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Right Wing Authoritarianism, Social Dominance Orientation and The Dimensions of Generalized Prejudice

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Abstract

Prior research suggests that individuals' prejudiced attitudes form a single generalized dimension predicted by Right Wing Authoritarianism (RWA) and Social Dominance Orientation (SDO). A dual process approach, however, expects different domains of generalized prejudice that relate differentially to RWA and SDO. To test this, 212 participants rated attitudes to 24 typically disliked groups. Factor analysis revealed three distinct generalized prejudice dimensions. Hierarchical Linear Modelling indicated that attitudes towards a 'dangerous' groups domain was significantly related only with RWA, attitudes toward a second 'derogated' groups domain was related only to SDO, and attitudes toward a third, 'dissident' groups, domain was significantly related to both, but powerfully with RWA and weakly with SDO. These findings have implications for explaining and reducing prejudice. Copyright © 2006 John Wiley & Sons, Ltd.

Key words: Generalized prejudice; Right Wing Authoritarianism; Social Dominance Orientation

Early research on prejudice showed that the prejudiced attitudes held by individuals were generalized over target groups (Allport, 1954). Empirically this was documented by significant and usually powerful positive correlations between attitudes to different outgroups, and this effect has been subsequently supported by many studies using diverse samples and target groups (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950; Allport; Altemeyer, 1981, 1988; Duckitt, 1992; Ekehammer & Akrami, 2003). This means that persons reporting favourable attitudes to some outgroups tend to be generally more favourable toward other outgroups, while persons who are hostile or prejudiced to certain outgroups tend to be generally less favourable to others. These findings suggest that there should be just one broad dimension of generalized prejudice directed across all or most outgroups. They also suggest that some relatively stable characteristic of individuals makes them prone to be prejudiced against socially rejected outgroups and minorities in general (Adorno et al., Allport). The current study examines the degree to which (a) there are

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consistencies between negative attitudes toward a range of different groups held by the individual (operationalized as the between-person component of variation using Hierarchical Linear Modelling) and (b) the degree to which such consistencies in negative group attitudes can be explained by more general individual differences in prejudice proneness.

The two most prominent individual difference theories of prejudice capable of explaining the generality of prejudice have been the authoritarian personality and social dominance orientation approaches. An authoritarian personality dimension was originally described by Adorno et al. (1950). They viewed this construct, which they measured by means of their *F* scale, as a major determinant of generalized prejudice in individuals. In support of this, they obtained consistently powerful positive correlations between the *F* scale and their measures of generalized prejudice and ethnocentrism. Altemeyer (1981, 1988) later showed that the magnitude of these correlations had been somewhat inflated by psychometric flaws, such as acquiescent response bias, in the *F* scale and their other measures. He developed his Right Wing Authoritarianism (RWA) scale to remedy the deficiencies of the earlier *F* scale, and conceptualized it as measuring the covariation between three core authoritarian characteristics identified by Adorno et al., that is, conventionalism, authoritarian aggression and authoritarian submission. Research with the RWA scale supported the earlier findings by showing that it consistently predicted prejudiced attitudes to different outgroups, minorities, and other stigmatised social groups, and was a strong correlate of generalized prejudice (Altemeyer, 1998, 1996; Van Hiel & Mervielde, 2005).

Subsequently in the 1990s, Sidanius and Pratto (1993) and Pratto, Sidanius, Stallworth, and Malle (1994) proposed a second individual difference dimension, Social Dominance Orientation (SDO), measured by their SDO scale, which was also strongly and consistently associated with generally prejudiced and ethnocentric attitudes towards minorities and stigmatised outgroups in apparently much the same way as the RWA scale (cf. also Van Hiel & Mervielde, 2005). Pratto et al. described SDO as a 'general attitudinal orientation toward intergroup relations, reflecting whether one generally prefers such relations to be equal, versus hierarchical' and the 'extent to which one desires that one's ingroup dominate and be superior to outgroups' (p. 742). Research, however, has shown considerable independence between the SDO and RWA scales, indicating that they measure clearly distinct constructs, and that they predict prejudiced and ethnocentric attitudes independently of each other (Altemeyer, 1998; Ekehammer & Akrami, 2003; Pratto et al.; Van Hiel & Mervielde, 2002). A series of studies has shown that the RWA and SDO scales together typically account for a substantial proportion of the variance in generalized prejudice with no other psychological individual difference variables adding notably to variance predicted (Altemeyer; Ekehammer, Akrami, Gylje, & Zakrision, 2004; McFarland, 1998; McFarland & Adelson, 1996; but see also Roets, Van Hiel, & Cornelis, 2006).

The issue of what exactly the RWA and SDO scales are measuring has caused debate. It has been pointed out that the assumption, originating from Adorno et al. (1950) and shared by Altemeyer (1981, 1998) that these scales were measuring personality, conceptualized as a generalized behavioural disposition, has never been empirically supported. Moreover, the items of these scales are statements of social attitude and research has shown that they are most strongly correlated with other indices of social attitudes and values rather than behaviour (Duriez & Van Hiel, 2002; Heaven & Conners, 2001; Saucier, 2000). In addition, RWA and SDO have been shown to be highly reactive to situational manipulations or

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primes (Duckitt & Fisher, 2003; Guimond, Dambrun, Michinov, & Duarte, 2003; Schmitt, Branscombe, & Kappen, 2003). These considerations suggest that they seem to be better construed as measuring two social attitude dimensions of a broadly ideological nature, rather than personality or behavioural dispositions.

The findings that both RWA and SDO predict prejudice to outgroups and minorities and indices of generalized prejudice aggregated over different outgroups have already been noted. On this basis, it was assumed, particularly by those who have viewed RWA and SDO as personality dimensions (cf. Altemeyer, 1998) that both RWA and SDO involve a need for prejudice in general and therefore underlie the phenomenon of generalized prejudice. However, this view has recently been challenged. A dual process approach to explain individual differences in prejudice suggests that different motives underlie RWA and SDO so that they predict prejudice for very different reasons (Duckitt, 2000, 2001). This, therefore, implies that there should be different dimensions of generalized prejudice that are differentially predicted by RWA and SDO.

This model proposes that the RWA scale measures ideological attitudes that express the threat driven motivational goal of maintaining and establishing group and societal order, cohesion, and security and SDO measures ideological attitudes that express the competitively driven goal of establishing and maintaining ingroup dominance, power and superiority. RWA will therefore predict prejudice against groups that are seen as threatening ingroup or societal security, order, stability and cohesion. On the other hand, persons high in SDO would dislike and devalue outgroups that aroused their competitiveness over relative dominance, power and superiority. These would often be socially subordinate outgroups seen as legitimately lower in power and status, which would activate competitive desires to maintain and justify relative dominance by devaluing and derogating those subordinate outgroups. In addition, directly competing outgroups or outgroups challenging social inequalities would also activate competitive desires to establish dominance and superiority, and so elicit SDO motivated dislike.

Direct competition from an outgroup, or challenges to social inequality, however, also tend to create threat to social stability, order and cohesion, so directly competing outgroups or group challenging social inequality would elicit dislike from persons high in both SDO and RWA. An important prediction from this model therefore is that although RWA and SDO may predict prejudice against the same outgroups (i.e. against directly competing outgroups or groups challenging social inequality), they should more typically predict prejudice against quite different outgroups, with RWA predicting prejudice toward groups that are seen as threatening ingroup values, norms and security and so deemed likely to disrupt social stability and cohesion. On the other hand, SDO is likely to predict prejudice toward groups that are seen as socially subordinate and therefore as 'inferior' or as likely to compete for status and resources.

These predictions seem to be contradicted by the research noted previously on individual differences and prejudice showing that RWA and SDO both seem to predict prejudice against the same outgroups, and both predict generalized prejudice. However, there is an important reason why these research findings might have been misleading and lead to an erroneous conclusion. The kind of ethnic minority or stigmatized social groups that have been typically studied as targets of prejudice tend to be both low in power and status and because they are ethnically or culturally different are also seen as threatening the values and norms of the majority. Thus, both RWA and SDO would predict prejudice against such groups, though for very different reasons. In addition, any differential effects would be completely hidden when negative attitudes to different outgroups were aggregated to form

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overall indices of generalized prejudice (cf. Altemeyer, 1998; McFarland, 1998; McFarland & Adelson, 1996).

The dual process model's hypothesis that RWA and SDO might generate prejudice through different mechanisms, and therefore predict prejudice against different outgroups has recently received empirical support (Duckitt, 2006). This research showed that RWA, but not SDO, predicted negative attitudes to two groups selected as likely to be seen as socially deviant, and so threatening established norms and values (drug dealers and rock stars) but not as socially subordinate, and the effect of RWA was mediated by perceived threat from these groups rather than competitiveness to them. In addition, SDO, but not RWA, predicted negative attitudes to three groups selected as likely to be seen as socially subordinate and therefore likely to activate competitive motives to maintain their relative subordination (physically handicapped people, unemployment beneficiaries and housewives) but not as socially deviant or threatening, and the effect of SDO was mediated by competitiveness over relative dominance towards these groups and not perceived threat from them. An important implication of these findings, which is predicted by the dual process model, is that generalized prejudice should not comprise just one dimension of generalized negativity to outgroups. Instead there should be several different dimensions of generalized prejudice. This could not be tested in the previous study because attitudes to the different target groups were assessed in different samples. As a result it was not possible to investigate the correlations between attitudes to these groups to see whether they seemed to involve just one generalized prejudice dimension or several.

The dual process model would expect at least two and possibly three distinct generalized prejudice dimensions. One dimension should comprise generalized negativity to outgroups seen as potentially socially threatening and not subordinate, and should be related to RWA but not SDO. A second dimension should comprise generalized negativity to socially subordinate groups low in status and power, but not socially threatening, which should be predicted by SDO but not RWA. Finally, a third dimension might also emerge that might encompass generalized negativity to outgroups that are seen as both socially threatening and also as likely activate competitive feelings over relative power and status (i.e., socially subordinate or in direct competition with the ingroup), which should therefore be related to both RWA and SDO.

The current study therefore had three main objectives:

(1) A first objective was to assess whether attitudes to a variety of social groups or categories that were typically targets of prejudice or stigmatisation would comprise a single domain of generalized prejudice or whether several distinct generalized group domains would emerge. The dual process theory of prejudice would expect at least two domains of generalized prejudice with one likely to reflect negative attitudes to socially threatening groups and one likely to reflect negative attitudes to socially subordinate groups (i.e. groups seen as legitimately low in social power and status). A third domain comprising outgroups directly competing with the ingroup (or outgroups that were both socially threatening and socially subordinate) that might involve both social threat and competitiveness over dominance might also be found. The study therefore used affective thermometer ratings for a range of social groups that would tend to be the targets of negative attitudes. An attempt was made to include at least some groups that were clearly low in power and status without necessarily being socially threatening, and other groups that seemed likely to be seen as socially threatening but not necessarily as low in power and status.

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(2) A second objective was to test the hypotheses derived from the dual process cognitive motivational model of prejudice that RWA and SDO would relate differentially to negative attitudes toward groups comprising different social domains. To address this issue, we used Hierarchical Linear Modelling (HLM; Raudenbush & Bryk, 2002), which allowed us to partition the percentage of variance in participants' ratings of warmth toward different groups attributable to between- versus within-person variation. In the current context, between-person variation reflects that component of variation in ratings of different groups that is systematic and may be explained by relatively global individual differences in tendency to hold negative attitudes toward a range of different social groups. In one sense, such between-person variation may be thought of as a reflection of the component of variation akin to that expressed by the intraclass correlation in ratings of attitudes toward groups made by each person. Within-person variation, in contrast, refers to the component of variation in attitude ratings that is not attributable to systematic differences at the individual level, and instead reflects the degree to which the individuals' attitudes toward one given social group were idiosyncratic and unrelated to attitudes toward other specific groups (including measurement error).

We then used HLM to test the predictions that that SDO would relate specifically to between-person variation in negative attitudes to socially subordinate or low status-power outgroups, whereas RWA would relate to specifically to between-person variation in negative attitudes to groups that could be viewed as threatening societal or ingroup cohesion and security. Both RWA and SDO might relate to negativity to outgroups seen as directly competing over relative status, power and dominance. A key advantage of HLM over more traditional Ordinary Least Squares-based analyses is that HLM provides methods for simultaneously modelling the error involved with sampling observations at multiple levels, that is, both the between-person error (level 2) and within-person (level 1) error (cf. Hox, 2002; Raudenbush & Bryk, 2002). Separate regression analyses were also conducted in order to examine the associations between SDO and RWA with ratings of warmth toward each specific social group in turn.

(3) An additional third objective was to show that RWA and SDO would both independently and powerfully predict prejudice against the kind of ethnic minority groups likely to be seen as both socially threatening and socially subordinate that have been typically used in prior prejudice research. Prior research on prejudice in New Zealand has shown that both RWA and SDO powerfully and independently predict negative attitudes to the three main ethnic minority groups: Maori, Pacific Islanders and Asians (Duckitt, 2001; Duckitt et al., 2002). The current study therefore used existing Likert scales of attitudes to these there ethnic groups in order to replicate prior findings that RWA and SDO would by be powerful and independent predictors of negativity to each of these three groups and to an overall aggregated index of negativity to all the three groups.

METHOD

Participants and procedure

The sample consisted of 212 introductory psychology students at the University of Auckland, New Zealand, who completed questionnaires during laboratory sessions in

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March 2002. The mean age of the sample was 20.3 years ($SD = 4.81$) and 67.8% were female. One hundred thirty four identified themselves ethnically as being of European origin or Pakeha, 38 as Asian, 11 as Maori or Pacific Islanders and 28 nominated some other ethnic identity or a mixed ethnic identity.

Expectation maximization (Schafer, 1997) was used to replace isolated missing values (% missing data were 0.52%) in the data set so that the full sample could be used for all the analyses.

Measures

The following measures were included in the questionnaire:

(1) *RWA scale*. Eight items (with equal numbers of pro-trait and contrait) were used from Altemeyer's (1996) RWA scale, which were rated on a scale ranging from −4 (strongly disagree) to 4 (strongly agree). These items had all shown high item-total correlations with the full RWA scale in previous research in New Zealand (Duckitt, 2001). The alpha coefficient for this eight-item RWA scale was 0.74.

(2) *SDO scale*. Six items (with equal numbers of pro-trait and contrait) were used from Pratto et al.'s (1994) SDO scale, which were rated on a scale ranging from −4 (strongly disagree) to 4 (strongly agree). The six items were those items that had shown the highest item-total correlations in previous use of the SDO scale in New Zealand (Duckitt, 2001; Duckitt, Wagner, du Plessis, & Birum, 2002). The alpha coefficient for these six items was 0.73.

(3) *Attitudes to ethnic minorities*. In order to measure attitudes to the three New Zealand ethnic minorities, Asians, Pacific Islanders and Maori, two Likert items (one pro-trait and one contrait) were selected for each group from scales previously used to assess attitudes to these groups in a series of studies in NZ (Duckitt, 2001; Duckitt et al., 2002). Items were rated on a scale ranging from −4 (strongly disagree) to 4 (strongly agree). The two items for Attitudes to Asians had an alpha of 0.74, for attitudes to Maori an alpha of 0.63 and for attitudes to Pacific Islanders, an alpha of 0.51. These six items were also summed to give a six-item attitudes to minorities scales with an alpha of 0.73.

(4) *Affective thermometer ratings of social groups*. Affective thermometer ratings were used to assess attitudes to 24 groups or categories of persons by asking participants to indicate the 'warmth' of their feeling to each group on a scale ranging from 0 (least warm or favourable) to 100 (most warm or favourable). The 24 groups or categories were selected to cover the kind of groups or social categories that would typically be targets of prejudiced or stigmatising attitudes, excluding the three main NZ ethnic minorities to whom attitudes were assessed using the pre-existing Likert scale items noted above. Thus, the 24 groups included groups or social categories of persons typically stigmatised as 'inferior' or socially devalued (obese people, physically unattractive people, mentally handicapped people, psychiatric patients, housewives) for whom attitudes were expected to be most strongly related to SDO, and not RWA. Second, groups or categories of persons that might typically be seen as threatening well being, security, order, cohesion and traditional values in society were included for whom attitudes who were expected to be most strongly related to RWA such as 'violent criminals', 'drug dealers', 'terrorists', 'people who make our society dangerous for others', 'people who disrupt safety and security in our society', 'people who cause disagreement in our society', 'people who

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criticize those in authority', 'people who cause disunity in our society', 'homosexuals', 'prostitutes', 'habitual drug users', 'Satanists' and 'atheists'. Some groups were also included that seemed likely to be related to both RWA and SDO because they seemed likely to be seen as both socially threatening and representing or acting on behalf of low power and status groups in society such as 'feminists' and 'protestors'.

RESULTS

The correlation between RWA and SDO was positive but nonsignificant ($r = 0.09$, $p = 0.20$, two tailed test) indicating a substantial degree of independence between the two variables in this sample.

Factor analyses of affective thermometer ratings for the 24 target groups

An initial confirmatory factor analysis was used to investigate if a one-factor solution would provide adequate fit, as the generality of prejudice hypothesis as it has traditionally been interpreted, would predict. This was done using the 24 ratings as manifest indicators loading on a single latent variable. The fit indices obtained indicated very poor fit for this model ($\chi^2 = 1762.4$, df $= 252$, $\chi^2/\text{df} = 7.0$, RMSEA $= 0.22$, SRMR $= 0.13$, corrected GFI $= 0.49$, CFI $= 0.57$). This suggested that two or more domains or factors would be necessary to adequately model the variance in the ratings.

Exploratory factor analysis (EFA) was used to investigate the possibility that different social groups might factor into separate domains, and to examine how many domains might best summarize ratings of different specific groups. Since it seemed likely that such attitudes toward different group domains might be correlated, as a weaker version of the generality of prejudice hypothesis would expect, a principal axis analysis was conducted followed by oblique (direct quartimin) rotation, as recommended in recent reviews of EFA methodology (Fabriger, Wegener, MacCallum, & Strahn, 1999; Russell, 2002). The principal axis analysis produced four eigenvalues greater than 1 (10.12, 3.37, 1.55, 1.14). However, a scree test indicated a clear break after the third eigenvalue, with the plot relatively level thereafter. Parallel analysis indicted that only the first three eigenvalues were greater than those that would be generated by chance from random data using the same number of items and participants (Fabriger et al. 1999; Reise, Waller, & Comrey, 2000; Russell, 2002). Testing three- and four-factor solutions indicated a clearly interpretable structure for three factors, while a four-factor solution produced an extremely weak fourth factor with only one item loading above 0.5 and one further item above 0.4. Three factors were therefore extracted, and the factor pattern matrix (with the loadings giving the relationship between each item and its factor controlling for the other factors, and so being similar to standardized regression coefficients) is shown in Table 1, which shows all loadings greater than 0.30.

The first two factors were clearly interpretable. Factor 1, labelled derogated groups, loaded on groups that tend to be derogated or stigmatized as 'inferior' and low in status or prestige, with the highest loadings being for 'physically unattractive people', 'mentally handicapped people', 'Africans', 'obese people' and 'psychiatric patients'. These were the groups that had been expected to be most strongly associated with SDO. This factor also included culturally different groups such as 'immigrants from completely different cultures

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Table 1. Pattern matrix coefficients for three factors from principal axis factor analysis with oblique (direct quartimin) rotation of affective thermometer ratings of 24 social groups or categories of persons ($N = 212$)

Target group/persons	Factor 1 Derogated	Factor 2 Dangerous	Factor 3 Dissident
Unattractive	0.95		
Mentally handicapped	0.89		
Africans	0.83		
Obese	0.73		
Psychiatric patients	0.72		
Immigrants	0.68		
Housewives	0.65		
Arabs	0.59		
Unemployed	0.55		
Gay people	0.45		
Make society dangerous		0.88	
Disrupt safety and security		0.86	
Terrorists		0.80	
Violent criminals		0.69	
Drug dealers		0.55	
Satanists		0.47	
Drug users		0.31	0.31
Cause disagreement			0.91
Criticize authority			0.91
Protestors			0.72
Cause disunity			0.67
Prostitutes			0.58
Feminists			0.43
Atheists	0.30		0.39

Note. Factor coefficients are shown only if ≥ 0.30.

to our own', 'Africans', and 'Arabs' suggesting that these groups seemed to be associated with low status and 'inferiority' in New Zealand.

Factor 2, was labelled 'dangerous groups', and loaded on groups that seemed to pose direct threats to personal and societal safety and well being. All the loadings except one were reasonably strong (>0.45) with the groups loading most strongly being 'People who make our society dangerous for others', 'people who disrupt safety and security in our society', 'terrorists' and 'violent criminals'. These 'direct threat' groups had been those expected to be associated with RWA.

Factor 3, labelled 'dissident groups' loaded on groups seen as dissenting from, challenging, or opposing mainstream norms and values. The strongest loading groups were 'people who cause disagreement in our society', 'people who criticize those in authority', 'protestors' and 'people who cause disunity in our society', suggesting groups seen as challenging or disrupting social order and stability. The four weakest loading groups were 'prostitutes', 'feminists', 'atheists' and 'drug users', which also seemed to involve challenge to existing norms and values, but perhaps more in terms of moral deviance.

The factor correlations for these three oblique rotated factors showed significant positive correlations between all three factors with factors 1 (derogated) and 2 (dangerous) relatively weakly correlated ($r = 0.24$). Factor 3 (dissident groups), however, was relatively strongly correlated with both Factor 1 (derogated groups) ($r = .56$) and Factor 2 (dangerous groups) ($r = .48$).

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Before examining the degree to which the RWA and SDO scales predicted attitudes to these three group factors and the groups individually, the next section reports the degree to which the RWA and SDO scales predicted attitudes to NZ ethnic minorities.

Multiple regression of RWA and SDO on attitudes to NZ ethnic minorities

Since previous research had shown that both the RWA and the SDO scales predicted generalized anti-minority attitudes and attitudes to specific ethnic minorities both elsewhere and in NZ, this section first reports on the simultaneous multiple regression of RWA and SDO with anti-minority attitudes for those participants belonging to the European/Pakeha ethnic majority group. This would indicate if the present findings for these two scales would replicate those obtained previously. This was indeed so. The betas from these regressions on anti-minority attitudes and the multiple correlations for both the RWA and SDO scales are shown in Table 2. As expected and consistent with prior findings both the RWA and SDO scales predicted negative attitudes to all three minorities, and generalized anti-minority attitudes, highly significantly and independently of each other. Moreover, the multiple correlations indicated strong (or close to strong) effect sizes for RWA and SDO together that were similar to the effects previously obtained for SDO and RWA on anti-minority prejudice in NZ and elsewhere (cf. Altemeyer, 1998; McFarland, 1998).

HLM analyses of between participant-variation in affective thermometer ratings

The EFA had shown three distinct outgroup attitude dimensions or domains. The mean intergroup attitude correlations within each of these group domains were powerful, being 0.53 for attitudes toward derogated groups, 0.49 for attitudes toward dangerous groups and 0.54 for attitudes toward dissident groups. These results suggested that people tended to hold similar attitudes toward the different groups comprising each of these domains.

We next sought to test whether SDO and RWA predicted generalized tendencies to hold negative attitudes toward the groups comprising each of these three domains (i.e. derogated, dangerous and dissident). Initial analyses of the baseline intercept model, $y_{ij} = \beta_{0j} + r_{ij}$, showed that 17.2% of the variance in affective thermometer ratings of 24 social groups was at the between-person level (i.e. variation between participants indicative of individual differences), and the remaining 82.8%, including error, was at

Table 2. Beta coefficients and multiple correlations from the simultaneous multiple regression of RWA and SDO scales on attitudes to three NZ ethnic minority groups (Asians, Pacific Islanders, Maori) separately and aggregated as generalized anti-minority attitude for majority group members (Pakeha/Europeans) ($N = 134$)

Minority group	RWA	SDO	Multiple R
Anti-Asian	0.27***	0.26**	0.39***
Anti-Pacific Islander	0.25**	0.35***	0.45***
Anti-Maori	0.18*	0.44***	0.49***
Gen. anti-minority	0.29***	0.44***	0.55***

***$p < 0.05$.
**$p < 0.01$.
*$p < 0.001$.

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level 1 (i.e. within-participant variation). Thus, a substantial portion of the variance in negative attitudes toward specific groups was systematic across a variety of different groups, and suggests that there are regularities in negative attitudes attributable to global individual differences (rather than, for example, that attitudes toward different groups are entirely unrelated to one another, as would be indicated by a between-person variance component that approached 0%).

We then used HLM to examine the degree to which the between-participant component of variation in attitudes toward groups classified as derogated, dangerous, or dissident, was explained by individual differences in SDO and RWA. If SDO and RWA assess global individual differences in the tendency to hold negative attitudes across a range of groups, or at least a range of groups comprising a given domain, then we should find that they predict that component of variation in negative attitudes that is shared across the groups within that domain. To examine this issue, we modelled ratings of specific social groups (level 1) as nested within persons (level 2).

We tested a model examining the extent to which SDO and RWA predicted variation in ratings of warmth across groups classified as derogated, dangerous and dissident. Group domains were represented by three dummy coded (0, 1) variables indicating whether ratings referred to the mutually exclusive categories of dissident, dangerous or derogated groups. The level 1 no-intercept model may thus be expressed as follows:

$$y_{ij} = \beta_{1j}(\text{Derogated groups}) + \beta_{2j}(\text{Dangerous groups}) + \beta_{3j}(\text{Dissident groups}) + r_{ij} \quad (1)$$

where y_{ij} represented ratings of the warmth of specific social groups (subscripted i) made by each participant (subscripted j), β_{1j} represented the average rating of warmth toward groups classified as derogated for individual j, β_{2j} represented the average rating of warmth toward groups classified as dangerous for individual j, β_{3j} represented the average rating of warmth toward groups classified as dissident for individual j, and r_{ij} represented level 1 error.

At level 2, SDO and RWA were entered as predictors of (level 1) ratings for all three of these group domains. The level 2 equation may be expressed as follows:

$$\begin{array}{ll} \text{Derogated group} & \beta_{1j} = \gamma_{10} + \gamma_{11}(\text{SDO}) + \gamma_{12}(\text{RWA}) + u_{1j} \\ \text{Dangerous group} & \beta_{2j} = \gamma_{20} + \gamma_{21}(\text{SDO}) + \gamma_{22}(\text{RWA}) + u_{2j} \\ \text{Dissident group} & \beta_{3j} = \gamma_{30} + \gamma_{31}(\text{SDO}) + \gamma_{32}(\text{RWA}) + u_{3j} \end{array} \quad (2)$$

where, for example, γ_{10} represented the intercept, γ_{11} and γ_{12} were coefficients that tested whether individuals who scored higher on SDO and RWA, respectively, expressed lower ratings of warmth toward groups within this domain, and u_{1j} represented level 2 error within the derogated group domain. Thus, this model tested the degree to which SDO and RWA predicted variation in attitude ratings that was consistent across the groups or social categories comprising each of the three domains (derogated, dangerous and dissident). This analysis therefore allowed a direct assessment of the degree to which these global ideological attitude dimensions explain the component of variation (or degree of intraclass correlation) in ratings of warmth that was shared across the groups comprising each of the three domains. See Hox (2002) for a more detailed discussion of the conventions associated with the use of HLM.

The *γ coefficients* from Equation (2) are presented in Table 3. These coefficients are functionally equivalent to unstandardized regression coefficients and may be interpreted along similar lines. As shown in Table 3, SDO predicted decreased levels of warmth toward

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Table 3. γ coefficients for the associations between SDO and RWA with between-person variation in affective thermometer ratings of social groups/categories classified as derogated, dangerous and dissident

	γ coefficient[a]	p-value
Derogated groups		
Intercept	65.35	57.45***
SDO	−3.87	−5.51***
RWA	−1.65	−1.84
Dangerous groups		
Intercept	18.02	19.20***
SDO	−0.87	−1.16
RWA	−4.77	−6.60***
Dissident groups		
Intercept	51.60	47.14***
SDO	−2.30	−2.98**
RWA	−7.77	−9.76***

Note. Analyses were based on 5088 ratings of specific groups made by 212 participants.
[a]γ coefficients are unstandardized. SDO and RWA scores ranged from a low of −4 to a high of +4. Affective thermometer ratings of each social group ranged from 0 to 100.
***$p < 0.01$.
**$p < 0.001$.

derogated groups, whereas RWA was not significantly related to attitudes toward groups in this domain. A γ coefficient of −3.87 for the association between SDO and attitudes toward derogated groups indicates, for instance, that a 1 unit increase in SDO predicted a 3.87 unit decrease in average feelings of warmth toward groups within this domain (remember that warmth ratings were assessed using an affective thermometer that ranged from 0 to 100). In order to test whether the effects of SDO and RWA differed significantly within this domain, we compared the model specified in Equation (2) to a model in which the effects of SDO and RWA on attitudes toward derogated groups were constrained to be equal. A chi-square difference test comparing the deviance in these models indicated that these effects were significantly different, $\chi^2_{\text{d.ff}}(1) = 16.39$, $p < 0.05$ (see Hox, 2002). Thus, as predicted, SDO was more strongly associated with decreased ratings of warmth toward derogated groups than RWA.

As also shown in Table 3, RWA predicted significantly decreased feelings of warmth toward dangerous groups, whereas SDO was not significantly related to attitudes toward groups in this domain. A γ coefficient of −4.77 for the association between RWA and attitudes toward dangerous groups indicates, for instance, that a 1 unit increase in RWA predicted a 4.77 unit decrease in average ratings of warmth toward groups within this domain. In order to test whether the effects of SDO and RWA differed significantly within this domain, we again compared the model specified in Equation (2) to a model in which the effects of SDO and RWA on attitudes toward dangerous groups were constrained to be equal. A chi-square difference test comparing the deviance in these models indicated that these effects were significantly different, $\chi^2_{\text{d.ff}}(1) = 34.99$, $p < 0.05$. Thus, RWA was more strongly associated with decreased ratings of warmth toward dangerous groups than SDO.

Finally, SDO and RWA were both significantly negatively associated with feelings of warmth toward groups classified as dissident. Although both of these effects were significant, a chi-square difference test comparing the deviance in these models indicated

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that, as predicted, RWA was more strongly associated with decreased ratings of warmth toward dissident groups than SDO, $\chi^2_{\text{d.ff}}\ (1) = 67.77$, $p < 0.05$.

The associations between RWA and SDO with each of the three social group domains revealed a clear pattern, which was generally consistent with the hypotheses derived from the dual process model. Negativity toward derogated groups was significantly predicted by SDO only, negativity toward dangerous groups was significantly predicted by RWA only, and negativity toward dissident groups was significantly predicted by both RWA and SDO, but more strongly by RWA.

Multiple regression of RWA and SDO on affective thermometer outgroup factors and ratings

We also conducted separate regression analyses in order to examine the associations of SDO and RWA with ratings of warmth toward each of the 24 social groups in turn, as well as with the three oblique rotated prejudice factors. The betas for these analyses are shown in Table 4. These results mirrored the HLM analyses reported above. However, these

Table 4. Beta coefficients for the simultaneous multiple regression of RWA and SDO scale on affective thermometer ratings of social groups/categories and on social group/category oblique rotated factors ($N = 212$)

Target group/persons	RWA	SDO
Factor 1: Derogated Groups	**−0.12**	**−0.32*****
Unattractive	−0.05	−0.27***
Mentally handicapped	−0.06	−0.32***
Africans	−0.00	−0.21**
Obese	−0.04	−0.27***
Psychiatric patients	−0.16*	−0.27***
Immigrants	−0.07	−0.27***
Housewives	0.05	−0.22**
Unemployed	−0.05	−0.36***
Arabs	−0.15*	−0.26***
Gay people	−0.36**	−0.09
Factor 2: Dangerous Groups	**−0.36*****	**−0.08**
Dangerous	−0.26***	−0.02
Disrupt safety	−0.30***	−0.08
Terrorists	−0.23***	−0.08
Violent criminals	−0.18*	−0.13
Drug dealers	−0.30***	−0.07
Satanists	−0.33***	0.01
Drug users	−0.36***	−.13
Factor 3: Dissident Groups	**−0.50*****	**−0.18***
Cause disagreement	−0.40***	−0.10
Criticize authority	−0.42***	−0.18**
Protestors	−0.34***	−0.30***
Cause disunity	−0.43***	−0.05
Prostitutes	−0.50***	−0.10
Feminists	−0.25***	−0.20**
Atheists	−0.44**	−0.07

$^{***}p < 0.05$.
$^{**}p < 0.01$.
$^{*}p < 0.001$.

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analyses also revealed some exceptions in the predictions of specific social groups. The most notable exception was for negativity to gay people, which loaded on the derogated group domain, but which was significantly predicted by RWA and not by SDO. However, negativity to gay people had a very weak loading on the derogated group domain (0.45) so this could well have been a chance effect. There were also two other minor deviations from the overall pattern for social groups loading on this derogated groups factor. Negativity to psychiatric patients and negativity to Arabs were significantly predicted by RWA, although SDO was the stronger significant predictor. In both these cases, however, the significant betas for RWA were very weak and only just exceeded the 5% significance level.

The social groups contained within the Dangerous Groups domain were all significantly predicted by RWA but not SDO. The betas for the social groups comprising the Dissident Groups factor also largely replicated analyses using HLM. RWA predicted lower ratings of warmth toward all the specific groups within this domain. SDO, which was a weak significant predictor of this domain in the HLM analyses, was a significant predictor of negativity to certain specific groups loading on this factor ('people who criticize authority', 'protestors' and 'feminists'), but not of others ('people who cause disagreement in our society', 'People who cause disunity in our society', 'prostitutes' and 'atheists').

DISCUSSION

One finding from this research was that negative attitudes to the three ethnic minorities in New Zealand (Asian, Maori and Pacific Islanders) by members of the European-Pakeha majority group were positively and strongly correlated with each other, and similarly predicted by RWA and SDO. Together RWA and SDO accounted for substantial proportions of the variance in negativity to each of these groups and for generalized anti-minority prejudice. These findings clearly replicated previous findings that seemed to support the idea that generalized prejudice forms a single dimension that is similarly predicted by both RWA and SDO (Altemeyer, 1981, 1998; Duckitt, 2001; McFarland, 1998; McFarland & Adelson, 1996; Van Hiel & Mervielde, 2005).

We have argued, however, that recent findings (i.e. Duckitt, 2006) supporting a dual process model of individual differences in prejudice proneness suggest that these findings might be misleading and this conclusion is wrong. These findings showed that RWA and SDO predicted prejudice against different outgroups, which had been specially selected as likely to be seen as socially threatening but not subordinate, or socially subordinate but not threatening, respectively (Duckitt, 2006). Moreover, these effects were differentially mediated by perceived threat and competitiveness over relative dominance respectively, suggesting that RWA and SDO were predicting prejudice for different reasons. This raised the possibility that the widely held conclusion that outgroup attitudes comprise a single generalized dimension of prejudice predicted by both RWA and SDO might have been due to researchers studying outgroups such as ethnic minority groups, which would typically be seen as both socially threatening and socially subordinate. We therefore suggested that there should not just be one dimension of generalized prejudice but several, which would be differentially related to RWA and SDO. This hypothesis could not be tested in the previous study (i.e. Duckitt, 2006), which used only two arbitrarily selected outgroups per sample. The present study therefore assessed attitudes to a large number of outgroups to see

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if different dimensions of generalized prejudice would emerge that would be differentially related to RWA and SDO and would be differentially characterized by social threat or social subordination.

This research therefore used a much more differentiated set of outgroups likely to be targets of prejudice and stigmatization. The findings clearly showed that generalized prejudice did not comprise a single dimension in which persons negative to one disliked outgroup were generally less favourable to other outgroups. Instead, the findings revealed three clearly different group domains toward which people hold negative attitudes that were differentially predicted by RWA and SDO. Although attitudes towards these three domains were positively correlated, the correlation between the first two factors, the Derogated Group and Dangerous Group factors, was weak. Thus, persons who were negative to one outgroup were not generally negative to all outgroups. Instead, persons who were negative to a 'derogated' or low status-power outgroup were generally negative to other 'derogated' or low status-power outgroups, but not necessarily particularly negative to 'dangerous' or threatening outgroups. In the same way, persons who were generally negative to 'dangerous' outgroups were not particularly negative to 'derogated' outgroups.

Moreover, the domains that did emerge were broadly consistent with predictions from the dual process theory of prejudice that persons high in RWA would dislike groups seen as threatening ingroup or societal security, order, stability and cohesion,[1] while persons high in SDO would dislike outgroups that aroused their competitiveness over relative dominance, power and superiority. These latter groups could be socially subordinate, and therefore derogated in order to justify their subordination, or could be groups that were disliked because they were perceived as challenging existing group inequalities, or directly competing with the ingroup over relative dominance.

Analyses using HLM and multiple regressions indicated that the Dangerous Group domain and all the specific groups within this domain were significantly associated with RWA but not SDO. The Derogated Group domain was significantly associated with SDO

[1]A reviewer of this article noted findings by Whitley (1999) that RWA had little if any association with attitudes to African Americans and suggested this seemed inconsistent with the idea that perceived outgroup threat elicits RWA based prejudice since African Americans seem to be viewed as threatening by American Whites. However, Whitley's (1999) findings were not entirely consistent because he used a number of evaluative measures pertaining to African Americans (positive and negative stereotypes, affect, equality attitudes) and his correlations varied widely, most being nonsignificant but several being significant. To assess the robustness of his findings, we searched the literature for reasonably contemporaneous (1996–2006) American studies reporting correlations between attitudes to African Americans and RWA. The correlations were significant in nine of the ten samples for which findings were located with the weighted mean $r = 0.30$ for a total N of 2509 (Altemeyer, 1998; Duckitt et al., 2002; Dunbar & Semonova, 2003; Laythe, Finkel, & Kirkpatrick, 2001; McFarland, 2006). Whitley's (1999) nonsignificant findings therefore seem somewhat anomalous and may have been due to the specific measures or sample he used. We also note, however, that the dual process approach does not assume that prejudice against particular groups is always motivated in the same way. It is quite feasible that a particular outgroup might have been seen as socially threatening in one social context, or historical period, and not in others, or by one particular set of persons and not by others. The approach does predict, however, that changes in the degree to which an outgroup is seen as threatening will then alter the degree to which RWA will predict prejudice against that group. Thus, if the perception of African Americans as socially threatening among many White Americans did decline markedly over historical time, we would predict that the association of prejudice against African Americans with RWA should decrease commensurately. The studies reviewed above, and Whitley's (1999), typically did find that SDO was a stronger predictor of negativity to African Americans than RWA. This, according to the dual process approach, would suggest that negativity to African Americans by White Americans is primarily driven by Whites' perception of African Americans as being of low status and only secondarily by them being seen as socially threatening.

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but not RWA. This was also the case for most of the specific groups comprising this factor with only a few exceptions. The main exception was for Gay people, which loaded on the derogated groups factor but was significantly associated with RWA and not SDO. Prior research has also found that negativity to gays was predicted primarily by RWA (Whitley & Lee, 2000), and in addition that the effect of RWA on negativity to gays was mediated by perceived threat (Esses, Haddock, & Zanna, 1993). This suggests that the loading for Gay people on the 'Derogated Groups' factor, which was extremely weak might simply have been a statistical anomaly.

Two other groups ('Psychiatric patients' and 'Arabs') within the Derogated Groups domain had weak significant associations with RWA in addition to their expected significant and more powerful associations with SDO. However, both these apparently anomalous associations with RWA seem theoretically explicable in terms of the dual process model because both these groups seem likely to be seen as embodying some degree of social threat as well as being low in power and status. There is a widespread stereotype of psychiatric patients as potentially violent (Walker & Read, 2002), and in the aftermath of the 9–11 terrorist attacks, an equally widespread association of Arabs with violent terrorism in western countries (Oswald, 2005).

The Dissident Groups domain was significantly associated with both RWA and SDO, with the relationship strong for RWA and weak for SDO. The associations of RWA and SDO with the separate groups loading on this factor, however, indicated a more complex picture. RWA was associated with negativity to all groups loading on this factor with the effect size generally moderate or strong. This seems consistent with the dual process hypothesis for RWA since all these 'dissident groups' were socially deviant in the sense of rejecting or violating conventional social norms or values and would be likely therefore to be seen as threatening social cohesion, order and stability. SDO, however, was only related to negativity to certain of these groups and not with negativity to others, with the pattern again seeming consistent with expectation from dual process theory.

Thus, SDO was significantly associated with negativity to 'feminists', 'protestors', 'persons who criticize those in authority' and these seem likely to be seen as groups challenging existing social inequalities, which would thus elicit dislike from persons high in SDO. This is clearly the case for feminists, who directly challenge inequality between men and women, and also for 'protestors' who in western societies like New Zealand would typically be protesting against social inequality. Although somewhat less clear-cut, it is also plausible that 'persons criticizing those in authority' could have been seen as likely to be criticizing the authorities because of social inequality. The dissident groups that were not significantly related to SDO such as 'atheists', 'prostitutes', 'persons who cause disunity in our society' and 'persons who cause disagreement in our society' seem much less likely to be seen as challenging social inequality.

This third factor was therefore somewhat more complex than expected since not all the group attitudes included were related to both RWA and SDO. Although all the group attitudes loading on this factor were predicted by RWA, there was a clear common theme to the groups that differentiated it from the 'Dangerous Groups factor'. The 'Dangerous Groups' all tended to pose direct physical threats to societal security and order, and thus involved what has been described as 'real intergroup threat' (Stephan, Ybarra, Martinez, Schwarzwald, & Tur-kaspa, 1998), while the Dissident Groups deviated from conventional norms and values, thus posing 'symbolic intergroup threats' (Stephan et al.) to societal security, order and cohesion. For some of these groups this deviance involved opposition to or challenges to social inequalities (e.g. feminists, protestors), and these were therefore the

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group attitudes that were associated with SDO as well as RWA. It seems notable also that this third group attitude factor did correlate very powerfully with both the first two factors, indicating that it overlapped substantially with both.[2] The groups comprising the third factor also suggested that if affective warmth had also been rated to ethnic minority groups in this study, they would most likely have loaded on this third factor, as symbolic threat groups that were also low in social status.

Overall, the current study supported the dual process approach to explaining individual differences in proneness to prejudice. Clearly distinct group domains were identified and negative attitudes toward these group domains were differentially associated with RWA and SDO as hypothesized. The findings therefore support the idea that outgroup prejudice is driven by two different motives, one involving threat and the other relative dominance over status and dominance, expressed in RWA and SDO, respectively. The findings are also consistent with and reinforce recent findings testing this dual process approach to prejudice (Duckitt, 2006), which found that RWA and SDO did differentially predict prejudice against specific arbitrarily selected outgroups. Several of the groups used in that study were also included in the present study with identical results. Thus, in both studies negativity to drug dealers was predicted only by RWA and not SDO, negativity to unemployed persons and housewives was predicted only by SDO and not RWA, while negativity to feminists was predicted by both RWA and SDO. In the earlier study the effects of RWA were shown to be mediated by perceived threat and those of SDO by perceived competitiveness over relative dominance. The current study did not assess these mediators but it did show that these effects were not limited to specific *a priori* selected groups. Instead it extended and reinforced these prior findings by showing that these groups loaded on broader distinct dimensions of generalized prejudice that were clearly characterized by threat or social subordination or involved both social threat and challenges to relative dominance and inequality. The present findings thus supported a dual process approach to explaining prejudice in a different but complementary manner.

Finally, an important caveat should be noted. These findings are concurrent and correlational and therefore do not directly demonstrate that perceiving outgroups as socially threatening causes persons high in RWA to be more negative to them, while feeling competitiveness over relative dominance and superiority toward outgroups causes persons high in SDO to be more negative to them. In order to demonstrate these causalities, new research would need to manipulate perceived outgroup threat or competitiveness over relative dominance or superiority and show differential effects for RWA and SDO.

[2]A reviewer raised the interesting question of what a two-factor solution would have shown if it were forced, and whether the two factors so obtained might relate differentially with RWA and SDO. A dual process approach would seemingly expect a primarily threat-dangerousness-dissidence or RWA related factor, and a primarily social subordination or challenge to inequality factor related to SDO. This was exactly what we found. The two-factor solution virtually replicated the first two factors in Table 1 with all the groups loading on these two factors having the strongest loadings on their equivalent two forced factors. The groups loading on the original 'Dissident group' factor in Table 1 tended to have weak double loadings on both these two factors. The first factor (subordinate groups and dissident groups challenging inequality) correlated primarily with SDO though also weakly with RWA, while the second factor (dangerous and dissident groups) correlated significantly with only RWA.

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