

Direct contact and authoritarianism as moderators between extended contact and reduced prejudice: Lower threat and greater trust as mediators

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## Abstract

Using a representative sample of Dutch adults ( $N = 1238$ ), we investigated the moderating influence of direct contact and authoritarianism on the potential of extended contact to reduce prejudice. As expected, direct contact and authoritarianism moderated the effect of extended contact on prejudice. Moreover, the third-order moderation effect was also significant, revealing that extended contact has the strongest effect among high authoritarians with low levels of direct contact. We identified trust and perceived threat as the mediating processes underlying these moderation effects. The present study thus attests to the theoretical and practical relevance of reducing prejudice via extended contact. The discussion focuses on the role of extended contact in relation to direct contact and authoritarianism as well as on the importance of trust in intergroup contexts.

Direct contact and authoritarianism as moderators between extended contact and reduced prejudice: Lower threat and greater trust as mediators

Originally proposed by Wright, Aron, McLaughlin-Volpe, and Ropp (1997), the extended contact hypothesis asserts that the mere fact of knowing an ingroup member who maintains close relations with an outgroup member ameliorates outgroup attitudes. During the past decade, correlational and (quasi-)experimental support for this hypothesis has increased, demonstrating that people who witness friendships between in- and outgroup members report lower levels of outgroup prejudice than those without extended contact experiences (Paolini, Hewstone, Cairns, & Voci, 2004; Turner, Hewstone, Voci, & Vonofakou, 2008; Wright et al., 1997; for reviews, see Turner, Hewstone, Voci, Paolini, & Christ, 2007b; Vonofakou et al., 2008).

However, despite the growing evidence in support of the extended contact hypothesis, researchers have only recently started to investigate the conditions that may increase or decrease the effectiveness of extended contact in reducing prejudice or, in other words, the possible moderators of the extended contact effect (Christ et al., in press; Hodson, Harry, & Mitchell, 2009). Building on this recent work, the present study investigated both direct contact (i.e., a contextual variable) and authoritarianism (i.e., an ideological variable) as moderators of the extended contact effect on prejudice. At the same time, we examined the mediating role of trust and perceived threat on these moderation effects.

*Moderators of Extended Contact Effects*

One of the biggest advantages of extended contact over direct contact is that it can reduce prejudice without being contingent on a person's opportunities to interact personally with outgroup members (Christ et al., in press; Turner, Hewstone, & Voci, 2007a; Turner et al. 2008). Indeed, several circumstances may prevent direct contact, e.g., when people do not

work together, do not attend the same school, or do not live in the same neighborhood. Hence, especially for those individuals with limited or no opportunities for direct interaction with outgroup members, extended contact may be a valuable alternative (Turner et al., 2007a; Vonofakou et al., 2008; Wright et al., 1997). Moreover, Christ et al. (in press) obtained both cross-sectional and longitudinal evidence supporting the hypothesis that extended contact is most effective among those people who live in segregated areas having only few or no direct cross-group friendships. Hence, when people do not benefit from direct contact because of a segregated context, extended contact seems to have the strongest impact on prejudice.

Whereas Christ et al. (in press) investigated direct contact as a moderator of the extended contact effect, other researchers recently focused on Right-Wing Authoritarianism (RWA, Altemeyer, 1981; 1998) as a moderator of both direct and extended contact effects. RWA is defined as the covariation of conventionalism, authoritarian submission, and authoritarian aggression and is considered a broad social ideological attitude. Although authoritarianism is highly predictive of prejudice (Duckitt, 2001; Duckitt & Sibley, 2007; Van Hiel & Mervielde, 2002; 2005), recent studies have also demonstrated that intergroup contact works better at reducing prejudice among high rather than low authoritarians (Dhont & Van Hiel, 2009, for anti-immigrant prejudice; Hodson et al. 2009, for anti-homosexual prejudice; for a review, see Hodson, in press). Moreover, Hodson et al. (2009) reported that the strongest beneficial effect of extended contact on anti-homosexual prejudice emerged among high authoritarians.

The present study combined both moderation perspectives and investigated the three-way interaction effect between extended contact, direct contact, and RWA. As we argued above, people who do not personally benefit from positive contact experiences profit the most from their friends' or relatives' contact experiences. However, it could be argued that these beneficial effects may even be stronger among high authoritarians because this group is likely

to be most influenced by the other members of their group. People learn about other ingroup members' attitudes and behavior toward outgroup members by witnessing positive intergroup interactions. These interactions reflect a group consensus that intergroup contact is positively valued (Turner et al., 2008; Wright et al., 1997). Driven by their underlying motivation to conform to others, which satisfies their needs for social order and stability (Duckitt, 2001; Jugert, Cohrs, & Duckitt, 2009), high authoritarians can be expected to be the least critical of their ingroup members' opinions and attitudes. They are therefore more likely to adapt and adhere to perceived social norms. In sum, extended contact may have the strongest impact on prejudice among high authoritarians who are isolated from direct positive contact.

#### *The Mediating Role of Threat and Trust*

Why should people with little or no direct positive contact benefit more from extended contact than people who experience positive contact themselves? Extending the study of Christ et al. (in press), we investigated whether the psychological process behind this moderator effect resides in the potential of extended contact to reduce perceived outgroup threat and to build and restore trust in the outgroup. Whereas perceived threat relates to feelings of fear, anger, insecurity, and uncertainty (Stephan & Renfro, 2002; Riek, Mania, & Gaertner, 2006), trust is associated with feelings of security and transparency and is based on confidence in another person's good intentions or behavior (Lewicky, McAllister, & Bies, 1998; Rousseau, Sitkin, Burt, & Camerer, 1998; Tropp, 2008).

Researchers have considered perceived threat and lack of trust as central determinants of intergroup conflict and prejudice (Dovidio, Gaertner, Kawakami, & Hodson, 2002; Stephan & Renfro, 2002; Riek et al., 2006; Tam et al., 2008). However, a growing body of research has shown that positive contact with outgroup members can reduce threat perceptions (Pettigrew, Christ, Wagner, & Stellmacher, 2007; Tausch, Tam, Hewstone, Kenworthy, & Cairns, 2007) and increase outgroup trust (Hewstone, Cairns, Voci, Hamberger, & Niens,

2006; Tam, Hewstone, Kenworthy, & Cairns, 2009; Tausch et al., 2007). Of central importance here, is that some recent studies demonstrated that extended contact is also able to reduce threat perceptions (Pettigrew et al. 2007) and establish trust (Tam et al., 2009).

Hence, when people cannot personally benefit from positive contact experiences, they can still rely on their friends' or relatives' positive contact experiences with outgroup members. As such, they may become aware that ingroup members do not perceive the outgroup as threatening and that they share a social network that directly or indirectly connects ingroup and outgroup members through positive relations, which increases outgroup trust (Tam et al., 2009). Moreover, this beneficial effect of extended contact on perceived threat and trust can be expected to be especially pronounced among people who cannot benefit from direct positive contact, exactly because extended contact represents the only source of positive influence on their feelings of threat and trust. Therefore, we predicted that, insofar as extended contact decreases threat perceptions and establishes trust, it is particularly important in decreasing prejudice when people do not benefit from direct contact.

We also argue that the processes of reducing threat perceptions and establishing trust are also likely to explain why high scorers on RWA are most sensitive to the influence of extended contact. Indeed, according to Duckitt (2001), RWA is "driven by fear and threat generating self-protective, defensive motivational needs for social control and security" (p. 85). RWA has been strongly linked to the belief that the world is a dangerous and chaotic place (e.g., Altemeyer, 1998; Duckitt, 2001; Van Hiel, Cornelis, & Roets, 2007). This basic motivational scheme underlying RWA is also reflected in the readiness to divide the social world into an 'us' versus 'them' scenario in which the good and moral ingroup members should not trust the bad and immoral outgroup members, who are perceived as threatening (Duckitt, 2001). In other words, threat perceptions and a lack of trust fuel the prejudices of high scorers on RWA. Extended contact has the capacity to reduce threat perceptions

(Pettigrew et al., 2007) and establish outgroup trust (Tam et al., 2009); therefore, it should lead to a sharp decrease in RWA-based prejudice. Hodson et al. (2009) provided initial support for the mediation effect via threat. They showed that, among high scorers on RWA, perceived threat mediated the effect of extended cross-group friendships with homosexuals on anti-homosexual prejudice.

It should be noted that scholars have theoretically differentiated several types of threat. Stephan and Renfro (2002) distinguished threats to the ingroup's welfare, referred to as realistic threat, from threats to the ingroup's value system, referred to as symbolic threat. However, it was, beyond the scope of the present research to compare the relative strength of different types of threat as mediators of the extended contact effect on prejudice, and therefore we focused here on realistic threat.

### *The Present Study*

In a large, representative sample of Dutch adults, the present study investigated contact with and prejudice toward immigrants from the Turkish and Moroccan populations, which constitute the two largest Muslim communities in the Netherlands. Our goal was to investigate direct contact, indicated by contact quantity and quality, and RWA as moderators of the extended contact effect and to test the mediating processes of perceived threat and trust.

Moving beyond previous studies demonstrating that the impact of extended contact is most pronounced among people with low levels of direct contact (Christ et al., in press) as well as among high scorers on RWA (Hodson et al., 2009), we expected a three-way interaction effect between extended contact, direct contact, and RWA on prejudice, where high authoritarians with low levels of direct positive contact would benefit most from extended contact. Moreover, we conducted mediated moderation analyses (Muller, Judd, & Yzerbyt, 2005) to test whether trust and perceived threat mediate the moderator effects of

direct contact and authoritarianism on the relationship between extended contact and reduced prejudice.

## Method

### *Sample*

We collected the data for this study in a nationally representative sample of Dutch adults (non-Muslim and non-Jewish) without a migration background as part of a larger research project on intergroup contact and attitudes. A total of 1850 people were invited by a survey company to participate in the study and to complete a questionnaire that was administered online in October 2009. Of this sample, 1440 respondents initially agreed to participate, but 202 persons did not complete the full survey. The final sample of 1238 respondents (response rate = 67%) was stratified by age, gender, educational level, family income, and province. Respondents also indicated their religious views. Table 1 summarizes the sample characteristics for age, gender, educational level, family income, and religiosity.

### *Measures*

The questionnaire used a Dutch synonym for immigrant, i.e. 'allochtoon', which commonly refers to immigrants with non-European roots and particularly to people belonging to the large Muslim communities of Turks and Moroccans. This meaning of the term was also explained at the start of the questionnaire. The term 'autochtoon' was used to refer to native Dutch people.

*Intergroup Contact.* To assess the levels of *extended contact*, respondents completed four items (Cronbach's  $\alpha = .84$ ), adapted from previous research (Tam et al., 2009; Turner et al., 2008), on seven-point scales (1 = none; 7 = many). The items were: 'How many native Dutch people do you know in your circle of acquaintances who get along well with immigrants?'; 'How many people in your circle of native Dutch friends have immigrants as friends?'; 'How many native Dutch people living in your neighborhood do you know who get



along well with immigrants?'; and 'How many members of your family have immigrants as friends?'

We adapted the measures of quantity and quality of intergroup contact from previous studies (e.g., Islam & Hewstone, 1993; Voci & Hewstone, 2003). We assessed *quantity of intergroup contact* with four items on seven-point scales ranging from never (1) to very much (7). Sample items are: 'How much contact do you have with immigrants?' and 'How often do you have a conversation with immigrants?' (Cronbach's  $\alpha = .87$ ).

To assess the *quality of intergroup contact*, participants answered the stem question, 'How often do the following characteristics typify your contact with immigrants?' which was followed by eight adjectives: pleasant, annoying (reverse coded (R)), on an equal footing, nice, distant (R), forced (R), friendly, and hostile (R). Participants rated the items (Cronbach's  $\alpha = .89$ ) on seven-point scales (1 = never; 7 = very much).

Following the procedure of Voci and Hewstone (2003; see also, Tam, Hewstone, Cairns, Tausch, Maio, & Kenworthy, 2007; Tam et al., 2009), we calculated a single multiplicative index of frequent positive contact to simultaneously take into account the quantity and quality of contact. Prior to multiplication, the scores of quantity of intergroup contact were recoded so that 0 corresponded to no contact and 6 to very frequent contact, and the quality scores were recoded so that the scores ranged from -3 to +3. A higher score on the multiplicative index thus reflects more frequent, high-quality contact. Respondents who indicated that they never have contact with immigrants for all contact quantity items did not complete the quality items ( $N = 85$ ) and scored 0 on the multiplicative direct contact measure.

Next, participants completed the other measures on seven-point scales anchored by strongly disagree (1) and strongly agree (7).

*Authoritarianism* We administered the 12-item RWA<sup>3</sup>D scale (Funke, 2005; see Van Hiel, Cornelis, Roets, & De Clercq, 2007) to assess the participants' levels of

*authoritarianism* (Cronbach's  $\alpha = .67$ ). Sample items are: 'What our country really needs is a strong, determined leader who will crush evil and take us back to our true path' and 'Obedience and respect for authority are the most important virtues children should learn'.

*Mediators.* The following four items measured respondents' levels of *outgroup trust* (Cronbach's  $\alpha = .82$ ): 'When immigrants come near me, I do not trust them most of the time' (R); 'I can trust immigrants with personal information'; 'The immigrants in our country can easily be trusted'; and 'Generally, there are enough reasons to distrust the immigrants in our country' (R).

*Perceived threat* (Cronbach's  $\alpha = .84$ ) was assessed with three items based on Stephan et al. (2002), which focused on perceived threat against the Dutch economy and the employment of native Dutch people by immigrants: 'Immigrants have more economic power than they deserve in this country'; 'Immigrants make it harder for native Dutch people to find a decent job'; and 'The presence of immigrants in our country has a negative influence on the Dutch economy'.

*Anti-immigrant prejudice.* Respondents completed three items measuring prejudice toward immigrants (Billiet & De Witte, 1991; Van Hiel & Mervielde, 2005). The items (Cronbach's  $\alpha = .77$ ) were: 'Marrying an immigrant is like asking for trouble'; 'Generally speaking, immigrants are not as smart as Dutch people'; and 'the Dutch should never have allowed immigrants into their country'.

## Results

### *Preliminary analyses*

Confirmatory factor analysis using LISREL was conducted to test whether the mediator and outcome scales constituted distinct variables. A baseline model with trust, threat, and prejudice items loading on their respective factors fitted the data reasonably well, Satorra-Bentler Scaled  $\chi^2 (31) = 98.85, p < .001$ ; Comparative Fit Index = .995; Root Mean

Square Error of Approximation = .044; Standardized Root-Mean-square Residual = 0.024.<sup>1</sup>

Alternative models that blended items of different scales into common factors yielded a significantly worse fit compared to the baseline model,  $\Delta\chi^2$ 's > 158,  $p$ 's < .001.

### *Descriptive statistics*

Means and standard deviations for all measures are presented in Table 2, along with their correlations. Both direct and extended contact were significantly and negatively related to RWA, prejudice, and threat, whereas significant positive relationships emerged for trust. Moreover, RWA, prejudice, and threat were positively interrelated, while they were negatively related to trust.

### *Mediated Moderation Analyses*

Series of hierarchical regression analyses (Aiken & West, 1991) were conducted to test the hypothesized moderation effects, followed by additional regression analyses to test for mediated moderation effects (Muller et al., 2005). More specifically, in a first series of analyses, we tested the extended contact x direct contact moderation as well as the extended contact x RWA moderation on, respectively, prejudice (i.e., the dependent variable), and on trust and threat (i.e., the mediators). Next, a second series of analyses focused on the three-way interaction effect between extended contact, direct contact, and RWA on prejudice, trust, and threat. Finally, a third series of analyses tested whether trust and threat mediate the moderation effects on prejudice.

In all regression analyses, the demographic variables of age, gender, educational level, family income, and religiosity were entered as control variables in the first step, the centered scores of the independent variables were entered in a second step, and the interaction terms (i.e., the multiplied centered scores) were entered in a third step of the regression models. Because many respondents (23.7%) did not indicate their family income, we substituted the

sample mean for the missing values to preserve the whole sample. Table 1 reports the relationships between the demographic variables and RWA, prejudice, trust, and threat.

*Two-way moderations.* The analyses testing the extended contact x direct contact moderation effects revealed significant main effects of extended and direct contact as well as significant interaction effects on prejudice, trust, and threat (see Table 3). In line with Christ et al. (in press), simple slopes analyses (see Figure 1) indicated that extended contact was strongly related to prejudice when the level of direct contact was low (1 SD below the mean), whereas this relationship was only marginally significant when the level of direct contact was high (1 SD above the mean). Furthermore, similar interaction patterns were present for trust and threat.

The analyses testing the extended contact x RWA moderation effects, controlling for direct contact, revealed significant main effects of extended contact and RWA as well as a significant interaction effect on prejudice (see Table 3). In line with Hodson et al. (2009), simple slopes analyses (see Figure 1) confirmed that extended contact was more strongly related to prejudice among people scoring high on RWA (1 SD above the mean), than among low scorers (1 SD below the mean).<sup>2</sup> Additionally, we were able to show an analogous pattern of results for trust and threat.

*Three-way moderation.* In a second series of hierarchical regression analyses, we tested whether the two-way interaction effects reported above were further qualified by a three-way interaction effect between extended contact, direct contact, and RWA. In these analyses, the three variables along with their two-way interaction terms as well as the three-way interaction term were included in the analyses as predictors of prejudice, trust, and threat. As reported in Table 3, we found significant three-way interaction effects on prejudice and threat, and a marginally significant three-way interaction effect on trust. These three-way interaction patterns are plotted in Figure 2, depicting the relationships between extended

contact and prejudice, trust, and threat at low and high levels of direct contact and RWA (i.e., 1 SD above and below the mean). Simple slopes analyses showed that the strongest effect of extended contact on prejudice, trust, and threat were found among people with a low level of direct contact and a high level of RWA (see Table 4). Moreover, slope difference tests (Dawson & Richter, 2006) consistently showed a significantly stronger slope of the extended contact effect among people with a low level of direct contact and a high level of RWA compared to the slopes in the other three combinations of direct contact and RWA, all  $t$ 's > 4.23,  $p$ 's < .001, all  $t$ 's > 2.27,  $p$ 's < .05, and all  $t$ 's > 2.60,  $p$ 's < .01, for prejudice, trust, and threat, respectively.

*Mediation analyses.* In the following analyses we tested whether trust and threat are mediating variables that account for the two- and three-way moderation effects on prejudice. First, we tested whether trust and threat mediated the extended contact x direct contact moderation on prejudice. Therefore, we needed to test an additional regression model that included trust and threat (i.e., the mediators) along with extended and direct contact and their interaction term as predictors of prejudice. This analysis revealed significant effects of trust and threat,  $\beta = -.32$ ,  $p < .001$  and  $\beta = .40$ ,  $p < .001$ , respectively, whereas the moderation effect between extended contact and direct contact was reduced (see last column of Table 3). To confirm that the mediation effect is not caused by only one of the two mediators, two additional regression analyses were conducted in which we separately tested the mediating role of trust and threat. These analyses confirmed that the inclusion of trust,  $\beta = -.56$ ,  $p < .001$ , as well as the inclusion of threat,  $\beta = .55$ ,  $p < .001$ , reduced the extended contact x direct contact interaction effect,  $\beta = .09$ ,  $p < .001$  and  $\beta = .10$ ,  $p < .001$ , respectively (Sobel's  $z = 8.15$ ,  $p < .001$  and  $z = 6.47$ ,  $p < .001$ , respectively). Because significant effects of trust and threat on prejudice emerged, and the residual extended contact x direct contact interaction was reduced, the requirements for mediated moderation were fulfilled. Hence, it can be concluded

that the moderation effect of extended contact x direct contact on prejudice is mediated through both trust and threat.

Next, we tested whether trust and threat mediated the extended contact x RWA moderation on prejudice. Therefore, we tested a regression model that included trust and threat along with extended contact, RWA, and their interaction term as predictors of prejudice. This analysis yielded significant effects of trust and threat,  $\beta = -.30, p < .001$  and  $\beta = .37, p < .001$ , respectively, while the extended contact x RWA interaction effect was significantly reduced compared to a model in which the mediators were not included (see Table 3). Again, two additional regression analyses that separately tested the mediating role of trust and threat were conducted, confirming that the inclusion of trust,  $\beta = -.49, p < .001$ , and threat,  $\beta = .50, p < .001$ , both reduced the extended contact x RWA interaction effect,  $\beta = -.07, p < .001$  and  $\beta = -.07, p < .001$ , respectively (Sobel's  $z = 2.74, p < .01$  and  $z = 2.83, p < .005$ , respectively). Whereas Hodson et al. (2009) found that that the strong effect of extended contact among high scorers on RWA was mediated through perceived threat, we can conclude that both trust and threat mediate the moderation effect between extended contact and RWA on prejudice.

Finally, we tested whether trust and threat mediated the three-way interaction effect on prejudice. A regression analysis was conducted with extended contact, direct contact, RWA, their two- and three-way interaction terms as well as trust and threat as predictors of prejudice. Significant effects of trust and threat were obtained,  $\beta = -.30, p < .001$  and  $\beta = .36, p < .001$ , respectively, whereas the effect of three-way interaction term was curbed (see Table 3). Testing the mediating role of trust in a separate analysis revealed that the inclusion of trust in the analysis,  $\beta = -.47, p < .001$ , reduced the three-way interaction effect to some extent,  $\beta = -.07, p < .05$ . The indirect effect of the three-way interaction effect via trust was marginally significant, Sobel's  $z = 1.72, p < .10$ . However, an additional regression analysis testing

whether trust mediated the extended contact effect on prejudice among people with a low level of direct contact and a high level of RWA, yielded a pronounced indirect effect, Sobel's  $z = 7.45, p < .001$  of extended contact via trust. Furthermore, a regression analysis to test the mediating role of threat separately revealed that the inclusion of threat,  $\beta = .49, p < .001$ , also reduced the three-way interaction effect,  $\beta = .05, p = .05$ . A Sobel test confirmed the significant indirect three-way interaction effect via threat, Sobel's  $z = 2.43, p = .01$ . In sum, the potential of extended contact to increase trust and to decrease threat is the underlying mechanism that explains why extended contact most strongly reduces prejudice among high scorers on RWA with low levels of direct contact.<sup>3</sup>

### Discussion

The present results demonstrated that the effects of extended contact on prejudice were stronger when people reported low, rather than high levels of direct contact (Christ et al., in press) as well as among high scorers rather than low scorers on RWA (Hodson et al., 2009)<sup>4</sup>. Moreover, we found that both trust and perceived threat mediated these moderation effects. As such, the present results extend Christ et al. (in press) by uncovering two important process variables underlying the extended contact x direct contact moderation effect. Our results also complement Hodson et al. (2009), who demonstrated that perceived threat mediated the relationship between extended contact and prejudice among high authoritarians, by showing mediation effects for both threat and trust. Moving beyond previous work, we were the first to demonstrate that a three-way interaction effect further qualified the moderation effects of direct contact and authoritarianism on prejudice. In particular, we found that extended contact has the greatest effects on prejudice among high authoritarians who do not benefit from direct positive contact via the process of generating trust and reducing threat.

We obtained support for our hypotheses with a large representative sample that reflects the adult population of the Netherlands. Social psychological research rarely relies on

such a heterogeneous sample, but rather tends to use convenience samples (e.g., student samples). The high external validity is thus an important strength of the present study and contributes to the development of theoretical principles and practical implications that can be applied to a broad population.

In the following sections, we first discuss the role of trust and perceived threat and reflect on our finding that extended contact is an effective means of combating prejudice among authoritarians. Before concluding, we highlight some limitations of the present study.

#### *Extended Contact Effects on Threat Perceptions and Outgroup Trust*

The present results revealed that threat perceptions and outgroup trust are mediating variables that explain the beneficial effects of extended contact for people with little or no direct positive contact experiences. The mediation effect of perceived threat that we found is consistent with several previous studies (Pettigrew et al., 2007; Tausch et al., 2007). Our results not only show that extended contact has the potential to substantially decrease threat perceptions, but that this is particularly so in settings where the influence of direct positive contact is absent. This finding might be especially important because feelings of anxiety and threat typically arise in settings where direct contact is limited or negative (Aberson & Gaffney, 2009; Stephan et al., 2002).

The finding that extended contact increases trust (see also Tam et al., 2009) complements previous studies on the positive effects of direct contact on trust (e.g., Hewstone et al., 2006; Tausch et al., 2007; Turner et al., 2007a). Significantly, these studies clarified that through positive interpersonal relations with outgroup members, people not only start to trust the individuals they know but also show an increased readiness to trust other outgroup members (Tropp, 2008). The present study extends these studies and shows that when people are indirectly connected with outgroup members through trusted ingroup members, this



connection increases outgroup trust, and especially among those who do not benefit from direct positive contact.

The potential for extended contact to reduce threat perceptions and establish trust increases its applications beyond prejudice reduction. Indeed, both variables may affect outcomes at the behavioral level. The reduction of perceived threat has been related to a decrease in hostile or aggressive actions against outgroup members and may thus help to resolve forms of intergroup conflict (Stephan & Renfro, 2002). Trust building may be even more far-reaching because trust promotes cooperation across many forms of social interaction (Dawes, 1980; De Cremer & Tyler, 2005) and thus paves the way for a positive intergroup climate characterized by mutual cooperation. Future research might investigate the specific characteristics of racially mixed social networks to unveil which network characteristics promote the beneficial effects of extended contact on trust and cooperation.

#### *Prejudice Reduction among Authoritarians*

By increasing trust and decreasing threat, extended contact also affects the basic motivations that underlie authoritarianism (Duckitt, 2001; Duckitt & Sibley, 2007) which explains why the positive effect of extended contact among people who are cut off from positive influences of direct contact is even stronger among high authoritarians. Indeed, it has been demonstrated that authoritarians view the world as dangerous, unpredictable, and threatening (Van Hiel et al., 2007) and that they have a mistrustful and contemptuous view of human nature (Altemeyer, 1998; Mirels & Dean, 2006). Hence, by reducing threat perceptions and establishing trust, extended contact can alter the motivational processes underlying RWA-based prejudice.

It is important to note that, although a vast amount of research is available on the relationship between authoritarianism and intergroup threat (e.g., Cohrs & Asbrock, 2009; Duckitt, 2006; Hodson, Hogg, & MacInnis, 2009), studies on the relationship between

authoritarianism and trust are scarce. However, given that trust can be established through extended contact, even and especially among high authoritarian individuals, it is an interesting variable for future studies both in contact and authoritarianism research. More specifically, because high authoritarians are interpersonally orientated toward social conformity (Jugert et al., 2009), changing the perceptions of ingroup norms may be a first step to establish trust among those people. Future research is thus required to further investigate the processes that may be involved in establishing trust and reducing prejudice among high authoritarians.

### *Limitations*

We acknowledge that the cross-sectional nature of our data does not allow us to draw causal inferences about the direction of the relationships. However, as several researchers have already pointed out (e.g., Christ et al., in press; Turner et al., 2008; Wright et al., 1997), it is farfetched to attribute the relationship between extended contact and prejudice to the tendency of prejudiced people to avoid extended contact. Indeed, although people can manage their own social networks, they have little or no control over the choice of whom their ingroup friends or relatives meet. Moreover, laboratory experiments (Wright et al., 1997) and experimental field studies (Cameron & Rutland, 2006; Liebkind & McAlister, 1999) have demonstrated that extended contact promotes more positive outgroup attitudes.

Furthermore, because we only used self-report scales, common method variance may have influenced the strength of the relationships between the studied variables. However, this is a rather unlikely explanation for the obtained moderation effects. Our results also align well with recent cross-sectional (Dhont, Roets, & Van Hiel, 2010; Dhont & Van Hiel, 2009; Hodson, 2008; Hodson et al., 2009), longitudinal (Christ et al., in press), and quasi-experimental (Dhont et al., 2010) studies investigating moderators of contact effects. This consistency across studies increases our confidence in the reliability and generalizability of our conclusions.

*General Implications and Conclusions*

The finding that extended contact has the strongest effect among people who do not experience high quality direct contact with outgroup members and/or high authoritarians attests to the practical relevance of applying strategies based on extended contact. Indeed, bringing all members of two groups together to develop harmonious intergroup relations is practically impossible and may be too demanding for high authoritarians. However, the impact of extended contact emphasizes the utility of interventions based on direct contact, even when implemented on a small scale, because observers of such direct contact may themselves be influenced by their extended experience of contact. In sum, contact-based interventions are likely to have a much broader impact through the process of extended contact (Wright et al., 1997), and the beneficial effects of this process reach those individuals who are most in need of change.

## Notes

1. Given the similar content of the second and third trust item, the errors of these items were correlated.
2. Testing the moderation effect between direct contact and RWA on prejudice yielded a significant moderation effect similar to the extended contact x RWA moderation pattern,  $\beta = -.07, p < .005$ . Simple slopes analyses confirmed that direct contact was more strongly associated with prejudice among high scoring RWAs,  $\beta = -.35, p < .001$ , than among low scoring RWAs,  $\beta = -.21, p < .001$ . The direct contact x RWA interaction on trust and threat were present as well.
3. We also conducted separate series of follow-up regression analyses with the direct contact quality and direct contact quantity measure (replacing the combined measure). These analyses mainly followed the reported findings. In particular, contact quality significantly moderated the extended contact effect on prejudice,  $\beta = .08, p < .001$ , indicating a stronger effect of extended contact among people with low contact quality,  $\beta = -.25, p < .001$ , than with high contact quality,  $\beta = -.09, p < .05$ . For the measure of contact quantity, the interaction effect with extended contact was less pronounced,  $\beta = .07, p < .05$ . The extended contact effect were somewhat stronger among people with low amounts of direct contact,  $\beta = -.37, p < .001$ , than for those with a lot of direct contact,  $\beta = -.26, p < .001$ . The two-way interaction between contact quantity and contact quality, as well as the three-way interaction effects between the direct contact variables and extended contact or RWA, were non-significant. However, a significant four-way interaction effects between extended contact, contact quality, contact quantity, and RWA on prejudice was obtained,  $\beta = .09, p < .001$ . In line with the results of our main analyses, extended contact has the strongest effects on prejudice, among high scorers on RWA with high amounts of low quality contact,  $\beta = -.32, p < .001$ . Similar interaction effects on trust and threat were obtained.

4. The present results also clarified that the extended contact x RWA moderation effect is not merely an artifact of floor effects on prejudice and threat or a ceiling effect on trust among low authoritarians. As can be seen in Figure 1, although low scorers on RWA generally obtained lower levels of prejudice and threat as well as higher levels of trust, these scores were still far from the scale endpoints (scales ranged from 1 to 7). In other words, not only high scoring authoritarians, but also people who score low on authoritarianism had room to decrease their prejudice and threat levels and to increase their levels of trust. Furthermore, explanations for this moderation effect of authoritarianism in terms of floor or ceiling effects also do not seem to hold in previous studies. For example, Dhont and Van Hiel (2009) demonstrated that negative contact did not significantly increase prejudice in low authoritarians, while they obviously had the most room to increase their prejudice levels.

## References

- Aberson, C. L., & Gaffney, A. M. (2009). An integrated threat model of explicit and implicit attitudes. *European Journal of Social Psychology, 39*, 808-830.
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: testing and interpreting interactions*. Newbury Park: Sage Publications.
- Altemeyer, R. (1981). *Right-wing authoritarianism*. Winnipeg: University of Manitoba Press.
- Altemeyer, R. (1998). The other “authoritarian personality”. In M. Zanna (ed.), *Advances in experimental social psychology*, (Vol. 30, pp. 47-91). San Diego, CA: Academic Press.
- Billiet, J., & De Witte, H. (1991). *Naar racisme neigende houdingen in Vlaanderen: typologie en maatschappelijke achtergronden (Attitudes that tend towards racism in Flanders: typology and societal backgrounds)*. Leuven: Sociologisch Onderzoeksinstituut (SOI).
- Cameron, L. & Rutland, A. (2006). Extended contact through story reading in school: Reducing children’s prejudice towards the disabled. *Journal of Social Issues, 62*, 469-488.
- Christ, O., Hewstone, M., Tausch, N, Wagner, U., Voci, A., Hughes, J., & Cairns, E. (2010). Direct contact as a moderator of extended contact effects: Cross-sectional and longitudinal impact on outgroup attitudes, behavioral intentions, and attitude certainty. *Personality and Social Psychology Bulletin*
- Cohrs, J. C., & Asbrock, F. (2009). Right-wing authoritarianism, social dominance orientation, and prejudice against threatening and competitive ethnic groups. *European Journal of Social Psychology, 39*, 270–289.
- Dawes, R. M. (1980). Social dilemmas. *Annual Review Psychology, 31*, 169-193.

- Dawson, J. F., & Richter, A. W. (2006). Probing three-way interactions in moderated multiple regression: Development and application of a slope difference test. *Journal of Applied Psychology, 91*, 917-926.
- De Cremer, D., & Tyler, T. R. (2005). Managing group behavior: The interplay between procedural justice, sense of self, and cooperation. In M. Zanna (ed.), *Advances in experimental social psychology*, (Vol. 37, pp. 151-218). San Diego, CA: Academic Press.
- Dhont, K., Roets, A., & Van Hiel, A. (2011). Opening Closed Minds: The Combined Effects of Intergroup Contact and Need for Closure on Prejudice. *Personality and Social Psychology Bulletin*
- Dhont, K., & Van Hiel, A. (2009). We must not be enemies: Interracial contact and the reduction of prejudice among authoritarians. *Personality and Individual Differences 46*, 172-177.
- Dovidio, J. F., Gaertner, S. L., Kawakami, K., & Hodson, G. (2002). Why can't we just get along? Interpersonal biases and interracial distrust. *Cultural Diversity and Ethnic Minority Psychology, 8*, 88-102.
- Duckitt, J. (2001). A dual-process cognitive-motivational theory of ideology and prejudice. *Advances in Experimental Social Psychology, 33*, 41-113.
- Duckitt, J. (2006). Differential effects of right wing authoritarianism and social dominance orientation on outgroup attitudes and their mediation by threat from and competitiveness to outgroups. *Personality and Social Psychology Bulletin, 32*, 684-696.
- Duckitt, J., & Sibley, C. (2007). Right wing authoritarianism, social dominance orientation and the dimensions of generalized prejudice, *European Journal of Personality, 21*, 113-130

- Funke, F. (2005). The dimensionality of right-wing authoritarianism: Lessons from the dilemma between theory and measurement. *Political Psychology, 26*, 195–218.
- Hewstone, M., Cairns, E., Voci, A., Hamberger, J., & Niens, U. (2006). Intergroup contact, forgiveness, and experience of “The Troubles” in Northern Ireland. *Journal of Social Issues, 62*, 99–120.
- Hodson, G. (2008). Interracial prison contact: The pros for (social dominant) cons. *British Journal of Social Psychology, 47*, 325-351.
- Hodson, G. (in press). Authoritarian contact: From “tight circles” to cross-group friendships. In F. Funke, T. Petzel, J. C. Cohrs, & J. Duckitt (Eds.) *Perspectives on Authoritarianism* (pp. 257-282). Wiesbaden, Germany: VS-Verlag.
- Hodson, G., Harry, H., & Mitchell, A. (2009). Independent benefits of contact and friendship on attitudes toward homosexuals among authoritarians and highly identified heterosexuals. *European Journal of Social Psychology, 39*, 509-525.
- 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.
- Islam, M. R., & Hewstone, M. (1993). Dimensions of contact as predictors of intergroup anxiety, perceived outgroup variability and outgroup attitude: An integrative model. *Personality and Social Psychology Bulletin, 19*, 700-710.
- Jugert, P., Cohrs, C., & Duckitt, J. (2009). Inter- and interpersonal processes underlying authoritarianism: The role of social conformity and personal need for structure. *European Journal of Personality, 23*, 607-621.
- Lewicki, R.J., McAllister, D.J., & Bies, R.J. (1998). Trust and distrust: New relationships and realities. *Academy of Management Review, 23*, 438-458.
- Liebkind, K., & McAlister, A. L. (1999). Extended contact through peer modelling to



- promote tolerance in Finland. *European Journal of Social Psychology*, *29*, 765-80.
- Mirels, H. L., & Dean, J. B. (2006). Right-wing authoritarianism, attitude salience, and beliefs about matters of fact. *Political Psychology*, *27*, 839-866.
- Muller, D., Judd, C. M., & Yzerbyt, V. Y. (2005). When moderation is mediated and mediation is moderated. *Journal of Personality and Social Psychology*, *89*, 852-863.
- Paolini, S., Hewstone, M., Cairns, E., & Voci, A. (2004). Effects of direct and indirect cross-group friendships on judgments of Catholics and Protestants in Northern Ireland: The mediating role of an anxiety-reduction mechanism. *Personality Social Psychology Bulletin*, *30*, 770-786.
- Pettigrew, T. F., Christ, O., Wagner, U., & Stellmacher, J. S. (2007). Direct and indirect intergroup contact effects on prejudice: A normative interpretation. *International Journal of Intercultural Relations*, *31*, 411-425.
- Riek, B. M., Mania, E. W., & Gaertner, S. (2006). Intergroup threat and outgroup attitudes: A meta-analytic review. *Personality and Social Psychology Review*, *10*, 336-353.
- Rousseau, D. M., Sitkin, S. M., Burt, R. S., & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review*, *23*, 393-404.
- Stephan, W. G., & Renfro, C. L. (2002). The role of threat in intergroup relations. In D. Mackie & E. Smith (Eds.), *From prejudice to intergroup emotions: Differentiated reactions to social groups* (pp. 191-205). New York: Psychology Press.
- Stephan, W. G., Boniecki, K. A., Ybarra, O., Bettencourt, A., Ervin, K. S., Jackson, L. A., et al. (2002). The role of threats in the racial attitudes of Blacks and Whites. *Personality and Social Psychology Bulletin*, *28*, 1242-1254.
- Tam, T., Hewstone, M., Cairns, E., Tausch, N., Maio, G., & Kenworthy, J. (2007). The impact of intergroup emotions on forgiveness. *Group Processes and Intergroup Relations*, *10*, 119-136.

- Tam, T., Hewstone, M., Kenworthy, J., & Cairns, E. (2009). Intergroup trust in Northern Ireland. *Personality and Social Psychology Bulletin*, *35*, 45-59.
- Tam, T., Hewstone, M., Kenworthy, J. B., Cairns, E., Marinetti, Geddes, L., & Parkinson, B. (2008). Postconflict Reconciliation: Intergroup forgiveness and implicit biases in Northern Ireland. *Journal of Social Issues*, *64*, 303-320.
- Tausch, N., Tam, T., Hewstone, M., Kenworthy, J., & Cairns, E. (2007). Individual-level and group-level mediators of contact effects in Northern Ireland: The moderating role of social identification. *British Journal of Social Psychology*, *46*, 541-556.
- Turner, R., Hewstone, M., & Voci, A. (2007a). Reducing explicit and implicit outgroup prejudice via direct and extended contact: The mediating role of self-disclosure and intergroup anxiety. *Journal of Personality and Social Psychology*, *93*, 369-388.
- Turner, R. N., Hewstone, M., Voci, A., Paolini, S., & Christ, O. (2007b). Reducing prejudice via direct and extended cross-group friendship. In W. Stroebe & M. Hewstone (Eds.), *European review of social psychology* (Vol. 18, pp. 212-255). Hove, UK: Psychology Press.
- Turner, R., Hewstone, M., Voci, A., & Vonofakou, C. (2008). A test of the extended intergroup contact hypothesis: The mediating role of intergroup anxiety, perceived ingroup and outgroup norms, and inclusion of the outgroup in the self. *Journal of Personality and Social Psychology*, *95*, 843-860.
- Tropp, L. R. (2008). The role of trust in intergroup contact: Its significance and implications for improving relations between groups. In U. Wagner, L. R. Tropp, G. Finchilescu, & C. Tredoux (Eds.), *Improving intergroup relations: Building on the legacy of Thomas F. Pettigrew* (pp. 91-106). SPSSI Series on Social Issues and Interventions. Malden, MA: Wiley-Blackwell.

- Van Hiel, A., Cornelis, I., & Roets, A. (2007). The intervening role of social worldviews in the relationship between the five-factor model of personality and social attitudes. *European Journal of Personality* 21, 131–148.
- Van Hiel, A., Cornelis, I., Roets, A., & De Clercq, B. (2007). A comparison of various authoritarianism scales in Belgian Flanders. *European Journal of Personality*, 21, 149-168.
- Van Hiel, A., & Mervielde, I. (2002). Explaining conservative beliefs and political preferences: A comparison of social dominance orientation and authoritarianism. *Journal of Applied Social Psychology*, 32, 965-976.
- Van Hiel, A., & Mervielde, I. (2005). Authoritarianism and social dominance orientation: Relationships with various forms of racism. *Journal of Applied Social Psychology* 35, 2323-2344.
- Voci, A., & Hewstone, M. (2003). Intergroup contact and prejudice towards immigrants in Italy: The mediational role of anxiety and the moderational role of group salience. *Group Processes and Intergroup Relations*, 6, 37-54.
- Vonofakou, C., Hewstone, M., Voci, A., Paolini, S., Turner, R. N., Tausch, N. T., et al. (2008). The impact of direct and extended cross-group friendships on improving intergroup relations. In U. Wagner, L. R. Tropp, G. Finchilescu, & C. Tredoux (Eds.), *Improving intergroup relations : Building on the legacy of Thomas F. Pettigrew* (pp. 107-123). SPSSI Series on Social Issues and Interventions. Malden, MA: Wiley-Blackwell.
- Wright, S. C., Aron, A., McLaughlin-Volpe, T., & Ropp, S. A. (1997). The extended contact effect: Knowledge of cross-group friendships and prejudice. *Journal of Personality and Social Psychology*, 73, 73-90.

### Biographical Notes

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Table 1. Coding and proportions for demographic variables in the sample (and in the Netherlands if available) as well as the correlations with RWA, prejudice, trust, and threat

Variable	Coding	Proportions in the sample (and in the Netherlands)	RWA	Prejudice	Trust	Threat
Age	Continuous: $M = 47.12$ , $SD = 15.61$		.09**	.14***	.01	.04
	18 – 29 years	17% (17%)				
	30 – 39 years	17% (16%)				
	40 – 49 years	20% (20%)				
	50 – 59 years	19% (18%)				
	60 ≤	27% (29%)				
Gender	-1 = female	51% (51%)	.06*	-.03	-.03	-.05 <sup>†</sup>
	+1 = male	49% (49%)				
Level of Education	1 = Lower	35.4% (34%)	-.28***	-.26***	.24**	-.26***
	2 = Middle	40.2% (41%)				
	3 = Higher	24.4% (25%)				
Family Income	1 = less than €11 000	6.3% (5%)	-.05 <sup>†</sup>	-.08**	.10***	-.08**
	2 = Between €11 000 and € 23 000	11.9% (19%)				
	3 = Between €23 000 and €34 000	24.5% (17%)				
	4 = Between €34 000 and €56 000	22.5% (32%)				
	5 = More than €56 000	11.1% (27%)				
	Not indicated	23.7%				
Religiosity	-1 = atheist, agnostic, or non-religious	49.8%	.23***	-.02	.03	-.05 <sup>†</sup>
	+1 = Christian (or subdivision)	50.2%				

Note. <sup>†</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Table 2. Means, Standard Deviations, and Correlations between the Predictors, Mediators, and Outcome Variable

Scale	Mean	SD	1	2	3	4	5	6
1. Extended contact	2.76	1.14		.46***	-.23***	.38***	-.28***	-.37***
2. Direct contact	1.34	2.99			-.21***	.52***	-.35***	-.37***
3. RWA	3.91	0.77				-.44***	.49***	.44***
4. Trust	4.19	1.25					-.65***	-.64***
5. Threat	3.59	1.53						.66***
6. Prejudice	2.86	1.51						

Note. \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Table 3. Results of the hierarchical regression analyses: presented values of the main and interaction effects are  $\beta$ -values (the demographic variables are controlled for in step 1).

	<u>Prejudice</u>		<u>Trust</u>		<u>Threat</u>		Prejudice, control- ling for mediators
	Step 2	Step 3	Step 2	Step 3	Step 2	Step 3	
Extended contact	-.22***	-.23***	.21***	.21***	-.14***	-.15***	-.10***
Direct contact	-.25***	-.37***	.41***	.53***	-.27***	-.38***	-.05 <sup>†</sup>
Extended contact x Direct contact		.22***		-.22***		.21***	.06**
$R^2$	.224	.255	.341	.370	.190	.219	.540
Extended contact	-.17***	-.17***	.16***	.16***	-.08**	-.08**	-.09***
Direct contact	-.21***	-.20***	.37***	.37***	-.22***	-.21***	-.01
RWA	.35***	.36***	-.33***	-.33***	.44***	.44***	.10***
Extended contact x RWA		-.10***		.06**		-.07**	-.06**
$R^2$	.331	.336	.429	.432	.344	.348	.546
Extended contact	-.17***	-.17***	.16***	.16***	-.08**	-.08**	-.09***
Direct contact	-.21***	-.28***	.37***	.46***	-.22***	-.29***	-.04
RWA	.35***	.32***	-.33***	-.30***	.44***	.41***	.08***
Extended contact x Direct contact		.13***		-.16***		.12***	.04 <sup>†</sup>
Extended contact x RWA		-.09***		.04 <sup>†</sup>		-.04	-.06**
Direct contact x RWA		-.06*		.05 <sup>†</sup>		-.08**	-.02
Extended contact x Direct contact x RWA		.09**		-.05 <sup>†</sup>		.08**	.05 <sup>†</sup>
$R^2$	.331	.361	.429	.452	.344	.37	.549

Note. <sup>†</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Table 4. Results of the simple slopes analyses testing the effects ( $\beta$ -values) of extended contact on prejudice, trust, and threat at High (+1SD) and Low (-1SD) levels of direct contact and RWA

	Prejudice	Trust	Threat
1. High direct contact, High RWA	-.09 <sup>†</sup>	.05	.03
2. High direct contact, Low RWA	-.05	.04	-.01
3. Low direct contact, High RWA	-.42 <sup>***</sup>	.36 <sup>***</sup>	-.26 <sup>***</sup>
4. Low direct contact, Low RWA	-.12 <sup>*</sup>	.21 <sup>*</sup>	-.07

Note. <sup>†</sup>  $p < .10$ ; <sup>\*</sup>  $p < .05$ ; <sup>\*\*</sup>  $p < .01$ ; <sup>\*\*\*</sup>  $p < .001$



## Figure Captions

Figure 1. Extended contact x Direct contact moderation and Extended contact x RWA moderation predicting prejudice, trust, and threat. Plotted values are  $\beta$ -values of the slopes at 1 SD above and below the mean. †  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Figure 2. Patterns of three-way interactions between extended contact, direct contact, and RWA predicting prejudice, trust, and threat. Plotted values of the predictors represent 1 SD above and below the mean.

Figure 1

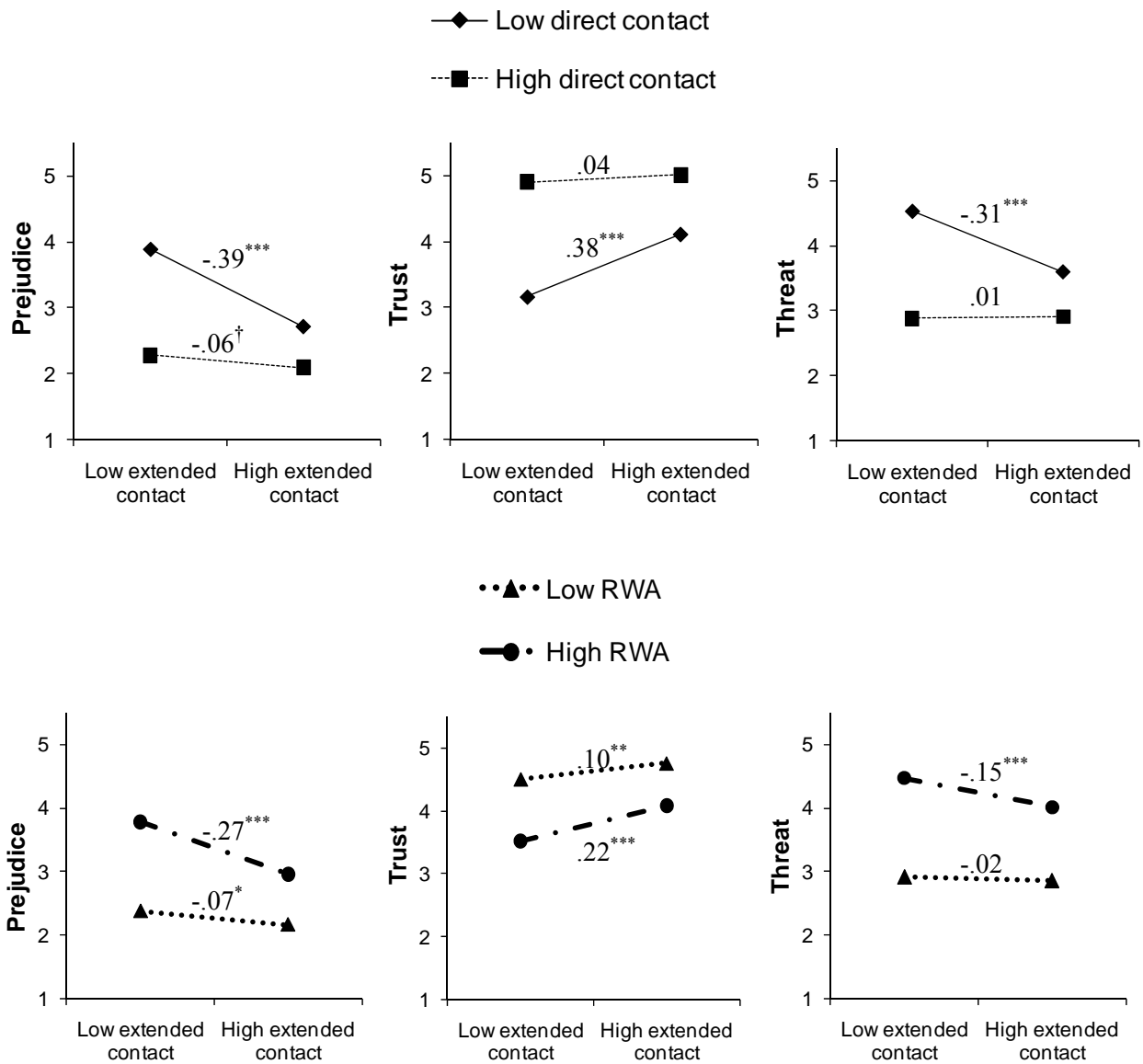


Figure 2

