ethnicity, 76.8% identified as New Zealand European, 14.2% identified as Maori, 2.9% identified as Pacific Nations, 3.3% identified as Asian, and 2.8% identified with another ethnic group or did not report their ethnicity.

### Measures

SDO was measured using six balanced items from the SDO<sub>5</sub> Scale (see Sidanius & Pratto, 2001, pp. 67;  $\alpha = .71$  at both data waves). In Study 2, trait empathy was assessed using three items from the Compassion facet of Agreeableness developed by DeYoung, Quilty, and Peterson (2007) after an analysis of items from the International Personality Item Pool ( $\alpha = .61$  at Time 1 and  $.56$  at Time 2). The items were: "Sympathize with others' feelings", "Am not interested in other people's problems", and "Feel others' emotions." The test-retest reliability over the 1-year interval was  $.61$  for Compassion and  $.65$  for SDO.

In addition, we decided to compare the relationship between compassion and SDO to the relationship between compassion and three other variables generally accepted as measures of political ideology. The DPM should expect empathy to affect other political ideologies as well. However, the DPM will not expect empathy to be influenced by any of the political ideologies, including SDO. It is thus important to find out if the over-time effect of SDO on empathy is a sign of a more general violation of the DPM, which one could conclude if other ideological variables also display this surprising predictive power. In contrast, because SDT regards SDO as having pervasive effects across a wide range of socially relevant attitudes and behaviors and thus as being more than a mere political ideology, we predict it will affect empathy, whereas more standard political ideologies will not. To explore this additional issue, we examined the interface between compassion and three dimensions of political ideology: political conservatism, colorblindness, and system justification (Kay, Jost, & Young, 2005). Political conservatism was defined by the answer to the question: "Please rate how politically conservative you see yourself as being." Responses ranged from 1 (*very liberal*) to 7 (*very conservative*). The test-retest reliability of political conservatism was  $.52$ . Colorblindness was defined as the view that one should ignore racial group membership and only respond to the personal characteristics of other people (Knowles, Lowery, Hogan, & Chow, 2009). Colorblindness has been shown to be a hierarchy-enhancing ideology, related to prejudice against immigrants and higher levels of SDO (e.g., Levin et al., 2012). Colorblindness was operationalized by three questions: "I wish people in this society would stop obsessing so much about race," "Putting racial labels on people obscures the fact that everyone is a unique individual," and "People who become preoccupied by race are forgetting that we're all just human." The alpha reliabilities of this scale were  $.63$  at Time 1 and  $.61$  at Time 2. The test-retest reliability was  $.60$ . System justification was defined by two questions: "In general, the New Zealand political system operates as it should," and "In general, I find New Zealand society to be fair." The reliabilities of this scale were  $.49$  at Time 1 and  $.50$  at Time 2. The test-retest reliability was  $.54$ . Responses to all questions were made on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

### Results and Discussion

The results of the cross-lagged analyses in Study 2 were strikingly similar to the cross-lagged results found in Study 1. First, as with Study 1, the synchronous correlations between SDO and empathy were significant at both time points and homogeneous (i.e.,  $r = -.29$  and  $-.29$ ,  $p < .001$ , respectively; see Table 2). Consistent with H1, the cross-lag coefficients indicated that empathy (here operationalized as Compassion) at Time 1 depressed one's SDO level at Time 2, even after considering the effect of SDO at Time 1 (i.e.,  $\gamma = -.07$ ,  $p = 10^{-7}$ ). Second, and most critically, we were able to replicate the finding that SDO at Time 1 also appeared to decrease one's empathy at Time 2, even after controlling for empathy at Time 1 ( $\gamma = -.11$ ,  $p = 10^{-10}$ ).

As can be seen in Figure 2, the only departure from the pattern of results found in Study 1 was the fact that the cross-lagged effect of SDO on empathy appeared to be larger than the cross-lagged effect of empathy on SDO. As before, to test this difference we applied equality constraints to these two parameters, and then examined whether this constraint significantly decreased model fit. The results of this constraint did indeed indicate a statistically reliable deterioration of model

fit,  $\chi^2_{(1)} = 7.73$ ,  $p = .001$ , indicating that the effect of SDO on empathy was, in fact, reliably *larger* than the effect of empathy on SDO (see Figure 2).

While SDO seems to affect one's level of empathy (contrary to the DPM), it is possible that other political ideologies also do, and thus that the violation of the DPM applies beyond SDO. To test this possibility using cross-lagged analyses, we examined the relationship between empathy and three political variables: political conservatism, the belief in colorblindness, and system justification. The results of these analyses were consistent with the expectations of DPM with respect to all three political ideologies. Thus, while empathy appeared to have a small, yet significant, effect on all three political ideologies, neither of the political ideologies appeared to have a significant effect upon empathy (see Table 3). The fact that SDO appears capable of affecting the personality variable of empathy, while other relevant political ideologies are not able to do so, undermines the notion that SDO is a political ideology like all other political ideologies, purely downstream of personality variables.

### General Discussion

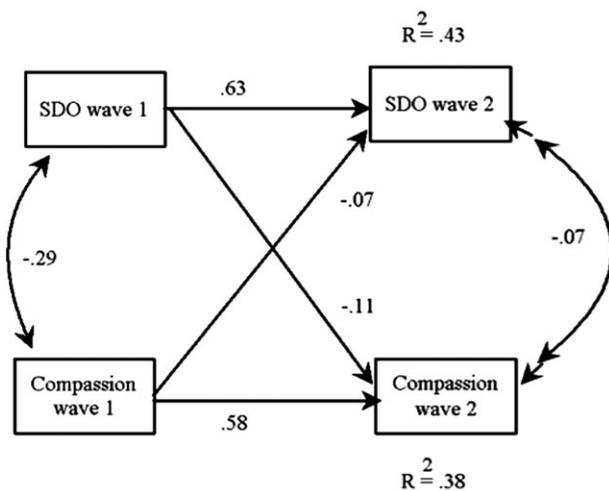
The fact that upstream personality variables appear to affect downstream sociopolitical beliefs and behaviors is no surprise and has been theorized by political psychologists ever since the groundbreaking work of more than a half century ago (i.e., Adorno et al., 1950; Lasswell, 1930; see also Wilson, 1973). What has not been clearly theorized before is whether or not constructs such as political ideologies can affect personality traits. One major exception to this trend is the relatively recent and very influential development of the dual process model (DPM) by John Duckitt and his colleagues (see Duckitt, 2001; Sibley & Duckitt, 2010; Duckitt et al., 2002), which considers variables such as SDO as purely ideological variables, affected by—but incapable of affecting—upstream personality.

The purpose of this paper is to examine two basic hypotheses derivable from the DPM concerning the interface between SDO and the personality trait of empathy, using two samples from different parts of the world, Belgium and New Zealand. Consistent with H1, and with both the DPM and the expectation of SDT (Sidanius & Pratto, 2001), there is relatively strong evidence indicating that SDO is affected by one's prior

**Table 2** Correlations Among Variables in Study 2

Measures	1	2	3	4
1. W1-SDO	—			
2. W1-Compassion	-.288***	—		
3. W2-SDO	.651***	-.248***	—	
4. W2-Compassion	-.281***	.610***	-.286***	—

Note. T1-SDO = Time 1 SDO; T1-Compassion = Time 1 Compassion; T2-SDO = Time 2 SDO; T2-Compassion = Time 2 Compassion. \*\*\* $p < .001$ .



**Figure 2** Cross-lagged path model between SDO and Compassion over a one year interval in a national probability sample of New Zealand respondents ( $N = 4,466$ ). All path estimates are standardized and statistically significant ( $p < .05$ ).

**Table 3** Cross-Lag Effects of Empathy With Three Dimensions of Political Ideology in Study 2

Ideological dimension	Empathy T1 > Ideology T2	Ideology T1 > Empathy T2
Political conservatism	-.04**	.02
Colorblindness	.03*	.01
System justification	-.07***	.00

\* $p = .02$ ; \*\* $p = .005$ ; \*\*\* $p < .001$ . Entries are standardized regression coefficients. T1 = Time 1; T2 = Time 2.  $N = 4,466$ .

level of empathic concern and compassion for others: the lower one's compassion and empathic concern for others, the higher one's SDO becomes. However, contrary to the expectations of the DPM, yet consistent with the expectations of SDT, there was also consistent evidence supporting H2. SDO did indeed display evidence of being able to affect one's level of empathy. Furthermore, the strength of the effect of SDO on empathy appeared to be stronger than the effect of empathy on SDO. While this difference was not significant in the smaller Belgian sample, it was clearly significant in the much larger and more representative New Zealand sample. These results would seem to occasion a reassessment of the role of SDO in the very popular DPM (see Duckitt, 2001; Sibley & Duckitt, 2010, p. 553). It also opens an avenue of inquiry for SDT. While there is empirical evidence of the widespread correlates of SDO and its theorized critical role in helping to determine the nature of human sociality (e.g., Pratto, Sidanius, & Levin, 2006), we were somewhat surprised to find that SDO's effect on empathy tended to be *stronger* than empathy's effect on SDO. This asymmetry is clearly in need of further exploration.

While the DPM incorrectly predicted the nature of the interface between empathy and SDO, its prediction concerning the interface between empathy and regular political ideologies was consistent with the predictions of the DPM. Thus, while the lack of empathy appears to increase one's level of political conservatism, endorsement of the ideology of colorblindness, and system justification, these political ideologies showed no signs of influencing one's level of empathy. The fact that SDO has a relatively strong upstream effect on a fundamental personality variable such as empathy, while standard political ideologies do not, is congruent with recent presentations of the predictive potency of SDO across a very wide range of behavioral predispositions and actual behaviors (e.g., Amiot & Bourhis, 2005; Freeman et al., 2009; Halabi et al., 2008; Ho et al., 2012; Kteily et al., 2012; Michinov et al., 2005; Pratto et al., 1994; Sidanius et al., 1994). It is worth noting that the items used to assess empathy in both studies contained no political content, making this robust set of results all the more convincing. Thus, it cannot be argued that SDO predicted empathy solely in light of shared political implications implied by the questions comprising both scales. The robustness of this result is further bolstered by the fact that empathy was operationalized in slightly different ways across the two studies. In the Belgian sample empathy was defined by use of Davis's (1979) Empathic Concern subscale of the empathy inventory. In contrast, in the representative sample of New Zealand adults, empathy was indexed by the use of the Compassion facet of Agreeableness developed by DeYoung et al. (2007). Despite these two different operationalizations of empathy, the analyses provided remarkably similar results.

Some critics have suggested that what appears to be an effect of SDO is merely an epiphenomenological or mere reflection of one's prior intergroup prejudice (see e.g., Kreindler, 2005; Schmitt et al., 2003; Turner & Reynolds, 2003). However, there are two forms of evidence which belie this

criticism. First, Kteily et al. (2011) examined this possible "mere effect" hypothesis head on by examining 4-year panel data of SDO and its relationships to two different measures of ethnic prejudice. Use of cross-lag analysis indicated that while prior levels of SDO appeared to affect later levels of ethnic prejudice, prior levels of ethnic prejudice showed little to no effect on later levels of SDO. The second form of evidence belying this "mere effect" critique of SDO is found in a series of experimental studies showing SDO to affect prejudice against newly created minimal groups (Amiot & Bourhis, 2005; Federico, 1999; Reynolds et al., 2007; Sidanius et al., 1994), that is to say groups that did not yet even exist at the time SDO was measured.

Although there seems to be consensus among intergroup relations theorists that SDO should be affected by one's level of empathic concern, a conjecture that seems to be clearly consistent with the empirical evidence before us, the reasons for the effect of SDO on empathy are still in need for further clarification. One possible reason for this finding might have to do with SDO's generalized potency. While SDO clearly has some characteristics resembling downstream political ideologies, it also shows evidence of having a more widespread and profound effect on the nature of human social interaction than ordinary political ideologies such as one's view of taxes, or of the proper role of government in the economy (see also Kteily et al., 2012, for more evidence of SDO's generality and causal role across a wide number of contexts). It should thus have greater predictive power over time than variables indexing purely political ideologies.

A second possible explanation for SDO's effect on empathy might have something to do with SDO's known positive association with support for violent and aggressive behaviors directed against subordinate groups (e.g., Thomsen, Green, & Sidanius, 2008). Individuals high in SDO might seek to avoid encounters with individuals at the receiving end of these policies, thus distancing themselves from the potential effects on empathy that these encounters might provoke. Over time, avoiding such potentially "softening" encounters could "harden" one's personality, and increase one's "tough-mindedness" (e.g., Duckitt, 2001; Eysenck, 1961), while simultaneously decreasing concern and compassion for others. One is reminded of the way in which averting one's gaze from a beggar modulates the compassion that could otherwise have been aroused (see Batson & Oleson, 1991).<sup>2</sup>

A third possibility relates to the fact that being high in SDO leads to espousal of certain policies, such as support for wars of conquest and domination that involve the vast suffering of others. Supporting actions involving the suffering of others might reduce empathy via self-perception processes (Bem, 1967). That is, those individuals who observe themselves speaking in favor of actions negatively affecting other individuals might infer that they must be less empathic individuals, reducing their empathic concern over time.

It is also possible that the widespread and potent characteristics of SDO enable it to influence the multifaceted and com-

plexly interacting components of the empathy circuit (Baron-Cohen, 2011) in ways that we have not begun to understand.<sup>3</sup> Clearly, additional research is needed to more deeply explore the extent to which SDO affects socially relevant personality traits and fundamental features of human sociality. Whatever the reasons for SDO's apparent effects on the personality trait of empathy, this finding is clearly inconsistent with the expectations of the DPM, and seems to suggest the need to reconceptualize the aspect of this model concerning the causal span of SDO.

Furthermore, we argue that the evidence uncovered here—together with recent evidence attesting to SDO's prior effects on intergroup prejudice (e.g., Duriez, Vansteenkiste, Soenens, & De Witte, 2007; Kteily et al., 2011; McFarland, 2010; Perry & Sibley, 2011; Thomsen et al., 2010), including evidence of discrimination against minimal groups (e.g., Amiot & Bourhis, 2005; Federico, 1999; Reynolds et al., 2007; Sidanius et al., 1994)—speaks powerfully against those who would argue that SDO is a “mere effect” of prior intergroup attitudes (i.e., those who view SDO as a fully endogenous variable) or even a “mere effect” of critical personality characteristics such as empathy. This study takes previous work one step further by showing that not only can SDO affect “downstream” political attitudes, it can also affect fundamental “upstream” personality variables.

Finally, this pattern of results also suggests that empathy might well mediate the relationships between SDO and an array of aggressive and violent policies against outgroups such as launching wars of domination and support for torture and the death penalty (e.g., Sidanius et al., 2006). While these are speculations that we do not have the data to pursue at the moment, they would seem to be excellent targets of future research. Exploring the mechanisms by which SDO exerts its influence on a wide variety of intergroup phenomena is an important question, and empathy is a likely candidate.

## Limitations and Future Directions

It is important to note some of the limitations of our findings. First and most importantly, we must keep in mind that not even the use of a cross-lagged design allows one to make *definitive* causal claims. It is quite possible that rather than the across-time covariance between empathy and SDO being causal in any sense, this covariance might instead be spurious, such that both empathy and SDO are the result of some third set of as yet unidentified outside variables. However, at this point we can only speculate as to what that third set of variables might be, as we do below. In spite of this possibility, these cross-lagged analyses allow for substantially greater confidence in the validity of causal conclusions than has been possible using cross-sectional structural equation modeling in the past.

Second, although our results cast doubt on the argument that SDO is purely endogenous to personality variables, and suggest that SDO might be on a similar causative level as empathy, our findings cannot speak to whether or not SDO

should be regarded as a personality trait in its own right. Such a claim would demand levels of evidence which are not available to us here. For example, longitudinal data showing that young children exhibit preferences on nonverbal measures that correlate strongly with adult measures of SDO would provide stronger and more direct support for the notion that individuals' preferences for group-based dominance hierarchies are, at least in part, “basic” components of social life and perhaps heritable. Such evidence would demonstrate that preference for group-based hierarchy appears far before the development of sociopolitical ideologies, or prejudice against specific outgroups within specific sociopolitical contexts. Some evidence suggestive of the possible heritability of SDO has been found by Thomsen and colleagues (Thomsen, Frankenhuys, Ingold-Smith, & Carey, 2011). These researchers found that infants as young as 10 to 13 months of age have mental representations of dominance hierarchies guiding their expectations of the social behaviors of others. Although this work speaks more to an inherent understanding of hierarchy rather than a preference for hierarchy, it nevertheless suggests the possibility that even infants can reason about social hierarchy (for related evidence see Hatemi et al., 2010).

Third, the somewhat lower rank-order stability of the empathy measures compared to the SDO measures might have contributed to the overall weaker predictive performance of empathy compared to SDO. This could be due to the possibility that the empathy measures were also partly assessing aspects of state empathy as well as trait empathy. Although empathy as measured in our study has been very widely conceptualized and used as a variable indexing *trait* empathy, this seems to be an issue worthy of further exploration in future research.

Be that as it may, given the suggested reciprocal effects between SDO and concern for the welfare of others, especially given the existence of correlated errors between both variables, future research might want to try and identify external variables that might determine both SDO and empathy. Since studies on intergenerational similarity have shown a strong positive correlation between the SDO of adolescents and their parents (e.g., Duriez & Soenens, 2009; Duriez, Soenens, & Vansteenkiste, 2008) and the Empathic Concern of adolescents and their parents (e.g., Soenens, Duriez, Vansteenkiste, & Goossens, 2007), one possible direction in which to look for such variables might be the family context. Specifically, recent studies have not only stressed the importance of parental style (e.g., Duriez, Soenens, & Vansteenkiste, 2007; Miklikowska, Duriez, & Soenens, 2011), but also of the goals that are promoted within this interaction (e.g., Duriez, Vansteenkiste et al., 2007). Apart from parents having an effect on adolescents' SDO and levels of empathy, SDO and empathy might be code-termined by the wider social environment or cultural conditions at large (e.g., Poteat & Spanierman, 2010). Specifically, cultural factors might not only determine the extent to which SDO and empathy impact each other, but these factors might also determine the social desirability of SDO and empathic concern. In this respect, the literature in cultural psychology

stresses the importance of differences in whether the self is seen as independent or as interdependent (e.g., Markus & Kitayama, 1991). Cross-cultural studies might want to examine the influence of such factors in more depth.

In addition to these environmental factors, sources of the residual correlation between SDO and empathy within both time periods might be uncovered by the use of behavioral genetics. Just as the use of monozygotic and dizygotic twins has shown that a substantial portion of the variance of empathy, right-wing authoritarianism, and political conservatism appear to have large degrees of heritability (see Alford, Funk, and Hibbing, 2005; Davis, Luce, & Kraus, 1994; Bouchard & McGee, 2003; Hatemi et al., 2010; McCourt, Bouchard, Lykken, Tellegen, & Keyes, 1999), the use of twin methodology could also be employed to assess the proportion of SDO's variance that is due to genetic (as compared to shared and nonshared environmental) factors.

Finally, while the consistency in results across two large samples from different countries and types of populations (undergraduate convenience sample vs. a nationally probability sample) is quite impressive, the majority of the respondents in both samples were still of European descent. Thus, it seems important to assess the generalizability of these findings across a wider range of ethnic groups, countries, and cultures (e.g., Western Europe vs. sub-Saharan Africa) before one can consider these relationships to apply broadly. Nevertheless, we are encouraged by these initial findings suggesting SDO's causal role in predicting empathy, a personality trait which is critical for prosocial behavior and cooperation.

## Notes

1. For a related analysis see Thomsen et al. (2010).
2. Indeed, preliminary analyses of supplemental data are suggestive of the possibility that SDO may drive part of the influence of empathy on the Schwarz value of altruism.
3. There are at least 10 interconnected areas of the brain which belong to the empathy circuit: the medial prefrontal cortex, the orbital-frontal cortex, the frontal operculum, the inferior frontal gyrus, the caudal anterior cingulate cortex and the anterior insula, the temporoparietal junction, the superior temporal sulcus, the somatosensory cortex, the inferior parietal lobule, the inferior parietal sulcus, and the amygdala (see Baron-Cohen, 2011).

## References

- Adorno, T. W., Frenkel-Brunswick, E., Levinson, D. J., & Sanford, R. N. (1950). *The authoritarian personality*. New York, NY: W. W. Norton.
- Alford, J. R., Funk, C., & Hibbing, J. R. (2005). Are political orientations genetically transmitted? *American Political Science Review*, *99*, 153–157.
- Altemeyer, B. (1998). The other “authoritarian personality.” In Mark P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 30, pp. 48–92). New York, NY: Academic Press.
- Amiot, C. E., & Bourhis, R. Y. (2005). Ideological beliefs of determinants of discrimination in positive and negative outcome distributions. *European Journal of Social Psychology*, *35*, 581–598.
- Bäckström, M., & Björklund, F. (2007). Structural modeling of generalized prejudice: The role of social dominance, authoritarianism, and empathy. *Journal of Individual Differences*, *28*, 10–17.
- Baron-Cohen, S. (2011). *The science of evil: On empathy and the origins of cruelty*. New York, NY: Basic Books.
- Batson, C. D., & Oleson, K. C. (1991). Current status of the empathy-altruism hypothesis. In M. S. Clark (Ed.), *Prosocial behavior: Review of personality and social psychology* (Vol. 12, pp. 62–85). Newbury Park, CA: Sage.
- Bem, D. J. (1967). Self-perception: An alternative interpretation of cognitive dissonance phenomena. *Psychological Bulletin*, *74*, 183–200.
- Bouchard, T. J., Jr., & McGee, M. (2003). Genetic and environmental influences on human psychological differences. Available at [www.interscience.wiley.com](http://www.interscience.wiley.com). doi:10.1002/neu.10160
- Cheon, B. K., Im, D., Harada, T., Kim, J., Mathur, V. A., Scimeca, J. M., Parrish, T. B., Park, H. W., & Chiao, J. Y. (2011). Cultural influences on neural basis of intergroup empathy. *Neuroimage*, *57*, 642–650.
- Chiao, J. Y., Mathur, V. A., Harada, T., & Lipke, T. (2009). Values, empathy, and fairness across social barriers. *Annual New York Academy of Sciences*, *1167*, 174–181. doi: 10.1111/j.1749-6632.2009.04508.x
- Davis, M. H. (1979). Individual differences in empathy: A multidimensional approach (Doctoral Dissertation). University of Texas at Austin.
- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*, 113–126.
- Davis, M. H., Luce, C., & Kraus, S. J. (1994). The heritability of characteristics associated with dispositional empathy. *Journal of Personality*, *62*, 369–391.
- DeYoung, C. G., Quilty, L. C., & Peterson, J. B. (2007). Between facets and domains: 10 aspects of the Big Five. *Journal of Personality and Social Psychology*, *93*, 880–896.
- Duckitt, J. (2001). A dual-process cognitive-motivational theory of ideology and prejudice. *Advances in Experimental Social Psychology*, *33*, 41–113.
- Duckitt, J., & Sibley, C.G. (2010). Personality, ideology, prejudice, and politics: A dual-process motivational model. *Journal of Personality*, *78*, 1861–1893.
- Duckitt, J., Wagner, C., Du Plessis, I., and Birum, I. 2002. The psychological bases of ideology and prejudice: Testing a dual process model. *Journal of Personality and Social Psychology*, *83*, 75–93.
- Duriez, B., & Soenens, B. (2006). Personality, identity styles, and authoritarianism: An integrative study among late adolescents. *European Journal of Personality*, *20*, 397–417.
- Duriez, B., & Soenens, B. (2009). The intergenerational transmission of racism: The role of right-wing authoritarianism and social dominance orientation. *Journal of Research in Personality*, *43*, 906–909. doi:10.1016/j.jrp.2009.05.014

- Duriez, B., Soenens, B., & Vansteenkiste, M. (2007). In search of the antecedents of adolescent authoritarianism: The relative contribution of parental goal promotion and parenting style dimensions. *European Journal of Personality, 21*, 507–527.
- Duriez, B., Soenens, B., & Vansteenkiste, M. (2008). The intergenerational transmission of authoritarianism: The mediating role of parental goal promotion. *Journal of Research in Personality, 42*, 622–642.
- Duriez, B., Van Hiel, A., & Kossowska, M. (2005). Authoritarianism and social dominance in Western and Eastern Europe: The importance of the socio-political context and of political interest and involvement. *Political Psychology, 26*, 299–320.
- Duriez, B., Vansteenkiste, M., Soenens, B., & De Witte, H. (2007). The social costs of extrinsic relative to intrinsic goal pursuits: Their relation with social dominance and racial and ethnic prejudice. *Journal of Personality, 75*, 757–782.
- Ekehammar, B., Akrami, N., Gyljey, M., & Zakrisson, I. (2004). What matters most to prejudice: Big five personality, social dominance orientation or right-wing authoritarianism? *European Journal of Personality, 18*, 463–482.
- Eysenck, H. J. (1961). Personality and social attitudes. *Journal of Social Psychology, 53*, 243–248.
- Federico, C. M. (1999). The interactive effects of social dominance orientation, group status, and perceived stability on favoritism for high-status groups. *Group Processes and Intergroup Relations, 2*, 119–142.
- Freeman, D., Aquino, K., & McFerran, B. (2009). Overcoming beneficiary race as an impediment to charitable donations: Social dominance orientation, the experience of moral elevation, and donation behaviour. *Personality and Social Psychology Bulletin, 35*, 72–84.
- Halabi, S., Dovidio, J. F., & Nadler, A. (2008). When and how do high status group members offer help? Effects of social dominance orientation and status threat. *Political Psychology, 29*, 841–858.
- Hatemi, P. K., Hibbing, J. R., Medline, S. E., Keller, M. C., Alford, J. R., Smith, K. B., Martin, N. G., & Eaves, L. J. (2010). Not by twins alone: Using the extended family design to investigate genetic influence on political beliefs. *American Journal of Political Science, 54*, 798–814.
- Ho, A. K., Sidanius, J., Pratto, F., Kteily, N., & Sheehy-Skeffington, J. (2012). Social dominance orientation: Revisiting the structure and function of a variable predicting social and political attitudes. *Personality and Social Psychology Bulletin, 38*, 583–606.
- Hodson, G., Hogg, S. M., & MacInnis, C.C. (2009). The role of “dark personalities” (narcissism, Machiavellianism, psychopathy), Big Five personality factors, and ideology in explaining prejudice. *Journal of Research in Personality, 43*, 686–690.
- John, O.P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative Big Five trait taxonomy: History, measurement and conceptual issues. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (3rd ed., pp. 114–158). New York, NY: Guilford Press.
- Kay, A. C., Jost, J. T., & Young, S. (2005). Victim derogation and victim enhancement as alternative routes to system justification. *Psychological Science, 16*, 240–246.
- Knowles, E. D., Lowery, B. S., Hogan, C. M., & Chow, R. M. (2009). On the malleability of ideology: Motivated construals of color blindness. *Journal of Personality and Social Psychology, 96*, 857–869.
- Kreindler, S. A. (2005). A dual group processes model of individual differences in prejudice. *Personality and Social Psychology Review, 9*, 90–107.
- Kteily, N. S., Sidanius, J., & Levin, S. (2011). Social dominance orientation: Cause or “mere effect”? Evidence for SDO as a causal predictor of prejudice and discrimination against ethnic and racial outgroups. *Journal of Experimental Social Psychology, 47*, 208–214.
- Kteily, N., Ho, A. K., & Sidanius, J. (2012). Hierarchy in the mind: The predictive power of social dominance orientation across social contexts and domains. *Journal of Experimental Psychology, 48*, 543–549.
- Lasswell, H. D. (1930). *Psychopathology and politics*. Chicago, IL: University of Chicago Press.
- Lee, K., Ashton, M. C., Ogunfowra, B., & Burdage, J. S. (2010). The personality bases of socio-political attitudes: The role of honesty-humility and openness to experience. *Journal of Research in Personality, 44*, 115–119.
- Lehmiller, J., & Schmitt, M. (2007). Group domination and inequality in context: Evidence for the unstable meanings of social dominance and authoritarianism. *European Journal of Social Psychology, 37*, 704–724.
- Levin, S., Pratto, F., Matthews, M., Sidanius, J., & Kteily, N. (2012). A dual process approach to understanding prejudice toward Americans in Lebanon: An extension of intergroup threat perceptions and emotions. *Group Processes and Intergroup Relations*, on-line, 1–20. doi:10.1177/1368430212443866.
- Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98*, 224–253.
- McCourt, K., Bouchard, T. J., Jr., Lykken, D. T., Tellegen, A., & Keyes, K. (1999). Authoritarianism revisited: Genetic and environmental influences examined in twins reared apart and together. *Personality and Individual Differences, 27*, 985–1014.
- McFarland, S. G. (2010). Authoritarianism, social dominance, and other roots of generalized prejudice. *Political Psychology, 31*, 453–477.
- McFarland, S. G., & Adelson, S. (1996, July). *An omnibus study of personality values and prejudices*. Paper presented at the Annual Convention of the International Society for Political Psychology, Vancouver, Canada.
- Michinov, N., Dambrun, M., Guimond, S., & Méot, A. (2005). Social dominance orientation, prejudice and discrimination: A new computer-based method for studying discriminatory behaviors. *Behavior Research Methods, 37*, 91–98.
- Miklikowski, M., Duriez, B., & Soenens, B. (2011). Family roots of empathy related characteristics. The role of perceived maternal and paternal need and support in adolescence. *Developmental Psychology, 47*, 1342–1352.
- Paulhus, D. L., & Williams, K. M. (2002). The dark triad of personality: Narcissism, Machiavellianism, and psychopathy. *Journal of Research in Personality, 36*, 556–563.

- Perry, R., & Sibley, C. G. (2011). Social dominance orientation: Mapping a baseline individual difference component across self-categorization. *Journal of Individual Differences*, *32*, 110–116.
- Poteat, V. P., & Spanierman, L. B. (2010). Do the ideological beliefs of peers predict the prejudiced attitudes of other individuals in the group? *Group Processes and Intergroup Relations*, *13*, 495–514.
- Pratto, F. (1996). Sexual politics: The gender gap in the bedroom and the cabinet. In D. Buss & N. Malamuth (Eds), *Sex, power and conflict: Evolutionary and feminist approaches* (pp. 179–230). New York: Oxford University Press.
- Pratto, F., Sidanius, J., & Levin, S. (2006). Social dominance theory and the dynamics of intergroup relations: Taking stock and looking forward. *European Review of Social Psychology*, *17*, 271–320.
- Pratto, F., Sidanius, J., Stallworth, L., & Malle, B. (1994). Social dominance orientation: A personality variable predicting social and political attitudes. *Journal of Personality and Social Psychology*, *67*, 741–763.
- Reynolds, K. J., Turner, J. C., Haslam, A., Ryan, M. K., Bizumic, B., & Subasic, E. (2007). *British Journal of Social Psychology*, *46*, 517–539.
- Schmitt, M. T., Branscombe, N. R., & Kappen, D. M. (2003). Attitudes toward group-based inequality: Social dominance or social identity? *British Journal of Social Psychology*, *64*, 161–186.
- Sibley, C. G., & Duckitt, J. (2008). Personality and prejudice: A meta-analysis and theoretical review. *Personality and Social Psychology Review*, *12*, 248–279.
- Sibley, C. G., & Duckitt, J. (2010). The personality bases of ideology: A one-year longitudinal study. *Journal of Social Psychology*, *150*, 540–559.
- Sibley, C. G., & Duckitt, J. (in press). Personality genes of authoritarianism: The form and function of openness to experience. In F. Funke, T. Petzel, J. C. Cohrs, & J. Duckitt (Eds.), *Perspectives on authoritarianism*. Wiesbaden, Germany: VS-Verlag.
- Sibley, C. G., Harding, J., Perry, R., Asbrock, R., & Duckitt, J. (2010). Personality and prejudice: Extension to the HEXACO personality model. *European Journal of Personality*, *24*, 515–534.
- Sidanius, J., & Pratto, F. (1999). *Social Dominance: An integrative theory of social hierarchy and oppression*. New York, NY: Cambridge University Press.
- Sidanius, J., & Pratto, F. (2001). *Social dominance: An intergroup theory of social hierarchy and oppression*. Cambridge, England: Cambridge University Press.
- Sidanius, J., Pratto, F., & Mitchell, M. (1994). In-group identification, social dominance orientation and differential intergroup social allocation. *Journal of Social Psychology*, *134*, 151–167.
- Sidanius, J., Pratto, F., Sinclair, S., & Van Laar, C. (1996). Mother Teresa meets Genghis Khan: The dialectics of hierarchy-enhancing and hierarchy-attenuating career choices. *Social Justice Research*, *9*, 145–170.
- Sidanius, J., Mitchell, M., Haley, H., & Navarrete, C. D. (2006). Support for harsh criminal sanctions and criminal justice beliefs: A social dominance perspective. *Social Justice Research*, *19*, 433–449.
- Soenens, B., Duriez, B., Vansteenkiste, M., & Goossens, L. (2007). The intergenerational transmission of empathy-related responding in adolescence: The role of maternal responsiveness. *Personality and Social Psychology Bulletin*, *33*, 299–311.
- Thomsen, L., Frankenhuys, W. E., Ingold-Smith, M., & Carey, S. (2011). Big and mighty: Preverbal infants mentally represent social dominance. *Science*, *331*, 477–480.
- Thomsen, L., Green, E. G. T., Ho, A. K., Levin, S., Van Laar, C., Sinclair, S., & Sidanius, J. (2010). Wolves in sheep's clothing: SDO asymmetrically predicts perceived ethnic victimization among White and Latino students across three years. *Personality and Social Psychology Bulletin*, *36*, 225–238.
- Thomsen, L., Green, E. G. T., & Sidanius, J. (2008). We will hunt them down: How social dominance orientation and right-wing authoritarianism fuel persecution of immigrants in fundamentally different ways. *Journal of Experimental Social Psychology*, *44*, 1455–1464.
- Turner, J. C., & Reynolds, K. J. (2003). Why social dominance theory has been falsified. *British Journal of Social Psychology*, *42*, 199–206.
- Wilson, G. D. (1973). *The psychology of conservatism*. San Diego, CA: Academic Press.