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The Moderating Effect of Intergroup Climate on the Prejudice-Reducing Effects of Intergroup Contact

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THE MODERATING EFFECT OF INTERGROUP CLIMATE ON THE PREJUDICE-REDUCING EFFECTS OF INTERGROUP CONTACT

by

JAYSAN J. CHARLESFORD

A thesis submitted to Plymouth University

in partial fulfilment for the degree of

DOCTOR OF PHILOSOPHY

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Education improves lives. The professional and personal journey of this programme of doctoral study has certainly improved mine. Yet for billions of people, prejudice remains a daily fact of life and, indeed, a matter of life and death. It is my most fervent wish that the contents of this thesis might in any small way advance or inform contemporary understanding of the pervasive issue of prejudice; in this way, perhaps this work might indirectly improve the lives of others in the future.

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AUTHOR'S DECLARATION

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award without prior agreement of the Graduate Sub Committee.

Work submitted for this research degree at Plymouth University has not formed part of any other degree either at Plymouth University or at another establishment.

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JAYSAN CHARLESFORD

THE MODERATING EFFECT OF INTERGROUP CLIMATE ON THE PREJUDICE-REDUCING EFFECTS OF INTERGROUP CONTACT

Drawing upon intergroup contact theory (Allport, 1954; Pettigrew 1998) and the emerging literature on intergroup climate (e.g., Christ et al., 2013, 2014), I utilised various antipathetic intergroup relationships (e.g., Black people *vs.* White people; non-Muslims *vs.* Muslims), and various models of contact (e.g., Pettigrew, 1998; Koschate & van Dick, 2011) to test whether the effect of higher quality contact on less prejudice was facilitated by perceptions of a more positive intergroup climate. Results supported Allport's (1954) classic model of four contact conditions independently predicting prejudice, although the conditions of 'equal status', 'goal interdependence', and 'cooperation' loaded strongly onto a separate factor than did 'authority support'. Intergroup climate was successfully modelled as perceptions of intergroup norms, ingroup norms, and sociohistoric norms; further, there was some indication that beliefs regarding authority – traditionally considered a contact condition – might also impact intergroup climate in the form of macro authority norms. Results further supported the position that individuals are sensitive to intergroup climate, perceptions of which exhibited a separate – and stronger – effect on outgroup attitudes than did quality of personal contact. Regarding the proposed moderating effect of intergroup climate on contact effects, results were equivocal across studies. Some results supported the prediction of a facilitating effect of warmer ingroup norms on stronger contact effects. However, analyses of cross-sectional data revealed some evidence for an inhibitory effect, such that more *negative* (*vs.* positive) perceptions of intergroup climate were associated with a stronger relation between higher quality contact and warmer outgroup attitudes. Therefore, some aspects of intergroup contact might be most effective in negative intergroup climates. Theoretical and practical implications for contact researchers, prejudice researchers, and practitioners, are discussed.

CHAPTER 1:

THEORETICAL FRAMEWORK

Prejudice remains a pervasive part of life for many people. For instance, in England and Wales, 52,528 hate crimes were reported to police between March 2014 and March 2015, an 18% increase over the previous year, with as many hate crimes believed to have gone unreported (Corcoran, Lader, & Smith, 2015). Indeed, the modern world presents unprecedented challenges for intergroup relations: record high levels of migration; global economic hardship; state collapses; international terrorism; political instability; international electronic communication; and the increasing salience of 'non-traditional' lifestyles. Thus, research into prejudice-reduction, situated within these wider socio-political contexts, has never been timelier.

One prominent theory, the 'contact hypothesis', states that contact between members of different social groups reduces prejudice, thus improving intergroup relations (Allport, 1954). Even 'extended' contact – the knowledge that another ingroup member has had positive intergroup contact – has been demonstrated to reduce prejudice (Wright, Aron, McLaughlin-Volpe, & Ropp, 1997). Moreover, related literature suggests that imagining contact with an outgroup member can also improve attitudes towards the outgroup and foster more positive behavioural intentions (Crisp & Turner, 2009). Whereas a vast body of research supports the basic premise that various forms of contact reduce prejudice (Miles & Crisp, 2014; Pettigrew & Tropp, 2006), the literature also contains cases in which contact has had no effect on prejudice (e.g., Merkwan & Smith, 1999) or increased prejudice (e.g., Monroe & Howe, 1971; West & Greenland, 2016). As diverse social groups live in ever-closer physical and psychological proximity, and engage in new and diverse forms of contact, the importance of identifying the boundary conditions of contact effects is increasingly clear (see Hodson & Hewstone, 2013).

An emerging and related literature in the field of intergroup relations explores the 'intergroup climate', that is, society- (*vs.* individual-) level patterns of intergroup relations; such constructs may have a larger effect on prejudice than does personally-experienced contact (Christ et al., 2014; Christ, Asbrock, Dhont, Pettigrew & Wagner, 2013). Crucially, intergroup contact and intergroup climate are theoretically distinct; an individual might experience good contact with an outgroup member amidst norms of poor intergroup relations, and vice versa. Given the potential benefit of positive intergroup climate to intergroup relations, more research is needed to ascertain the structure of intergroup climate, to progressively test its effects on intergroup relations, and to explore its relation to intergroup contact. For instance, despite the large variability in the effects of contact on prejudice (Pettigrew & Tropp, 2006), the extent to which such effects are moderated by the intergroup climate within which the contact takes place remains largely unexplored. Therefore, this thesis employs imagined and direct contact to further explore the structure of intergroup climate, its effect on prejudice, and its potentially moderating effect on the prejudice-reducing effects of intergroup contact.

Intergroup Contact

Direct Contact

Allport's (1954) contact hypothesis is arguably the most influential theory of prejudice reduction. Stated simply, according to the contact hypothesis, attitudes towards an outgroup improve as an individual undergoes positive personal contact with members of that group; in other words, more intergroup contact results in less prejudice. Sixty years of contact research support this claim, and most notably Pettigrew and Tropp's (2006) extensive meta-analysis of 713 samples across 515 studies revealed a robust effect of more contact on lower prejudice ($r = -.21$, $p < .0001$). Importantly, the researchers tested for several threats to validity, including: the direction of causation (i.e., whether contact reduces prejudice or

prejudice reduces contact); the 'file-drawer' problem; generalisation of contact effects – that is, the extent to which contact affects intergroup (*vs*. interpersonal) attitudes; the scientific rigor of the component studies; type of study (i.e., experimental *vs.* quasi-experimental *vs.* cross-sectional); quality of control groups; and quality of measures. Even accounting for each of these threats to validity, the relation between more contact and less prejudice remained. Therefore Pettigrew and Tropp's (2006) meta-analysis arguably stands as the most robust evidence in support of Allport's (1954) contact hypothesis.

Whereas the basic premise that intergroup contact reduces prejudice is relatively simple, Allport (1954) further qualified this hypothesis by suggesting that contact would be particularly effective to the extent that it was characterised by four optimal conditions: equal status, goal interdependence, cooperation, and authority support. Pettigrew (1998) added a fifth condition: that group members should have the potential to form close friendships. These 'contact conditions' are reviewed in further detail in the following subsections.

Equal status. According to Allport (1954), one optimal condition for contact is that the contact be characterised by equal status between groups. One of the earliest indications of an effect of equal status on prejudice is seen in Brophy's (1945) survey study to measure the anti-Black prejudice of White merchant seaman in the US. Interestingly, prejudice among these participants was unrelated to regional background, level of education, or previous occupation. Conversely, lower prejudice *was* related to participants' shipboard occupation, with those working on deck exhibiting the least prejudice. Similarly, less prejudice was related to more time served at sea, further supporting a relation between more contact and lower prejudice. Crucially, participants who had been fired upon by enemy ships (*vs.* those who had not) reported significantly less prejudice. The researcher concluded that, as well as providing superordinate goals (e.g., survival), the dangerous – and often life-threatening – nature of life at sea acted as an equaliser. In other words, the unique challenges of military

life frequently posed situations in which individuals' ranks and social standing were irrelevant; social stratification was an unintended casualty of enemy fire.

Later, Walker and Crogan (1998) studied 103 school children of different races, in grades four to six (i.e., 8-12 years old). Fifty-one participants were assigned to a 'Jigsaw classroom' condition in which children worked in interracial learning groups – critically, group members were each given only part of the learning materials and took turns disseminating their 'piece' to the rest of their group. The remaining 52 participants comprised the control group, in which participants engaged in 'cooperative' learning, working together with all of the learning materials. Following the intervention, participants in the Jigsaw (*vs.* control) condition reported more liking of their racial-outgroup peers, less social distance to the racial groups within their class, and less negative stereotyping of these racial groups. This latter index of prejudice reduction was all the more striking when compared with the control, for whom negative stereotyping *increased* following the intervention. These studies serve to illustrate that equal status contact may be associated with lower prejudice.

The definition of equal status, however, has been inconsistent in the literature (Pettigrew, 1998; Riordan, 1978). Equal status has been operationalised as groups having equality in: shared, extreme experience (Brophy, 1945); ownership of resources (Walker & Crogan, 1998), esteem or reputation (Koschate & van Dick, 2011), treatment (Molina & Wittig, 2006), and opportunity to proactively contribute, achieve goals through persuasion, and freely elect its members to positions of leadership within the contact (Riordan, 1978; Riordan & Ruggiero, 1980). Hence, equal status has been defined as equal *reputation* (i.e., parity of esteem and social standing) and equal *power* (i.e., parity of influence over the other group), a dichotomy that remains unexplored in the literature. Further the necessary scope of such equal status has been debated. For instance, some researchers have claimed, consistent with Allport (1954), that equal status must be present within the contact to elicit contact

effects (Riordan, 1978), whereas others have stressed the importance of the wider, societal balance of status, that is, equal status outside of specific instances of contact (Brewer & Kramer, 1985). Further, some researchers claim that the direction of inequality is irrelevant (Riordan, 1978); whether a police officer has power over a civilian in a 'Stop & Search' encounter, or a civilian has power over a police officer when reporting a burglary, the status inequality will similarly impede improvements in intergroup relations. However evidence shows that contact has different outcomes for marginalised (*vs.* 'privileged') groups, with disadvantaged groups showing less prejudice reduction following contact (Tropp & Pettigrew, 2005), and potentially being less likely to engage in collective action as a result of contact – an arguably negative effect for lower-status groups (Cakal, Hewstone, Schwär, & Heath, 2011). Such different outcomes of contact for marginalised (*vs*. privileged) groups suggest that, at least at the level of the individual, the direction of inequality *is* important. Therefore, notwithstanding the general consensus that equal status contact is associated with more positive intergroup relations, the specific definition, scope, and boundary conditions of equal status require further study.

Goal interdependence. Allport (1954) further emphasised the importance of goal interdependence, a reward structure in which ingroup members can only achieve their goals within the contact if outgroup members also achieve their goals. Goal interdependence can be conceptualised as resulting from two related but distinct phenomena. First, the outcomes for groups are interdependent (*vs*. independent), and second that groups are positively (*vs.* negatively) interdependent, such that they share a 'common fate' (Gaertner et al., 1999). In other words, goal interdependence goes beyond the removal of conflict, and gives each group a stake in the wellbeing of the other group (Stephan & Stephan, 1985).

Campbell (1965) suggested an effect of goal interdependence on intergroup relations, through realistic group conflict theory. According to this theory, a realistic conflict is present

whenever an individual perceives intergroup competition over limited resources, be that anything from food to money to political power. Such perceived scarcity of an attractive resource can create a zero-sum perception, that the ingroup can only succeed in attaining the resource if the outgroup fails (i.e., the perception of *negative* goal interdependence). Within such a (perceived) structure, individuals have a vested interest in the failure of outgroup members. Further, attempts by the outgroup to succeed can be interpreted as intrinsically aggressive; individuals may go from perceiving the outgroup as attempting to 'win' to perceiving them as trying to make the ingroup 'lose', resulting in more negative affect ("I hate them") and stereotyping ("They are mean and like to harm us") of outgroup members (Dovidio, Gaertner, & Kawakami, 2003). Therefore, just as the perception of realistic group conflict may be damaging to intergroup relations, contact featuring reward structures of negative interdependence might increase prejudice. Conversely, *positive* goal interdependence during contact might reduce prejudice.

There is empirical support for the importance of goal interdependence in intergroup relations (e.g., Bettencourt, Brewer, Croak, & Miller, 1992; Gaertner et al., 1999; Sherif, 1966). For instance, Bettencourt et al. (1992, Study 2) assigned participants to be 'underestimators' and 'overestimators' in a minimal groups paradigm, then put participants into mixed group work teams. Results revealed that participants who undertook a task in which teams worked cooperatively (*vs.* competitively) displayed less ingroup bias when allocating rewards, rated outgroup members as friendlier, and rated outgroup members as being less similar to one another (i.e., displayed greater individuation). Similarly, Sherif's (1961) classic Robber's Cave experiment illustrated the effect of reward structure on intergroup relations. Two groups of children at a summer camp were put into a situation of negative goal interdependence (i.e., realistic conflict) through a series of competitive games with prizes for the winning team only. This phase of interactions resulted in negative

outgroup evaluation and ingroup bias. When the children were brought into contact under neutral conditions, there was open intergroup hostility and physical violence. However, a further interaction was engineered such that groups depended on one another to realise their goals, and it was this positive interdependent contact that ultimately reduced intergroup antipathy. Finally, reconsidering Brophy's (1945) finding that White seaman who had experienced enemy fire while serving with Black crewmates had less anti-Black prejudice, it might also be the case that such experience provided a strong superordinate goal (i.e., survival), contributing to the quality of such contact. These studies serve to illustrate that positive goal interdependence may be associated with warmer intergroup relations.

Cooperation. Whereas goal interdependence describes the relational structure of goals during contact, Allport's (1954) third contact condition, cooperation, refers to active collaborative behaviour between groups during contact. Cooperation during contact has been shown to relate to intergroup relations. For instance, Viki, Culmer, Eller, and Abrams (2006) conducted a survey of Black people in the UK, finding that willingness to cooperate with police was associated with warmer attitudes towards police (see also Eller, Abrams, Imara, & Peerbux, 2007). Similarly, participants engaging in cooperative learning with a former mental patient exhibited warmer attitudes toward the mentally ill (Desforges et al., 1991). Such studies illustrate that cooperation is germane to contact, with more cooperation resulting in less prejudice.

Some theoretical and practical issues remain in the study of cooperation. Foremost, the distinction between cooperation and goal interdependence has often been unclear in the literature, with the phrase 'cooperative interdependence' frequently featuring in research on contact (e.g., Brewer, 1996; Bettencourt et al., 1992; Dovidio et al., 2003; Forbes, 1997; Molina & Wittig, 2006). This conflation may be explicable by the practical difficulties of eliciting cooperation in the absence of goal interdependence; group members are less likely to

work together if they can achieve their goals separately (i.e., independence), and *unlikely* to work together if one of them will fail as a result (i.e., negative goal interdependence) (Campbell, 1965; Sheriff, 1961; Stephan & Stephan, 1985). Therefore, goal interdependence may be a necessary condition for cooperation. Relatedly, when ostensibly cooperative behaviour takes place in the absence of goal interdependence, it is likely to be driven by duress or coercion, which may indicate low equal status within the contact. For example, Cinyabuguma, Page, and Putterman (2004) placed participants in a public-goods dilemma in which participants chose in each of several rounds how many of their individually-allocated 'experimental dollars' to donate to the group account. However, the group was informed of the contribution of each participant following each round, and participants were able to vote to expel a person from the group. Under the threat of expulsion (*vs.* control condition, with no possibility of expulsion), participants donated close to the maximum possible each round (i.e., they cooperated). However, during the final round of donations, that is, when the threat of expulsion was no longer present, contributions fell dramatically among participants in the expulsion condition. This experiment serves to illustrate that 'cooperation' that takes place in the absence of goal interdependence (i.e., cooperation elicited with the threat of negative outcomes rather than the hope of positive outcomes) might not result in positive long-term attitudinal change. Therefore, goal interdependence may be a prerequisite condition for cooperation, *sensu* Allport (1954).

This potential relation between goal interdependence and cooperation might have occluded the specific effects of each of these components on intergroup relations. However, one notable study by Gaertner et al. (1999) experimentally tested the unique contribution of interdependence and cooperation. Participants worked in triads of individuals with similar political views and a salient ingroup identity for their work group (e.g., "We're the Ramboettes!"). When group identity had been established through some collaborative tasks,

triads interacted with another group that had opposing political views. These intergroup interactions involved a task in which each individual could obtain a modest monetary incentive, with the reward structure (common fate [i.e., goal interdependence] *vs.* no common fate) and level of cooperation (full cooperation *vs.* partial cooperation *vs.* no cooperation) manipulated across conditions. Results revealed that, even controlling for the effects of goal interdependence, participants in the full cooperation condition exhibited less intergroup bias than did participants in either the partial or the no cooperation conditions. This study thus supports Allport's (1954) contact hypothesis by evidencing a causal relation between more cooperative behaviour and less prejudice and, importantly, this relation was independent of the effect of goal interdependence.

Authority support. Allport's (1954) final optimal condition for contact was that the contact take place with the explicit sanction of a relevant authority. Authority support for good contact is associated with less prejudice (e.g., Landis, Hope & Day, 1984; Parker, 1968; Pettigrew & Tropp, 2006). In an early observational study, Parker (1968) sought to explore the factors that had allowed a church in the United States to undergo a successful process of racial integration. Participant observation of churchgoers revealed that Blacks and Whites initiated interracial (*vs.* intraracial) conversations more frequently than expected, and that the seating patterns among the most active members of the congregation showed similar levels of desegregation. Following interviews with the churchgoers and clergy, Parker (1968) concluded that the exceptional leadership of the ministers, who held openly progressive views on racial integration, was a key factor in the success of the church's desegregation. In a later study, Landis, Hope, and Day (1984) examined the process of desegregation in the US military in the 1970s, and specifically the implementation of "mandatory" race relations education for military personnel. The researchers concluded that "the commander's support [was] critical to the success of these programs" (p.267), and emphasised the importance of

authority figures acting as role and training models in improving intergroup relations. Pettigrew and Tropp's (2006) meta-analysis also found that, among the 134 contact studies in which contact had been designed to reduce prejudice (*vs.* unstructured, incidental contact), there was no difference in the strength of the contact-prejudice relation between studies that were rated as having authority support only (k = 31) and those rated as also featuring other contact conditions; this finding could be interpreted as showing that authority support is particularly important to contact effects, exerting as large a facilitating effect on prejudice reduction as the other three conditions combined. These studies serve to illustrate that authority support in contact may be associated with less prejudice.

Despite this initial evidence for a relation between authority support in contact and less prejudice, strong causal statements must be qualified by a number of gaps in the literature. First, relatively few studies have been specifically designed to explore the role of authority support in contact (for notable exceptions, see Koschate & van Dick, 2011; Molina & Wittig, 2006); for instance, the studies previously mentioned as having included authority support in Pettigrew and Tropp's (2006) meta-analysis were coded as such retroactively, that is, during the meta-analysis. Relatedly, neither Landis et al. (1984) nor Parker (1968) initially set out to test the effects of authority support. Second, the few studies on the effects of authority support on intergroup relations have been cross-sectional, with experimental tests of contact involving uniformly high levels of authority support; experimenters and universities are social authorities in their own right (e.g., Milgram, 1963), and so just by organising lab-based intergroup interactions, high authority support is likely to be perceived by participants (see Pettigrew & Tropp, 2006, for a similar argument). Therefore, manipulating low (*vs.* high) levels of authority support might be particularly challenging, because contact interventions may automatically create perceptions of high authority support. Finally, among the few studies that have tested authority support alongside another contact condition (Koschate &

van Dick, 2011; Molina & Wittig, 2006), results have not supported the claim that authority support (among contact conditions) accounts for any unique portion of the variance in contact effects. Koschate and van Dick (2011), for example, found that positive authority support was correlated with more cooperative behaviour between departments of a mail-order company, but not less prejudice. Similarly, whereas Molina and Wittig's (2006) study of race relations among school children revealed zero-order correlations between authority support and various indices of prejudice, when controlling for the effects of the other contact conditions, authority support was not significantly related to prejudice among White, Asian, or Hispanic school children. Finally, the structure of authority support is unclear. Whereas previous literature has considered religious (Parker, 1968), civic (Molina & Witig, 2006), and professional (Landis et al., 1984) authorities, the extent to which the effect of such disparate types of authority relate to prejudice via similar mechanisms is unexplored. These studies illustrate the need for further research into the relation between authority support and prejudice.

Further to a lack of clarity about what constitutes an authority, there is no clear definition of what constitutes *support* by authorities. For instance, whereas a church pastor might guide his congregation towards the benevolent requirements of an even higher authority (i.e., God), so might a school teacher threaten with loss of privileges for non-compliance. Thus, the extent to which different forms of 'support' relate to prejudice has remained largely unexplored. Outside of the contact literature, Blader and Tyler (2003), provided evidence that individuals' perceptions of authorities related to the 'formal' behaviours of authorities (i.e., their overt stance towards a group, such as positive action procedures) and their 'informal' behaviours (i.e., the actual treatment an outgroup member might face at the hands of an agent of that organisation). As such, considering authority support for good intergroup relations in terms of formal and informal authority support might

be a fruitful avenue for future research, and as such, this model is employed within the research presented in this thesis. Many question therefore remain regarding the content of authority support, and whether authority support *uniquely* and directly predicts less prejudice. As such, the need of further study of authority support is highlighted.

Friendship potential. Pettigrew's (1998) review of contemporary contact research included a number of important and influential contributions to the contemporary contact literature. Perhaps foremost of these contributions was a re-emphasis on Allport's (1954) contact conditions as the *necessary* conditions for prejudice-reduction through contact, as opposed to a number of facilitating factors that had begun to proliferate in the literature at the time (e.g., Ben-Ari & Amir, 1986; Wagner, Hewstone & Machleit, 1986; see Pettigrew, 1998 for a fuller review). This theoretical refinement also improved the practicality of contact by reducing an unwieldy number of conditions to a list that could potentially be implemented in the field, and is likely to have contributed to the ensuing re-emergence of interest in the contact hypothesis. Pettigrew did, however, add a fifth contact condition: "*The contact situation must provide the participants with the opportunity to become friends"* (p.76, original emphasis). Specifically, Pettigrew (1998) argued that short-term or one-off contact interventions were unlikely to result in lasting attitudinal change, whereas non-trivial, repeated contact within different contexts was more likely to result in intimacy building and the creation of friendships, thus resulting in profound and lasting attitude change.

The relation between cross-group friendships and lower prejudice towards the outgroup generally is clear in the contact literature (Allport, 1954; Cook, 1962; Ellison & Powers, 1994; Hodson, Harry & Mitchell, 2009; Stringer et al., 2009). For instance, Hodson et al.'s (2009) survey study of 120 heterosexual undergraduate students revealed that having even one (*vs.* zero) gay/lesbian friend was associated with significantly less anti-gay prejudice. Similarly, Stringer et al. (2009) conducted a questionnaire study of 1,732 school

children in Northern Ireland to explore the factors determining prejudice between Catholic and Protestant children. Results revealed that having more cross-group friends was associated with less extreme political views. Therefore, the potential to form cross-group friends may be crucial to the effectiveness of contact effects.

Whereas friendship potential may increase the efficacy of contact, its inclusion as a contact condition *per se* remains moot. For instance, Eller et al. (2007) commented that the potential to form friendships might be better conceptualised as an outcome of good contact than as a contact condition in its own right. In other words, contact characterised by equal status, goal interdependence, cooperation, and authority support may provide the potential for intergroup friendships to form. Further, a large number of studies show that extended contact, that is, the knowledge that an ingroup member has good contact with the outgroup, and imagined contact – mental simulations of intergroup contact – result in less prejudice (Crisp & Turner, 2009; Miles & Crisp, 2014; Wright et al., 1997). Crucially, neither extended contact nor imagined contact afford (objective) friendship potential, suggesting that the psychological presence of an outgroup can affect prejudice-reduction through other mechanisms. Therefore, friendship potential might be an outcome of good contact *sensu* Allport (1954), and could be one of many mediating mechanisms of contact effects. Mediating mechanisms will be discussed later in this chapter.

The focus on friendship potential might even mask more self-serving mechanisms for warmer intergroup attitudes. For instance, friendship potential might be conflated with such concerns as accountability, reward, and punishment. Just as cooperation might be a more favourable strategy in a Prisoner's Dilemma game that will be played repeatedly by the same participants (*vs.* a one-off game) (Rapoport & Chammah, 1965), so might social actors be sensitive to the fact that cooperating with an outgroup member that one will meet again in the future is more likely to result in more favourable personal outcomes. In other words, the

potential to form friendships is predicated upon repeated (*vs.* one-off) interaction, yet such conditions also mean that a refusal to cooperate with an outgroup member now might result in not receiving cooperation in future. Faced with a vested interest in behaving positively towards outgroup members, individuals might then be susceptible to cognitive dissonance effects, improving intergroup attitudes to maintain consistency with more positive intergroup behaviours. In this way, the observed apparent relation between friendship potential and warmer attitudes might actually be driven by less intimate, even self-serving, mechanisms. To summarise, there are some indications that friendship potential might be an outcome of the other contact conditions, and lack of clarity about what drives the apparent effects of friendship potential. Thus, in the present thesis optimal contact is defined in terms of Allport's original four contact conditions of equal status, goal interdependence, cooperation, and authority support. Figure 1.1 illustrates this traditional model of contact.

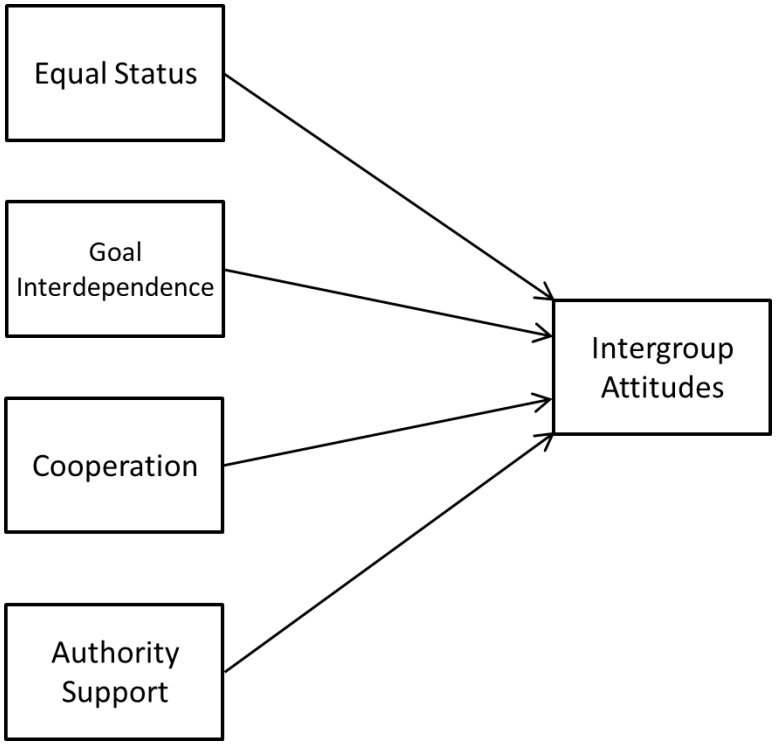

Figure 1.1. Traditional model of intergroup contact.

Generalisation. It might be argued that Allportian contact is not contact between groups, but contact between group *members* (i.e., interpersonal contact). As such, prejudice researchers have questioned whether interpersonal contact – or, more specifically, contact that is perceived as being interpersonal (*vs.* intergroup) – is able to change attitudes towards the group (Hewstone & Brown, 1986). For instance, a student might meet an individual who she learns to be homeless, and following such contact have warm attitudes towards the homeless person; however, her attitudes towards 'homeless people' (i.e., the group) might be unchanged. Therefore, the conditions under which contact will be perceived as intergroup (*vs.* interpersonal) have received scrutiny from contact researchers. Some researchers have suggested that contact is perceived as intergroup – and thus, more likely to generalise – when group memberships are salient within contact (Brewer, 1996). For instance, González and Brown (2003) had participants attend the lab in fours, and then arbitrarily divided participants into two dyad groups ('Analytics' and 'Synthetics' – allegedly due to their individual-difference prescreen measures) by giving each dyad a distinctive name and label. Dyads were then separated and completed a problem-solving task. In the second phase of this experiment, the two dyads were brought together, and categorisation was manipulated: participants in the 'one group' condition had their group labels removed, and had a photograph of the whole group of four taken and displayed on the wall; participants in the 'two groups' condition retained their group labels and had separate dyad photographs taken and displayed on the wall; participants in the 'no groups' condition had their group labels replaced with their names and had individual photographs taken; finally, participants in the 'dual-identities' condition wore T-shirts that related to their university (i.e., their superordinate group) but coloured differently by dyad group, and had both dyad and whole group photographs taken. Finally, prejudice was assessed by testing participants' behaviour and attitudes towards the other three participants, but also of individuals who they had not met, but were purportedly a

member of their group or the other group (i.e., Analytics or Synthetics). Results revealed that, for all conditions, the second phase contact reduced bias towards the individual outgroup members within the experiment. Crucially, however, only in the two-groups and dual-identities conditions (i.e., the conditions in which group membership was salient) did these contact effects generalise to outgroup members that participants had not met. Therefore, these findings give support for the claim that salient group membership during contact results in generalisation effects.

Characteristics of the outgroup members, rather than the situation, might also determine whether contact is perceived as being interpersonal or intergroup. For instance, when an outgroup member fits stereotypes of the outgroup, contact might be more likely to be seen as intergroup, and thus more likely to generalise. To test this possibility, Wilder (1984, Experiment 3) arranged contact between undergraduate students at rival colleges, such that each participant had contact with a confederate from the other college. Participants were randomly allocated to experience a pleasant contact interaction with an outgroup member who either confirmed or challenged existing stereotypes regarding vanity and scholarship. Among participants interacting with a typical (*vs.* atypical) outgroup member, contact had a larger positive effect on attitudes towards the outgroup generally, an effect driven by the perception that the confederate's behaviour was more indicative of how other outgroup members would behave during contact. Therefore, a further factor that may contribute to contact being perceived as intergroup (*vs.* interpersonal), and thus more likely to generalise, might be the perceived typicality of the outgroup member.

Relations between contact conditions. Notwithstanding general support of traditional models of contact, the relations *between* contact conditions require further scrutiny. Among studies that have specifically measured contact conditions (*vs.* unstructured contact), relatively few have tested the unique contribution of multiple contact conditions (for

exceptions, see Desforges, 1991; Gaertner et al., 1999; Koschate & van Dick, 2011; Molina & Wittig, 2006) or the relations among contact conditions (e.g., Koschate & van Dick, 2011). Interestingly, Pettigrew and Tropp's (2006) meta-analysis revealed that, whereas structured contact (*vs.* unstructured – that is, not designed to improve intergroup relations) was associated with larger contact effects, when prejudice was regressed onto equal status, goal interdependence and cooperation at the same time, none of these contact conditions emerged as a unique predictor. In other words, although Allportian contact was more effective than was incidental contact, the contact conditions did not exert independent effects on prejudice. The researchers thus concluded that the contact conditions might be "best conceptualized as an interrelated bundle rather than as independent factors" (p.1). Therefore, the relations among contact conditions might be worthy of further exploration. Specifically, I propose and test competing theoretical models of contact, exploring whether a model in which contact conditions are grouped into *auspices*, *structure,* and *behaviour* (*vs.* more traditional models; e.g., Pettigrew, 1998) is more empirically sound. The following subsections will outline the theoretical justification for such a model.

Auspices of contact. Pettigrew (1998) stated that "[authority support] concerns contact's *auspices*" (p.67, emphasis added), employing a word that refers to a prediction or omen. In other words, Pettigrew suggested that authority support both precedes contact and sets the tone for contact. That authority support may precede contact is clear in the literature. For instance, Parker (1968) noted that the first step of the successful integration of Blacks into the First Baptist Church of Chicago was that the church leaders adopted a policy of integration. Crucially, whereas this policy was initially implemented to facilitate the integration of Japanese people into the church, its overall message was of "the equality of all men *[sic]*" (p.366). Therefore, implicit authority support for good Black-White contact was

already in place when "Negroes invaded the neighbourhood and soon entered the church" (p.359). Therefore, authority support may precede contact.

Similarly, authority support need not always be explicitly present during specific instances of contact: rather, it may pervade intergroup relations more generally. For instance, the UK government (a civic authority) supports good contact between Muslims and non-Muslims, such that religiously aggravated words or actions in public places are a criminal offense. In this example, the law may often not be present (e.g., in the form of agents of law enforcement) or even salient in day-to-day contact between religious/belief groups. Landis et al.'s (1984) study suggests a similar role for authority support in that such support came in the form of officers who acted as role and training models for positive interracial contact; of course, the officers would not have been physically present for all of the Black-White contact in a desegregated military. Thus, authority support may precede actual contact, and need not always be physically present during contact.

Regarding the relation between authority support and the other three contact conditions, at least three possibilities thus present themselves. First, authority support may predict the other three contact conditions. Under the auspices of clear authority support for positive intergroup relations, intergroup contact may be more likely to be characterised by equal status, goal interdependence and cooperation. For instance, Parker (1968) noted that, amid authority support for good Black-White contact, Blacks and Whites initiated cross-group conversations at church about 50% of the time, and sat together, potentially indicating equal status within the church. Although correlational, these findings are consistent with the claim that authority support leads to more positive contact. A second possibility is that authority support moderates the effects of the other three contact conditions. Across situations where good contact takes place between groups, it may be that the presence (*vs.* absence) of authority support amplifies the beneficial effects of contact. For instance, Allport

(1954) originally stated that "the effect [of the other contact conditions] *is greatly enhanced* if this contact is sanctioned by institutional support" (p.281, emphasis added), a statement that could be interpreted as a moderation hypothesis. Therefore, authority support might be better conceptualised as the auspices of contact, comprising an initial step that sets the tone for contact, and might predict or moderate the remaining contact conditions. Finally, it is possible that authority support both predicts the other contact conditions and moderates their effects on prejudice (see Hayes, 2013, for a discussion of IV-as-moderator models).

Structure of contact. Whereas the auspices of contact (i.e., authority support) might precede and frame contact generally, such auspices are distinct from the structure of specific instances of contact. For instance, UK law might state that Muslims and non-Muslims must peacefully coexist, but when groups come into contact it is possible that they may do so under conditions that are not immediately conducive to positive relations. Therefore, the structure of contact can be conceptualised as the way in which groups are functionally related within a contact situation. The contact conditions that are most clearly implicated in contact's structure are equal status and goal interdependence, in that these conditions set the boundaries and constraints of contact, and are situated within the contact. Crucially, the structure of contact may determine behaviour during contact. For instance, Milgram (1963) illustrated that in particular conditions people tend to accede to the instructions of a person with higher status, suggesting that the level and direction of (in)equality during contact might directly affect behaviour during contact. Further, according to realistic conflict theories (e.g., Campbell, 1965), intergroup behaviour is dictated to some extent by the perceived reward structure (i.e., goal interdependence) within contact, a principle that can be demonstrated through such exercises as the Prisoner's Dilemma game and the Commons Dilemma, which illustrate that people are more likely to pursue their (or their group's) self-interest (i.e., to not cooperate) when the reward structure favours defection. Therefore, contact's structure might

be conceptualised as levels of equal status and goal interdependence, which might then predict cooperation.

Consistent with the possibility that contact conditions are interrelated (e.g., Pettigrew & Tropp, 2006), Koschate and van Dick (2011) proposed that equal status and goal interdependence might precede cooperation in the causal chain. Participants were employees at a large mail-order company who completed questionnaires regarding levels of equal status, goal interdependence, cooperation, and intergroup attitudes towards members of other departments. Crucially, mediation analyses revealed that the effects of higher equal status and higher goal interdependence on less intergroup bias were significantly weaker when cooperation was added to the regression model, a finding consistent with the claim that cooperation mediated the effects of equal status and goal interdependence (Baron & Kenny, 1986). Therefore, there is evidence to suggest that the structure of contact (i.e., equal status and goal interdependence) might dictate behaviour during contact (i.e., cooperation).

It is worth considering that equal status and goal interdependence might also be interrelated. Notwithstanding that these contact conditions might together comprise the structure of contact, and that they are conceptually distinct, equal status and goal interdependence might have an interactive effect on intergroup attitudes. Therefore, structure of contact might be conceptualised as a bidimensional construct, with equal status and goal interdependence separately ranging from low to high (see Figure 1.2). Stated in discrete terms, this bidimensional model of contact structure predicts four structures for intergroup contact in a 2(Equal Status: Low [“Coercive”] *vs.* High [“Mutual”]) x 2(Goal Interdependence: Low [“Conflict”] *vs.* High [“Accord”]) design, each with clearly different implications for intergroup relations. Whereas a full exploration of the implications of such a model exceeds the scope and focus of this thesis, it is sufficient for present purposes to posit that the closer the structure of contact approximates a state of ‘mutual accord’, that is, a structure whereby

both parties can equally contribute to the pursuit of shared goals, the more likely are positive behaviours during contact.

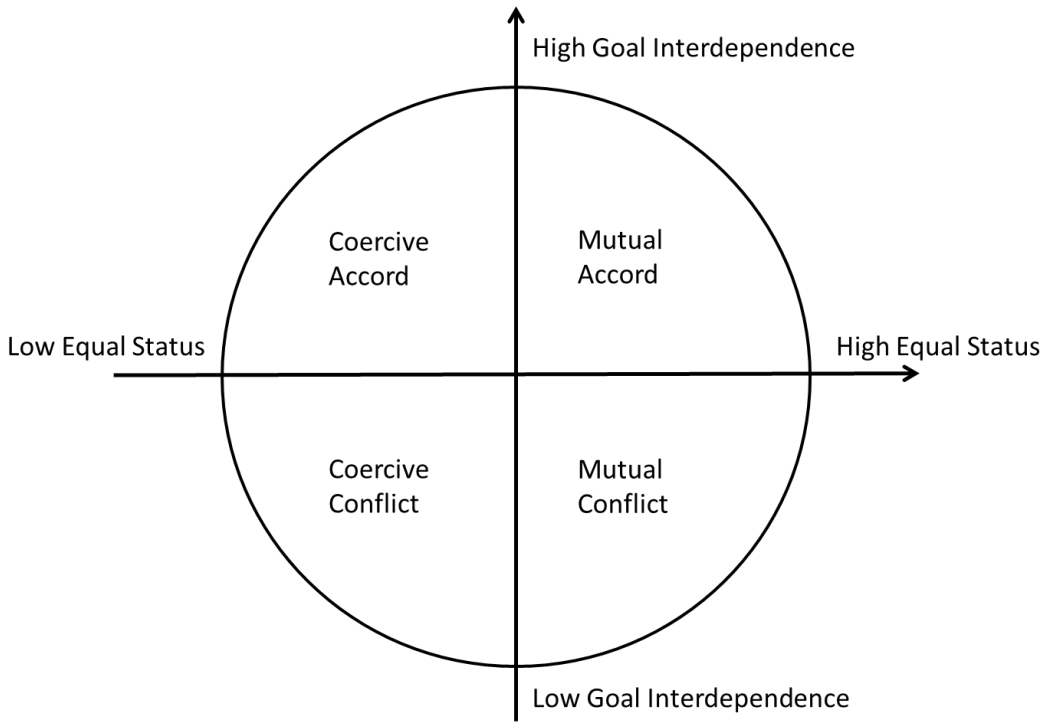

Figure 1.2. Bidimensional model of the structure of contact.

Behaviour. Allport (1954) stated that "[o]nly the type of contact *that leads people* to do things together is likely to result in changed attitudes" (p.276; italics added). This statement suggests that cooperation might be better conceptualised as following from the structure of contact, such that the presence of equal status and goal interdependence fosters greater cooperation, subsequently facilitating positive intergroup relations. Put another way, Allport's words could be seen to suggest that the most crucial goal of intergroup contact is to foster cooperation. As stated, results from Koschate and van Dick (2011) support this conceptualisation of cooperation as following the structure of contact: they found that cooperation mediated the effects of perceptions of equal status and goal interdependence on intergroup attitudes. Relatedly, Cinyabuguma et al.'s (2004) finding that cooperation that takes place *without* goal interdependence might not result in lasting positive change, suggests

that ‘cooperation’ that does not come about as a result of a good structure of contact may be of limited benefit to intergroup relations. Therefore, more cooperation – at least cooperation as Allport (1954) originally intended – might be conceptualised as an *outcome* of higher equal status and higher goal interdependence.

Two-step mediation model of contact. Therefore, following from previous researchers (e.g., Koschate & van Dick, 2011), I propose an alternative to the traditional model of contact (Figure 1.1), namely, that the auspices of contact (i.e., authority support) predict the structure of contact (i.e., equal status and goal interdependence), which predicts behaviour during contact (i.e., cooperation), in a process of two-step parallel mediation. In other words, equal status and goal interdependence may mediate, in parallel, the relation between authority support and cooperation. In turn, cooperation may drive contact’s beneficial effects on intergroup attitudes (see Figure 1.3).

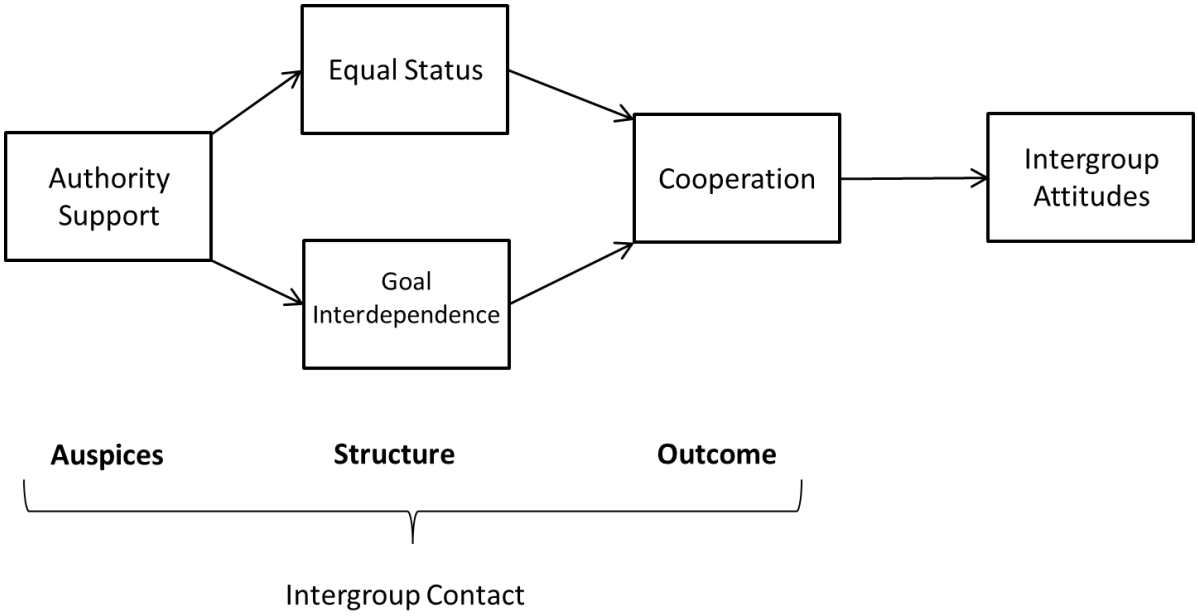

Figure 1.3. Two-step mediation “auspices, structure, behaviour” conceptual model of intergroup contact.

Mediators of contact effects. Much research has been conducted to explain how contact reduces prejudice, that is, in exploring the mediators of contact (e.g., Dovidio et al., 2003; Pettigrew & Tropp, 2008). Such mediators have been shown to span the domains of behaviour, cognition, and affect, and it is possible that this panoply of pathways by which contact effects are transmitted account for the surprising robustness of contact (Hodson, 2008; Pettigrew & Tropp, 2008; Turner, West & Christie, 2013).

Behavioural. Good contact improves intergroup relations through at least two behavioural mechanisms. First, such contact acts as a model for future contact, in that individuals that have had positive experiences with an outgroup may lose some of the uncertainty about how to behave during future contact (see Trawalter, Richeson & Shelton, 2009 for a similar argument). For instance, Desforges et al. (1991) instructed participants to undergo contact with a person they believed to have previously been a mental health patient. Among participants who initially had negative attitudes towards the mentally ill, those who were given a literal script on how to behave during the interaction (*vs.* those who engaged in independent learning, or those who carried out a 'Jigsaw learning' task) showed the largest improvement in attitudes towards the mentally ill. Also, Plant and Devine (2003) found that White participants with less previous contact with Black people were less likely to attend a follow-up session that would require close contact with a Black individual, perhaps because they did not have the resources necessary to navigate such unfamiliar intergroup territory. The effectiveness of imagined contact as a preparatory foregoer of direct contact (e.g., Choma, Charlesford, & Hodson, 2014), may also attest to the importance of behavioural scripts in intergroup contact, and as such might suggest that the creation of such scripts is a key mediator between direct contact and less prejudice (see the "Imagined Contact" section of this chapter for a full review of imagined contact literature). These studies illustrate that contact may improve intergroup attitudes by equipping individuals with the behavioural

scripts necessary to navigate intergroup interactions, thus improving both the likelihood and the benefit of contact.

A second behavioural pathway for contact effects may be that affiliative behaviours during contact create cognitive dissonance in individuals with unfavourable intergroup attitudes. Greeting outgroup members, getting to know them, and engaging in cooperative action are all incongruent with negative attitudes, and so good contact may cause an aversive state of dissonance, which is then resolved by an improvement in attitudes (Jackman & Crane, 1986; Miller & Brewer, 1986). In common with the previously discussed behavioural pathway, the process of dissonance reduction begins with behaviour but then implicates another domain: dissonance reduction may kick-start cognitive processes that improve intergroup relations, even as behavioural scripting might reduce the negative affect associated with outgroups. Therefore, whereas the behavioural domain may act as a gateway for contact effects, cognitive and affective processes remain crucial. These domains of cognition and affect as potential mediators of contact effects will now be considered.

Cognitive. Research into cognitive mediators of contact has focused on two major areas, the first of which is knowledge about the outgroup. Lack of knowledge about outgroup members could be a key contributor to prejudice (Stephan, Stephan, 1984), in part because, in the absence of personal knowledge individuals can rely on stereotypes, and outgroup stereotypes are often negative (e.g., Maass, Milesi, Zabbini, & Stahlberg, 1995; Stephan, Diaz-Loving, & Duran, 2000). Therefore increasing outgroup knowledge may reduce prejudice. For instance, learning about the poor treatment of marginalised groups (e.g., gay men and lesbians; Black people) might motivate individuals to treat such groups better (Stephan & Finlay, 1999), and explain away some of the prejudice-reinforcing explanations for societal group differences (e.g., “Immigrants do low-skilled work *because they are stupid*”) (Diekman & Eagly, 2000). Contact that enables first-hand experience of outgroups

gives opportunities for such learning to take place. Concurrently, negative stereotypes can be countered when individuals experience contact that challenges such stereotypes (Kawakami, Dovidio, Moll, Hermsen, & Russin, 2000), and so contact can serve to individuate outgroup members and reduce negative stereotyping (Rothbart & John, 1985). Therefore, contact with outgroups with which individuals have little direct experience is likely to increase their knowledge of these groups, thereby reducing prejudice.

The second main process by which cognitive mediators might account for contact effects is through recategorisation. Several studies have illustrated that even arbitrary, ‘minimal-groups’ conceptualisations of people as ‘Us and Them’ are sufficient to elicit prejudice (e.g., Bettencourt et al., 1992; Sherif, 1967; Tajfel, 1970). Therefore, this second cognitive pathway of contact effects may replace prejudice-inducing ingroup-outgroup categories (e.g., “English”, “Scottish”, “Welsh”) with a common ingroup identity (e.g., “British”) (Brewer, 1996; Brown, 2000; Gaertner & Dovidio, 2005; Gaertner et al., 2000). Field research suggests that such recategorisation may sometimes be a spontaneous outcome of intergroup contact that is characterised by equal status and goal interdependence, such as when American and Canadian fans adopted a 'North American' identity during an international sporting event following the elimination of one of the teams (that is, when the realistic conflict between supporters was removed) (Torelli, Ahluwalia, Stoner, & Cheng, 2014). Such recategorisation may also improve perspective-taking and self-other overlap, creating a self-serving motivation to improve evaluations of the previous outgroup in order to bolster the reputation of the new ingroup (Galinsky & Ku, 2004).

Alternatively, good contact may result in personalisation, that is, the removal of group boundaries altogether such that outgroup members are simply seen as individuals (Bettencourt et al., 1992). As well as fostering more individual knowledge, personalisation may increase the likelihood of situational (*vs.* personal; that is, stereotypical) attributions for

unfavourable behaviour (Vescio, Sechrist & Paolucci, 2003). For example, an individual witnessing a Black person shouting angrily in public might, rather than concluding that Black people are aggressive, reason that the man must have been distressed by something. It can be convincingly argued that personalisation through contact might not reduce prejudice toward the outgroup more generally, because the interaction is now interpersonal (*vs.* intergroup). Similarly, the outgroup member might come to be viewed as "the exception to the rule" (compare Pettigrew, 1979; Wilder, 1984). However, such contact might still facilitate the process of 'deprovincialisation' – whereby individuals come to accept that their worldview and values are not universally held, nor necessarily the most valid – which in itself can reduce generalised prejudice (Pettigrew, 1997). Taken in sum, the contact literature evidences a range of cognitive processes that may explain the effect of contact on prejudice. However, whereas the domain of cognition may contain the largest number of different mediating pathways, it is possible that affect is the most powerful single domain occupied by contact's mediators.

Affective. Emotion is a key domain for the improvement of intergroup relations. Research evidences that higher frequency and quality contact is associated with an increase in positive affect, thus reducing prejudice (Pettigrew, 1998; Pettigrew & Tropp, 2008; Dovidio et al., 2003). However, *negative* affect may be particularly germane to prejudice (Pettigrew & Tropp, 2008; Terbeck, 2016). For instance, meeting a racial outgroup member may be stressful for individuals who feel themselves unequipped to navigate the perceived cross-cultural labyrinth (Trawalter et al., 2009), for those concerned that they will be evaluated as racist (Voraeur, 2006; Vorauer & Sakamoto, 2006), and for those who fear physical or social contamination as a result of such contact (Choma, Hodson & Costello, 2012; Choma, Haji, Hodson, & Hoffarth, 2016; Hodson et al., 2013). Equally, a considerable portion of the variance in prejudice may be accounted for by an underlying affect-laden belief that the

world is a dangerous place, resulting in a motivation to preserve 'traditional' values and lifestyles (Alteymeyer, 1998; Duckitt, 2001; Duckitt & Sibley, 2009). A key mechanism by which contact reduces prejudice may therefore be via the reduction of negative (*vs.* the increase of positive) affect (Pettigrew & Tropp, 2008).

A particularly powerful affective predictor of prejudice could be the perception of an outgroup as threatening. Stephan and Stephan (1985) conceptualised intergroup threat in terms of four components: realistic threat, symbolic threat, negative stereotypes, and intergroup anxiety. Among these components, intergroup anxiety, an affect-laden construct defined as negative emotion experienced in anticipation of undergoing contact with a specific outgroup, may be the most important in explaining the beneficial effects of contact (Riek, Mania, & Gaertner, 2006; Stephan, 2014; Stephan & Stephan, 1985; Stephan et al., 1998; Tropp & Pettigrew, 2005). Specifically, the reduction of intergroup anxiety mediates contact effects, such that contact reduces intergroup anxiety, in turn fostering warmer intergroup attitudes. Evidence for this claim is present in the literature. For instance, in a meta-analysis, Pettigrew and Tropp (2008) found that the reduction of anxiety was a more powerful mediator of contact effects than either the increase of positive emotion or more knowledge of the outgroup. Further, Turner, Hewstone, and Voci (2007) found that contact between White and South Asian high school students was associated with warmer outgroup attitudes, and that this effect was explained by lower intergroup anxiety. Therefore, whereas the relation between contact and anxiety is likely to be non-recursive (e.g., Plant & Devine, 2003), consistent with the reviewed literature, this thesis explores intergroup anxiety as a mediator of contact effects, such that contact reduces intergroup anxiety, in turn improving intergroup attitudes. Figure 1.4 illustrates the proposed relation between variables in a three-step mediation model of contact. As explained by the reviewed literature, intergroup contact can reduce intergroup anxiety. However, as noted, intergroup anxiety can also reduce contact,

with individuals who are uncomfortable in the presence of an outgroup simply avoiding its members (e.g., Plant & Devine, 2003). One recent and promising development in contact theory might be a particularly useful tool in addressing this issue of self-selection: imagined contact.

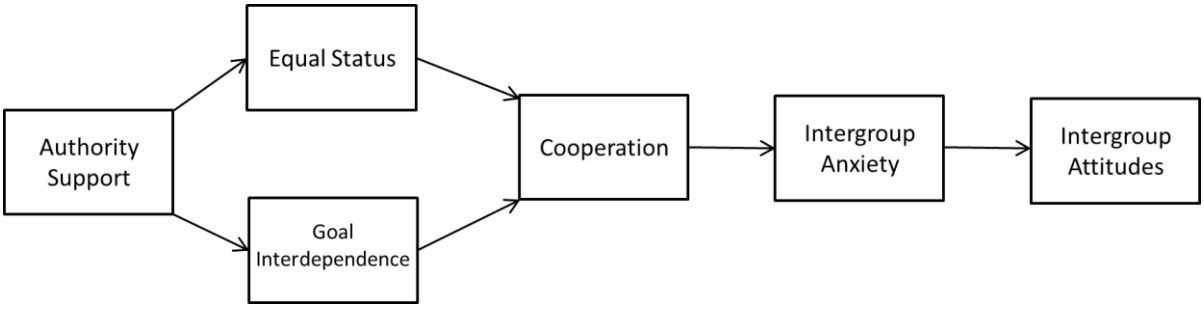

Figure 1.4. Conceptual three-step mediation model of contact.

Imagined Contact

Whereas Allport's (1954) contact hypothesis was concerned specifically with direct face-to-face intergroup interactions, more recently, prejudice researchers have begun to explore the effects of a related phenomenon, imagined contact, which instead relies on mental simulations of contact (Crisp & Turner, 2009). In an early experiment, Turner, Crisp and Lambert (2007, Study 1) assigned young adult participants (18-20 years) to imagine either interacting with an elderly person or an outdoor scene. Results indicated that participants who had imagined contact with an elderly person showed less ingroup bias when asked to rate whether they would like to work alongside young people or elderly people in a future task. In Study 2, the experimenters ruled out category priming as the explanation of this effect by instructing the control group to instead imagine an elderly person (*vs.* imagine *interacting with* an elderly person); results again indicated less bias in the imagined contact condition (*vs.* control). Turner et al.'s Study 3 replicated the results of their Study 2 using a different outgroup – gays/lesbians – demonstrating generalisability of effects across outgroups. Later, Miles and Crisp's (2014) meta-analysis of 70 studies confirmed that imagined contact

robustly relates to several indices of prejudice, such as warmer intergroup attitudes and more positive behavioural intentions to engage in contact in future – an encouraging finding given that the default position of people might normally be segregation rather than contact (e.g., McKeown & Dixon, 2017). These studies illustrate that simply imagining contact with an outgroup member may reduce prejudice.

Research has begun to explore the optimal conditions for imagined contact. For example, in a standard imagined contact intervention, participants might read the following instruction: "We would like you to take a minute to imagine yourself meeting [an outgroup] stranger for the first time. Imagine that the interaction is positive, relaxed and comfortable" (Crisp & Turner, 2009, p.11). Further, recent research suggests that imagined contact effects are enhanced by 'elaboration', that is by instructing participants to imagine the 'when' and 'where' of the contact; this enhancement may be due to the creation of behavioural scripts that come as a result of such simulation (Husnu & Crisp, 2010; Miles & Crisp, 2014). Therefore, instructions to elaborate might make imagined contact particularly effective.

The extent to which imagined contact results in long lasting behavioural and attitudinal transformation remains unclear (Miles & Crisp, 2014); however, imagined contact may still be a useful tool for prejudice reduction. Such an intervention is exponentially less resource-intensive than is arranging direct contact. Imagined (*vs.* direct) contact is also accessible to individuals who do not have opportunities to physically meet members of a given outgroup. Further, for highly-prejudiced individuals, and those higher in intergroup anxiety, imagined (*vs.* direct) contact presents a less threatening way to first 'experience' an outgroup, providing an emotional segue to productive direct interactions in the future (Crisp & Turner, 2010). For instance, Choma et al. (2014) found that participants who underwent an elaborated imagined contact interaction with a Muslim man exhibited positive contact effects after direct contact with a 'Muslim' confederate a week later. In contrast, participants who

experienced two real contact sessions with the Muslim man a week apart did not show improvements in attitudes towards Muslims, suggesting that participants that had not been 'trained' in how to interact with the outgroup member, through imagined contact, may not have benefited from contact to the same extent. Therefore, in some situations, imagined contact may be particularly practical and beneficial to intergroup relations.

As illustrated above, imagined contact can be an effective prejudice-reduction tool in its own right; of particular relevance to this thesis, the mechanisms by which imagined contact reduces prejudice are similar to those of direct contact effects. Specifically, both imagined and direct contact effects are mediated by lower intergroup anxiety (Plant & Devine, 2003; Turner et al., 2013; Stephan, 2014). Further, the finding that individuals benefited more from direct contact following imagined contact (*vs.* two direct contact encounters) (Choma et al., 2014) might again emphasise the importance of the presence of behavioural scripts in reducing anxiety in anticipation of direct contact (Trawalter et al., 2009). Therefore, imagined contact might be used as a vehicle to understanding the underlying mechanisms of direct contact, a possibility explored in this thesis.

Intergroup Climate

It is unlikely that contact reduces prejudice uniformly across different intergroup relationships and in all social milieus; hence, the societal backdrop against which the contact takes place might moderate the beneficial effects of contact. For instance, Pettigrew and Tropp (2006) found that the contact-prejudice relation was stronger following Whites' contact with Blacks, compared to healthy volunteers' contact with individuals with mental illness. Attempts to formalise and quantify this societal backdrop have been relatively sparse in the literature, although references to 'intergroup climate' have appeared sporadically across the social sciences since 1970. The psychology literature on this phenomenon is small, with a PsycINFO search for the phrase 'intergroup climate' conducted on 22nd February 2017

returning just eight items, and among these, most have made no attempt to define intergroup climate (Barth, 1971a, 1971b, 1974; Barth & Ace, 1971; Brown & Zagefka, 2011; Christ et al., 2013; Hewett, Watson, Gallois, Ward & Legget, 2009; Ożańska-Ponikwia, 2016). Whereas research into related phenomena, and using different terminology, is acknowledged (e.g., Christ et al., 2014; Dhont & Van Hiel, 2012; Sibley et al., 2013), I propose that the very lack of consistent taxonomies indicates that research into such constructs would benefit from further theoretical refinement.

Previous attempts to quantify the intergroup climate have been specific to a particular intergroup relationship. Barth (1974) conducted a study on the intergroup attitudes of scientists and engineers in research and development organisations, by conducting interviews with and administering questionnaires to members of each group. Factor analyses revealed a five-factor model for the intergroup climate within which these groups interacted, therefore Barth (1974) modelled intergroup climate as: warmth/team-spirit, risk-taking, intergroup clarity, responsibility, and conformity. Whereas this model is compelling insofar as it formalises intergroup climate, it might be difficult to generalise to more diverse social relationships. For instance, the factor of 'risk-taking' could not be easily applied to the intergroup climate that exists between Muslims and non-Muslims. Similarly, Hewett et al. (2009) interviewed doctors at a university teaching hospital, and identified a number of overarching themes that explained problems in interdepartmental communication. Again, these themes, which included, for instance, 'informed consent' – that is, the issue of which departments must obtain consent from patients for surgery – were specific to a scientific or medical situation, and as such might be too specific to be useful more generally.

One theme, however, identified by Hewitt et al. (2009) – 'intergroup relations' – is of interest in that it centred on individuals' perceptions of the wider social environment at the hospital. In other words, participants had a sense of how groups *generally* interacted, which

appeared to be conceptually separate from their personally experienced contact. Indeed, one participant commented that: "this hospital *and indeed medicine in general* compartmentalises into a turf war" (Hewett et al., 2009, emphasis added). Such a theme might be informative and generalisable to a range of intergroup relationships, a possibility that is returned to in this chapter. Therefore, a more generalisable model of intergroup climate, which can be applied to a wider range of social groups, might be useful to the understanding of intergroup relations more generally.

The study of intergroup climate may be experiencing a promising renaissance. More recently, Christ et al. (2013) defined intergroup climate in terms of mean levels of prejudice, by taking individual-level scores from historical questionnaire data and averaging them by geographic location. District-level aggregates of individuals' prejudice against immigrants were positively related to migrants' desire to maintain their own culture (*vs.* assimilating with the host culture), suggesting that intergroup climate is germane to intergroup relations. However, the mechanisms by which such an objectively more hostile intergroup climate related to subjective experience, and thus acculturation preference, remains unclear. In a later study, Christ et al. (2014) used survey questionnaire data to ascertain whether contextual factors predicted personal racial prejudice moreso than personal interracial contact. Specifically, these contextual factors included geographic means on racial prejudice items, and geographic means on measures of social norms – that is, the perception that diversity is good for society. Across seven studies, including data from Germany, the UK, and South Africa, results consistently illustrated that people living in more 'positive' intergroup climates had less prejudice, and that this effect was larger than was the effect of personal contact on prejudice. Further, the effect of a more positive intergroup climate on lower prejudice was mediated by more positive social norms at the geographic level. In other words, the effect of living among ingroup members who had positive interracial views was larger than that of

personal contact. Therefore, ingroup norms, that is, the prevailing intergroup attitudes of ingroup members, might also be a strong predictor of prejudice, and one that can be applied to any intergroup relationship, a possibility that is later explored in this chapter. Importantly, such studies suggest that a generalisable model of intergroup climate might be possible, and as such, the proposal and testing of such a model is one of the key goals of this thesis.

Four-Factor Model of Intergroup Climate

Based on extant literature, I conceptualise intergroup climate in terms of four factors: intergroup norms, ingroup norms, macro authority norms, and sociohistoric norms. Figure 1.5 illustrates this four-factor model of intergroup climate. Crucially, intergroup climate is conceptually separate from intergroup contact in that all proposed factors relate to perceptions of general intergroup relationships rather than personal experiences of intergroup contact.

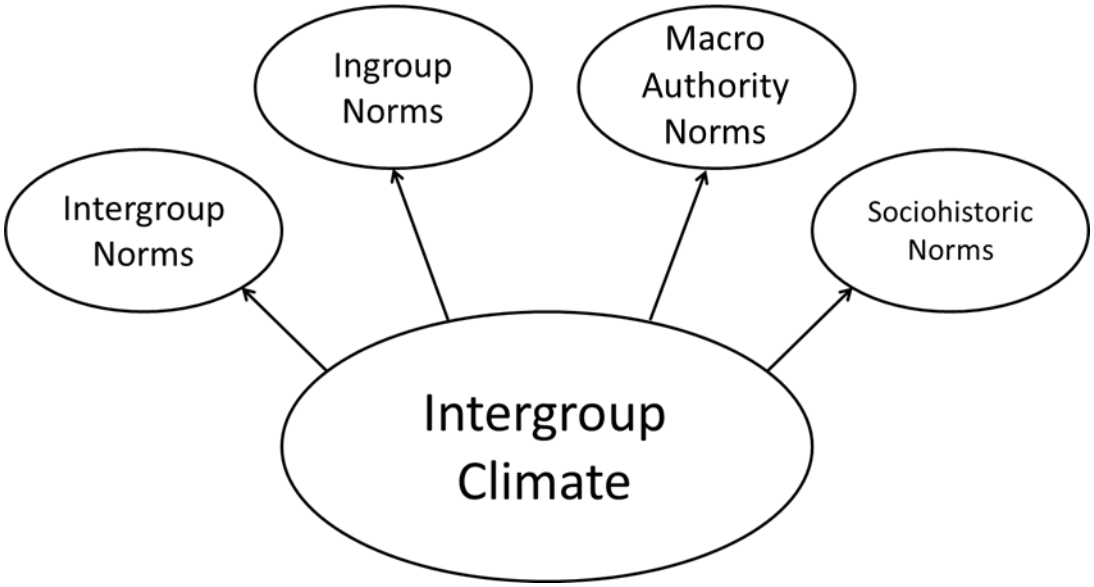

Figure 1.5. Proposed four-factor model of intergroup climate.

Intergroup norms. Interestingly, Allport (1954), in closing his seminal chapter on contact, stated that the 'role aspects' of contact might moderate contact effects. According to Allport, role aspects referred to the character of the *relationship* (*vs.* the contact): for instance,

"[i]s the relationship one of competitive or cooperative activity … [i]s there a superordinate or subordinate role relation involved; e.g., master-servant, employer-employee, teacher-pupil?" (p. 262). Put another way, Allport's role aspects did not pertain to the structure of contact but to the wider context of the relationship between the individuals undergoing contact. For instance, identically structured Black-White contact interventions might have different intergroup outcomes when implemented with a Black manager and one of his White employees versus a Black criminal and one of his White victims. Therefore role aspects are conceptually quite different from contact conditions.

Drawing upon Allport's (1954) role aspects, this thesis presents research in which the 'intergroup norms' of contact are considered. Just as individuals might enter contact from a position of established role aspects (Allport, 1954), so might groups enter contact from a position of established patterns of intergroup behaviour, or from within an established intergroup structure; again, such perceived patterns of intergroup relationships are conceptually distinct from what takes place within a given contact interaction. Intergroup norms might thus include various beliefs relevant to the general valence of a given relationship, and may be as general as a Black individual's perceptions of the police as 'anti-Black' (Dodd & Evans, 2014; Eller et al., 2006) or as specific as the perception that there is an interdepartmental "turf war" within an organisation (Hewett et al., 2009). Relatedly, Tyler's (1989) concept of procedural justice emphasises that intergroup concerns such as distrust and disrespect can override favourable outcomes in contact, suggesting that an individual who believes that the outgroup cannot be trusted might discount positive outgroup behaviour during contact; again, this illustrates that intergroup climate and intergroup contact might be related but distinct phenomena. Therefore, one facet of intergroup norms relates to the perception of the 'global', overall state of the relationship between groups.

As well as global evaluations of an intergroup relationship, intergroup norms may also pertain to beliefs and expectations about how groups *typically* interact. For instance, Black individuals may believe that most contact with Police is characterised by inequality and conflict, thus creating negative expectations for contact, with the potential to cause self-fulfilling prophesies (see Pinel, 2002 for an illustration of this principle). Further, in a model similar to that proposed in Figure 1.2, individuals may believe that there is a general societal structure of equal status and goal interdependence that *typically* characterises intergroup relations. For instance, regardless of what takes place in a specific instance of contact, non-Muslims might believe that their fundamental values are incompatible with the values of Muslims (i.e., low goal interdependence) (Everett et al., 2015). Such beliefs are similar to Stephan and Stephan's (1985) conceptualisation of symbolic threat, which pertains to perceptions that the outgroup's worldview is incompatible with that of the ingroup, yet are distinct in that intergroup climate is conceptualised as a cognitive (*vs.* affective) construct. Again, such intergroup norms may be quite different from the personal experience of intergroup contact: a Christian might have close friendships with (non-Christian) gay men and lesbians, but still believe that the intergroup norms between these groups are antipathetic. Therefore, intergroup norms are germane to, but separate from, intergroup contact. Further, a recent study by Sibley et al. (2013) found that as immigrant density (and thus intergroup contact) increased in a locality, individuals with a dangerous worldview expressed *more* prejudice toward immigrants. This effect might be explained in terms of intergroup norms, in that as the density of immigrants increases, individuals are more exposed to their cultural differences, increasing the salience of the extent to which such groups 'threaten' the stability and security of 'traditional' culture and lifestyle; that is, more exposure to immigrants may increase the perception that the groups have incompatible ways of life (i.e., low goal interdependence). Right-wing political parties similarly espouse such negative intergroup

norms, such as a recent campaign by the British National Party (2015) stating: “Rebecca will be an ethnic minority in her British ancestral homeland when she grows up unless you take action today … Help secure a future for British children.” Therefore, intergroup norms relating to relative status and conflict may be germane to intergroup contact.

As an element of intergroup climate, intergroup norms may moderate the effects of objectively good contact. One way in which this may occur is that intergroup norms of negative valence, inequality or conflict may hinder the effects of authority support on the structure of contact. For example, White individuals might choose to resist a Pastor’s attempts at integrating his congregation if they believe that they are in competition with Black churchgoers for resources such as jobs and housing. Another potential mechanism is that negative intergroup norms might serve to disambiguate contact, making contact that is neither particularly good nor bad (*sensu* Allport) appear less positive. Equally, negative intergroup norms might hinder the effects of *subjectively* well-structured contact. For instance, even in the face of favourably structured contact, individuals may refrain from cooperation due to wider concerns about the groups’ societal (*vs.* contact) relationship. Further, even if cooperation does take place, individuals could question the motives of the outgroup, either in the contact or more generally, and thus cooperative behaviour may not reduce intergroup anxiety. Alternatively, it may be that the intensity (*vs*. the valence, or the structure) of intergroup norms is what is most important, as more intense (*vs.* less intense) intergroup norms might overshadow the actual quality of contact. In other words, if negative intergroup norms are strongly (*vs.* weakly) salient, good contact may be disregarded as exceptional, and thus be less transformational or generalisable, and bad contact may equally have no effect other than to confirm existing attitudes (Pettigrew, 1979; Wilder, 1984). Similarly, if positive intergroup norms are strongly salient (*vs.* not salient), good contact may have no effect but to confirm existing attitudes, and bad contact may be disregarded as exceptional. Empirical

research is required to inform on these possible mechanisms of the moderation of intergroup norms on intergroup contact. In sum, the proposed effects predict that negative intergroup norms may moderate contact effects at each step of the two-step model of contact (Figure 1.3).

Ingroup norms. The second factor in the model of intergroup climate, ingroup norms, pertains to individuals' beliefs about whether other ingroup members would advocate positive or negative intergroup relationships. Such perceptions are germane to intergroup relations, for instance they strongly predict Blacks' attitudes toward police (Viki et al., 2006). Also, some of the variability in the effects of extended contact (Wright et al., 1997; Turner et al., 2007; Pettigrew, Christ, Wagner, & Stellmacher, 2007) may be attributable to ingroup norms. Further, as previously stated, Christ et al.'s (2014) survey studies demonstrated that an index of intergroup climate that included mean levels of prejudice and ingroup norms of diversity was a stronger predictor of intergroup attitudes than was personal intergroup contact. Whereas this result specifically evidences that ingroup norms can *predict* prejudice, no moderation hypothesis was explored, leaving unanswered the possibility that positive ingroup norms enhance contact effects. In other words, whereas ingroup norms were modelled as a predictor variable, they might have also fit the data as a moderator. This possibility highlights a potential role of intergroup climate variables as both predictors and moderators of contact.

Negative ingroup norms might hinder the effects of contact in a number of ways. First, negative ingroup norms may reduce the effect of authority support on contact's structure, with individuals acceding to the influence of their close ingroup rather than a more distal (authority) group, such as the Court or an employer. Second, perceptions of the structure of contact may become more negative amid negative ingroup norms; individuals may actually be motivated to experience poor contact, creating a bias in the interpretation of social information during contact. In this way, with the objective quality of contact held constant,

more negative ingroup norms may produce more negative *perceptions* of contact. The testing of this claim, however, may be difficult because it requires both objective and subjective indices of the quality of contact. An ancillary point is that such individuals may also be more motivated to report (*vs.* perceive) negative contact; negative ingroup norms may decrease the social desirability of intergroup contact. Third, amid negative (*vs.* positive) ingroup norms, individuals may be less disposed to cooperate at a given threshold of the structure of contact, that is, the relation between structure of contact and outcomes of contact may be weaker if it is believed that one's peers would frown upon intergroup collaboration. Fourth, negative ingroup norms may reduce the effect of cooperation on anxiety. Amid negative (*vs.* positive) ingroup norms, good contact may not reduce intergroup anxiety, which pertains to anxiety felt toward *or in the presence of* the outgroup; if a person fears ostracism or experiences guilt as a result of positive intergroup contact, then such contact, even when it is structurally 'good' and results in cooperation, may still produce negative affect. Therefore, negative ingroup norms may reduce the beneficial effects of good contact, at each step of the proposed model of contact (Figure 1.4).

Macro authority norms. In the third factor in the model of intergroup climate, I draw upon Allport's (1954) contact condition of authority support, which relates to the role of authorities sanctioning good intergroup relations. As previously noted, Allport (1954) emphasised that optimal contact required the sanction of a relevant authority. However, whereas authority support has previously been considered as a contact condition, other aspects of authority sanction might act as part of the intergroup climate. Recall that a key difference between intergroup contact and intergroup climate, as conceptualised within this thesis, is that the former relates to personal intergroup interaction, whereas the latter relates to the general intergroup relationship. Just as an individual might enter contact believing that "The authorities expect me to cooperate," so might they believe that "The authorities expect

White people to cooperate with Black people." Importantly, the level at which this attribution is made (i.e., at the 'micro' level of personal contact or the 'macro' level of societal climate) might have different intergroup outcomes. To illustrate: a White individual might perceive that her current contact with a Black person is characterised by positive goal interdependence (contact), but that the wider relationship between Whites and Blacks is not (climate); relatedly, a person might believe that their specific contact interaction with an outgroup member is not characterised by positive authority sanction (contact) but that the wider relationship between Whites and Blacks is characterised by positive authority sanction (climate). As such, within this thesis I distinguish between two specific aspects of authority sanction: micro-level beliefs about contact (i.e., "authority support") and macro-level perceptions about more general patterns of authority sanction (i.e., "macro authority norms"). Figure 1.5.1 illustrates this proposed structure of authority sanction. Research is needed to test the viability of such higher-level perceptions of authority – conceptualised within this thesis as *macro authority norms* – as a single construct, and to ascertain the extent to which it might form part of the intergroup climate.

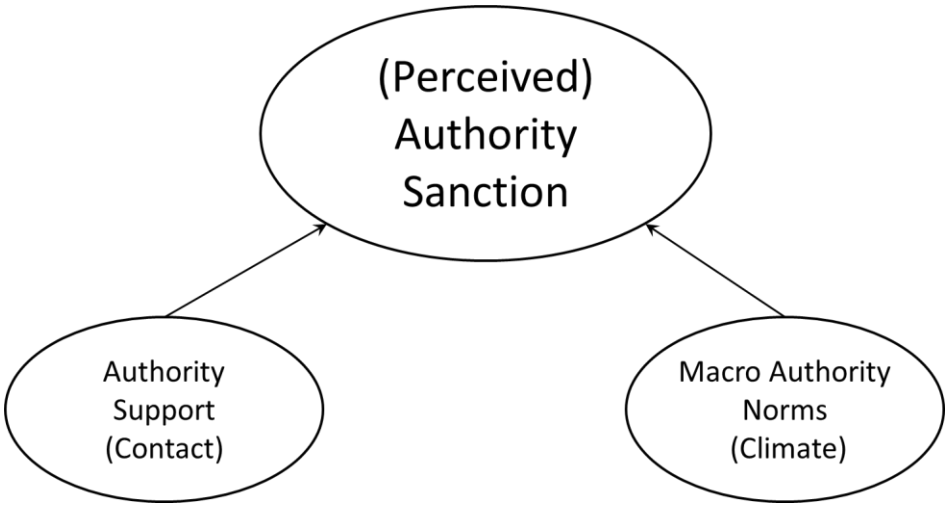

Figure 1.5.1. Conceptual model of authority sanction as intergroup contact and intergroup climate.

As with the other potential indices of intergroup climate, a number of possibilities arise regarding the effect of macro authority norms on contact effects. First, macro authority norms may operate in tandem with ingroup norms. For instance, a church Pastor might advocate positive interracial relations (Parker, 1968), thereby changing the attitudes and behaviours of members of the congregation. Amid close-knit religious communities, fellow members of the laity might be an important ingroup. Therefore, to the extent that ingroup norms moderate contact effects, macro authority norms may be involved in the process of moderation by predicting ingroup norms. Second, positive macro authority norms may improve the outcomes of contact. Serow and Solomon (1979) found that when classroom teachers instilled a climate of interpersonal concern, there were more positive interracial behaviours among the children, even controlling for the proportion of minority children (i.e., quantity of contact) and various indices germane to the structure of contact (e.g., ratings of the classroom as 'task-oriented'). In other words, with structure of contact held constant, more positive authority support was associated with more positive interracial behaviours (i.e., cooperation), suggesting that authority support can moderate the relation between the structure of contact and the outcomes of contact (see Figure 1.3). Yet consider that, whereas a teacher is often present in the classroom situation (i.e., during contact), such sanction for positive intergroup relations might be projected into the intergroup relationship more generally (climate); as such, the authority figure need not always be present in contact if macro authority norms *are* present (see also Landis et al., 1984). More distal authorities, such as the law, may instead provide strong personal consequences for *failing* to cooperate with outgroup members, such as the case in Northern Ireland in which the Christian owners of a bakery were ordered to pay compensation for refusing to decorate a cake with a pro-gay slogan (i.e., refusing to cooperate) (BBC News, 2016). By creating beliefs in individuals that non-cooperation with outgroups will have negative personal consequences, such macro

authority norms may make cooperation more appealing, again increasing the relation between contact and cooperation. Therefore, positive macro authority norms may facilitate the effect of contact's structure on the outcomes of contact (Figure 1.3).

Sociohistoric norms. The previously proposed factors of intergroup climate (i.e., intergroup norms, ingroup norms, and macro authority norms) are concerned primarily with the current intergroup relationship. However, the history of the relationship may also be important. Tropp and Pettigrew (2005) noted that minority and majority groups often enter contact from different sociohistoric perspectives, with minorities bringing with them the knowledge that they are part of a devalued social group. Others have stressed the importance of accounting for the history of intergroup relations when predicting the effects of contact (e.g., Brewer, 1996; Wang, Leu & Shoda, 2011). Further, it has been noted that groups with a history of conflict have higher levels of intergroup anxiety (Stephan & Stephan, 1985; Stephan et al., 1998). Consistent with this previous literature, sociohistoric norms are defined herein as individuals' beliefs pertaining to the ingroup's traditional relationship with the outgroup. Such beliefs may vary greatly from the structure of contact; Blacks may have equal status in an intergroup intervention, but be acutely aware that societally they occupy a lower stratum than do Whites, and have been historically mistreated by Whites. Equally, a gay man might have good contact with a Christian, and yet remain acutely aware that some religions have traditionally condemned homosexuality. Sociohistoric norms are thus distinct from intergroup norms as they include beliefs about the historical (*vs.* current) treatment of the ingroup, and are distinct from specific instances of contact.

Sociohistoric norms of antipathy may also relate to intergroup contact more subtly. From a terror management perspective, Greenberg and Kosloff (2008) argued that when faced with their mortality, individuals might cling to their ingroup as a vicarious route to immortality, thus resulting in more prejudice. Relatedly, individuals from marginalised

groups may draw upon narratives of their group's resilience in the face of adversity in order to overcome personal challenges (Bikmen, 2015). Taken together, these studies suggest that members of groups with long histories, such as racial and religious groups – that is, the very group boundaries along which the most intense antipathies have tended to form – may have a particularly strong connection to the sociohistoric tradition of the ingroup, and thus a strong desire for the perpetuation of such traditions. Crucially, within such groups, mistreatment by, and antipathy towards the outgroup might be an important part of the group's history, making reconciliation seem impossible or even undesirable. Therefore, sociohistoric norms might include the extent to which individuals believe that a given state of intergroup antipathy has 'always' existed, and always will exist.

Negative sociohistoric norms might hinder contact effects. First, the belief that one's ingroup has been historically wronged may cause psychological reactance against laws and authoritarian expectations requiring good intergroup relations, reducing the effect of authority support on the structure of contact. For example, a Black person who believes that Whites have always mistreated Blacks may be less likely to respect laws governing positive race relations. Indeed, such individuals might regard such laws as being part of a system that perpetuates racial inequality. Second, amid the knowledge that one is part of a devalued group, or a group that has been harmed by the other group in the past, seemingly innocuous behaviours can appear threatening or derogatory (Wang, Leu & Shoda, 2011), making structurally good contact less likely to result in cooperation. To illustrate, a member of a historically marginalised group might regard equal status contact as patronising, artificial, naïve, or suspicious. Finally, sociohistoric concerns which are external to the contact situation may account for more of the variance of negative affect toward the outgroup than does contact; that is, within an intergroup climate of sociohistoric antipathy (*vs.* a more positive sociohistoric climate), cooperation may account for a relatively smaller portion of

the variance in intergroup anxiety. Some support for these predictions exists in the literature, such as Mullen, Brown, and Smith's (1992) finding that the effect of relative status (i.e., structure of contact) on attitudes was greater among minimal than real groups, possibly because minimal groups do not have sociohistoric norms to contend with. Therefore, sociohistoric norms might also form part of the intergroup climate.

Effect of Intergroup Climate on Intergroup Contact Effects

As argued thus far, each component of the four-factor model of intergroup climate may hinder the beneficial effects of intergroup contact on intergroup relations, by reducing the effects at various steps in the proposed three-step model of intergroup contact (Figure 1.4). Whereas individual factors might hinder the model at different stages, the overall relation between intergroup climate and intergroup contact may be very simple: a negative intergroup climate may hinder the beneficial effects of good contact. Figure 1.6 illustrates this prediction.

Summary

Intergroup contact is associated with less prejudice, a phenomenon evidenced by 60 years of research (Pettigrew & Tropp, 2006). However, some conspicuous gaps remain in the literature. First, contact theory would benefit from further clarity on the nature of specific contact conditions. Equal status has variously been defined and tested as equal reputation and equal power (e.g., Brophy, 1945; Walker & Crogan, 1998). Goal interdependence and cooperation have often been conflated into a single construct, 'cooperative interdependence' (e.g., Molina & Wittig, 2006). Further, research into authority support has been exclusively cross-sectional (*vs.* experimental), and has returned equivocal results (e.g., Dovidio et al., 2003). Second, the structure of contact – that is, the relation between contact conditions – has received some preliminary exploration (e.g., Koschate & van Dick, 2011) but requires further research. Therefore, this thesis explores both the structure of contact conditions, and the relation between contact conditions, considering competing models of contact.

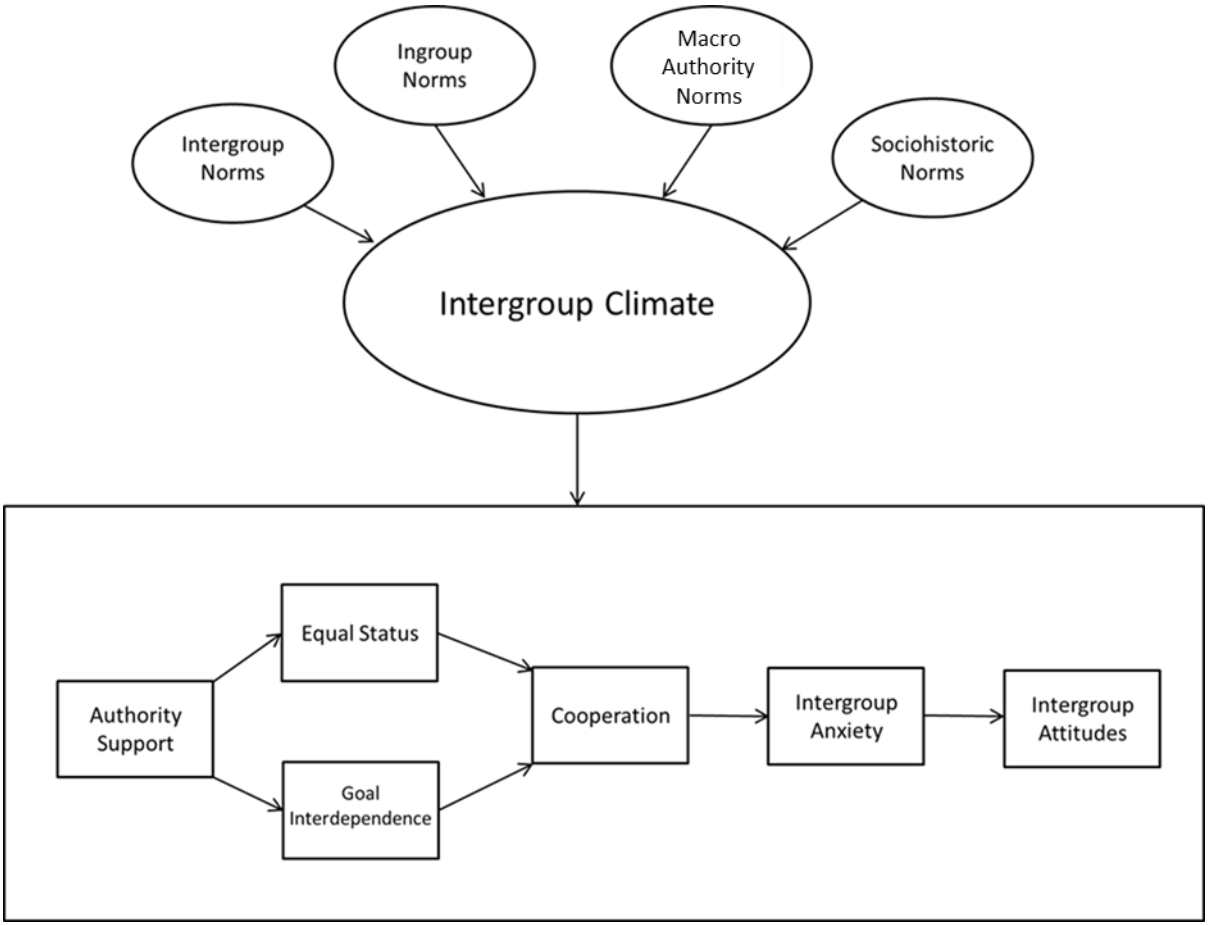

Figure 1.6. Conceptual model of intergroup climate as a moderator of intergroup contact.

Researchers are also beginning to examine the intergroup climate, society-level variables pertaining to a given intergroup relationship (Christ et al., 2013, 2014). Early research into intergroup climate has been specific to the intergroup relationships under scrutiny, producing factors that could not easily be applied to different relationships (e.g., Barth, 1974). Contemporary intergroup climate research has been more generalisable (e.g., Christ et al., 2013), yet further research is needed to test more fully the structure of intergroup climate using a range of indices, across a range of intergroup relationships. Therefore, this thesis proposes and tests a four-factor model of intergroup climate (Figure 1.5).

Finally, there is a growing interest among contact researchers on the boundary conditions of intergroup contact (e.g., Hodson & Hewstone, 2013). Intergroup contact does not take place within a social vacuum; groups enter contact with knowledge of the wider societal backdrop within which such contact is situated. Whereas the unique effects of contact and climate on prejudice have been explored in recent research (Christ et al., 2014), the extent to which the prevailing intergroup climate moderates the effects of such contact warrants scientific scrutiny. For instance, within a 'cool' (i.e., negative) intergroup climate, intergroup contact might be less effective than would be the same quality of contact in a more favourable climate. Such a phenomenon would have important implications for contact researchers and practitioners, and thus the moderating effect of intergroup climate on intergroup contact is explored within this thesis.

Research Questions

A number of specific questions thus emerge from the reviewed literature, and are addressed in this thesis:

RQ1: What is the Structure of Contact?

A core goal of this thesis is to test whether, consistent with 'classic' contact theory (Allport, 1954; Pettigrew, 1998) equal status, goal interdependence, cooperation, and authority sanction are single-factor constructs, each exerting an independent effect on intergroup attitudes. I hypothesise that: equal status is a two-factor construct (i.e., equal reputation and equal power); goal interdependence and cooperation are separate, but related constructs, rather than a single construct (i.e., cooperative interdependence); and that authority sanction is a two-factor construct that relates to how authorities state that groups should coexist, and how authorities treat groups. These hypotheses are explored in Chapters 6 and 7, in which large-scale survey studies are presented.

RQ2: What are the Relations Between Contact Conditions?

A second core goal of this thesis is to test competing theory-driven models of the process of contact, that is, relations *between* contact conditions. To evaluate whether an Allportian model of contact (Figure 1.1) is supported empirically, or whether higher equal status and higher goal interdependence reduce prejudice through more cooperation, consistent with Koschate and van Dick (2011), a cross-sectional study will test cooperation as a mediator of the effect of Blacks' contact with police on attitudes toward police (Chapter 2). Further, the extent to which equal status and goal interdependence are interrelated constructs in real (*vs.* minimal) intergroup relationships is explored through an experimental study in Chapter 3. The relations between authority support (*sensu* Allport), equal status, and goal interdependence (e.g., Figure 1.1, Figure 1.3, Figure 1.4) will also be tested cross-sectionally by means of path modelling of data from the aforementioned large-scale survey studies (Chapters 6 and 7).

RQ3: What is the Structure of Intergroup Climate?

I propose and test a four-factor model of intergroup climate (Figure 1.5). This four-factor model of intergroup climate will be tested as part of the survey studies presented in Chapters 6 and 7; this will specifically include testing macro authority norms as a predictor and moderator of contact. Given the observation that previous research on intergroup climate has defined the construct too specifically (e.g., Barth, 1974; Hewett et al., 2009), the same chapters will also explore the extent to which the four-factor model of intergroup climate can be applied across different intergroup relationships, "Whites *vs.* Blacks" (Chapter 6), and "non-Muslims *vs.* Muslims" (Chapter 7) specifically.

RQ4: Do Intergroup Contact and Intergroup Climate Interact?

Researchers are exploring the nuances, and facilitating and inhibiting conditions, of intergroup contact (Hodson & Hewstone, 2013), and there is some suggestion in the contact

literature that perspectives of the wider societal backdrop (i.e., intergroup climate) might moderate contact effects (e.g., Tropp & Pettigrew, 2005). In Chapter 2, the potential moderating effect of intergroup norms on contact effects regarding Blacks' attitudes towards police will be explored. In Chapter 3, an experimental design will be employed to test whether perceptions of contact are affected by the manipulation of intergroup norms and sociohistoric norms. Next, two experimental studies will test whether manipulating individual facets of intergroup climate moderate the effects of contact, and the process of contact (i.e., moderated mediation) (e.g., Figure 1.6); Chapter 4 will report the effect of ingroup norms, whereas Chapter 5 will focus instead on macro authority norms as a moderator. Finally, in Chapters 6 and 7, the large-sample cross-sectional study data will also be interrogated using moderation analysis techniques.

CHAPTER 2: INTERGROUP NORMS AND POLICE-BLACK RELATIONS IN THE UK

In the previous chapter, I reviewed studies that suggest that the relation between contact conditions (Allport, 1954) might be more complex than in traditional models (e.g., Pettigrew, 1998). Whereas classic contact theory has modelled contact conditions as independent predictors of warmer outgroup attitudes, contemporary researchers have posited that cooperation might mediate the relation between the structure of contact (i.e., equal status and goal interdependence) and intergroup attitudes (Koschate & van Dick, 2011). Further, I theorised that the prejudice-reducing effect of higher quality contact on warmer attitudes towards an outgroup (e.g., Pettigrew & Tropp, 2006) might be moderated by intergroup climate. Specifically, I hypothesised that warmer (*vs.* cooler) intergroup climate might facilitate contact effects. Therefore, in this first empirical chapter, I employ a cross-sectional design to test the viability of models of contact in which willingness to cooperate mediates the relation between the structure of contact and intergroup outcomes, and models in which intergroup climate moderates contact effects. I also add to the relatively small number of studies that consider contact from the perspective of minority/marginalised (*vs.* majority) groups, focusing presently on the attitudes of individuals identifying as Black towards police in the United Kingdom.

Structure of Contact in Police-Black Relations

Classic contact theorists (e.g., Allport, 1954; Pettigrew, 1998) have operationalised quality of contact in terms of four contact conditions: equal status, goal interdependence, cooperation, and authority support. However, quality of contact has been defined in different ways in the contact literature. Eller et al. (2007) conducted one of the relatively few studies that have considered contact from the perspective of the minority group, measuring quality of Blacks' contact with police across four axes: whether contact was voluntary, pleasant, cooperative, and intimate (see also Viki et al., 2007). Such measures are conceptually linked

to Allport's contact conditions; if contact is involuntary for one group, then it is likely to be perceived as low in equal status and goal interdependence. Further, considering the voluntary-involuntary axis, research indicates that those who approach police experience higher quality contact than those whom the police approach (Cheurprakobkit, 2000), a phenomenon presumably linked to the different paradigms within which policing is carried out in the United Kingdom. Specifically, individuals who initiate contact with the police are more likely to be accessing the *public service* aspect of policing[1], whereas those with whom the police initiate contact are more likely to be meeting under the auspices of *enforcement* (see Viki et al., 2007, for a similar argument). Therefore, enforcement contact might be lower quality contact (i.e., lower equal status, lower goal interdependence) with more typical enforcement contact resulting in negative intergroup outcomes, whereas service delivery contact might be higher quality contact (i.e., higher equal status, higher goal interdependence), leading to warmer intergroup attitudes. With the focus of the present study resting on police and Black people, I therefore draw upon previous operationalisations of quality of contact by focusing on the unique, dichotomous paradigms within which police-civilian contact occurs in the United Kingdom: enforcement and service delivery. Further, given that positive and negative contact have separate effects on intergroup attitudes (Barlow et al., 2012), I conceptualise quality of contact as the extent to which service delivery contact and enforcement contact, respectively, are typical of individuals' contact with police. Therefore, presently, I consider the separate effects of service delivery and enforcement contact on Black peoples' attitudes towards police.

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[1] UK Police carry out a number of functions that are not linked to law enforcement, such as the handling of lost property.

As noted in Chapter 1, some contemporary contact theorists are proposing more complex models of the relations among contact conditions. Specifically, whereas classic contact theory (e.g., Allport, 1954; Pettigrew, 1998) has viewed cooperation as an independent predictor of contact, more recently Koschate and van Dick (2011) successfully modelled cooperation as a mediator between the structure of contact – modelled as equal status and goal interdependence – and intergroup outcomes. Therefore, in the present study, I employ a similar methodology to other studies exploring these phenomena (Eller et al., 2007; Koschate & van Dick, 2011; Viki et al., 2006), and test whether cooperation might be modelled as an outcome of the structure of contact, operationalised as enforcement and service delivery. However, as noted in Chapter 1, cooperative behaviours might not be indicative of, or conducive to, positive intergroup relations in situations where one group has power over another group; in such situations coercion, not cooperation, might better describe complaisant behaviours. Such a situation might be particularly likely in the relationship under scrutiny in the present research, because not cooperating with police can result in negative outcomes such as restraint or incarceration. Therefore, presently I focus on whether higher quality of contact between police and Black people might lead to more *willingness* to cooperate by Black individuals in future contact. Eller et al. (2007) and Viki et al. (2006) respectively modelled cooperation and willingness to cooperate as mediators between quality of contact and Blacks' attitudes towards police in the United Kingdom. Therefore, in the present study, willingness to cooperate is explored as a mediator of the effects of the structure of contact (enforcement and service delivery) on intergroup outcomes. Consistent with the framework presented in Chapter 1, I also explore whether intergroup anxiety mediates the contact-attitude relation, modelling this affective construct as a parallel mediator – alongside willingness to cooperate – and as a serial mediator (i.e., following willingness to cooperate). Figure 2.1 illustrates these models.

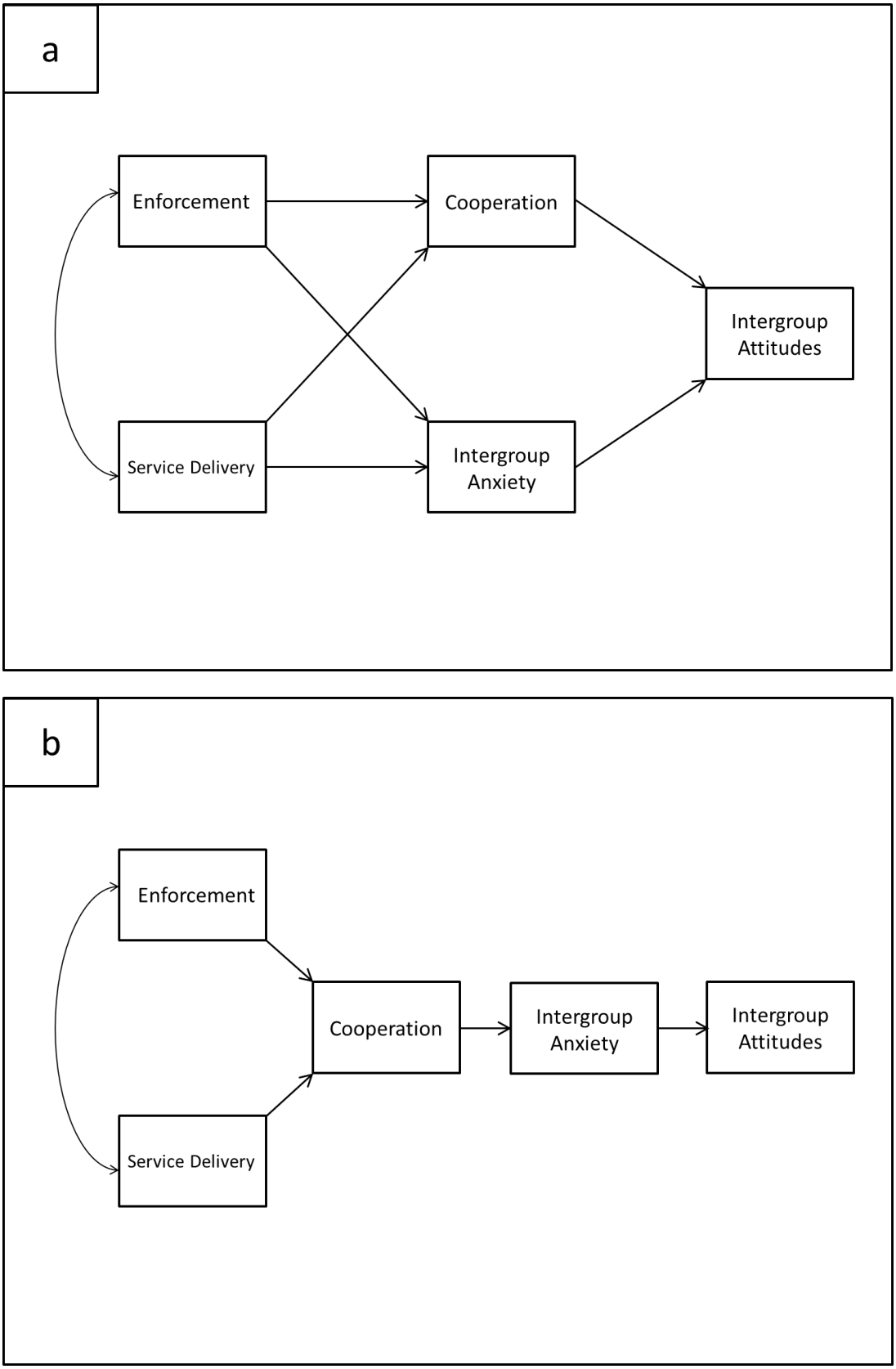

Figure 2.1. Conceptual models of the effect of intergroup contact on attitudes towards police, via a) parallel mediation, and b) serial mediation.

Effect of Intergroup Climate on Contact Effects

In Chapter 1, I also theorised that the effect of more positive contact on warmer intergroup attitudes might be facilitated by a warmer intergroup climate – personal-level perceptions of the *general* state of the intergroup relationship. I proposed a model of intergroup climate (Figure 1.5) within which one index, intergroup norms, was defined as perceptions regarding how ingroup and outgroup members typically interact with one another. This index of intergroup climate is analogous to Allport's (1954) 'role aspects' of contact. Allport hypothesised that existing relationships between individuals moderate the effects of intergroup contact between those individuals; contact between a Black and a White stranger at a bus stop might have different outcomes than the same contact between a Black cleaner and the White CEO of the company that employs him. Therefore, just as wider relations between individuals might moderate contact, so might perceptions of the wider relations between groups (i.e., intergroup norms) moderate contact. For instance, within the presently considered intergroup relationship, a Black person might perceive that Black people and the UK police are equal partners with the shared goal of creating and maintaining safe, strong communities. Amid such warm intergroup norms of high equal status and high goal interdependence, positive interactions (i.e., high quality of personal contact) with police might be particularly effective in facilitating positive attitudes towards police. Therefore, in the present study, I define intergroup climate in terms of specific intergroup norms of equal status and goal interdependence. Consistent with the theoretical framework outlined in Chapter 1, I thus test whether the content (*vs.* valence) of specific intergroup norms moderate the effects of the structure of contact.

Study 1

In Study 1, I surveyed individuals identifying as Black and living in the United Kingdom, regarding their perceptions of the quality of personal contact with the UK police,

willingness to cooperate, intergroup anxiety, perceptions of the intergroup climate between groups, and intergroup attitudes. Employing regression-based analyses, I tested whether competing models of intergroup contact and intergroup climate were viable in explaining Blacks' attitudes towards police.

Hypotheses

Hypothesis 1. I predicted that warmer attitudes towards police would relate to a) less typical enforcement contact, b) more typical service contact, and c) more willingness to cooperate

Hypothesis 2. I tested competing hypotheses that: a) a traditional model in which cooperation was modelled as an independent predictor alongside quality of contact (e.g., Allport, 1954; Pettigrew, 1998; Figure 1.1) would best fit the data; and b) that contemporary models (e.g., Koschate & van Dick, 2011) in which cooperation was modelled as a mediator of the relation between quality of contact (service delivery and enforcement) and attitudes towards police (Figure 2.1), would best fit the data.

Hypothesis 3. I predicted that the relation between higher quality contact and warmer attitudes would be facilitated (i.e., moderated) by warmer intergroup norms of a) equal status, and b) goal interdependence, such that, amid warmer (*vs.* cooler) intergroup norms, higher quality contact would be associated with more positive attitudes towards police.

Method[2]

Participants and Procedure

Individuals identifying as Black living in the United Kingdom (n = 200, M_{age} = 36.61 years, age range 18-71 years, SD_{age}=12.26, 54% female) were recruited online through Qualtrics, a web-based survey recruitment service, and took part in an online questionnaire study titled "Perceptions of the UK Police." After giving consent, participants provided demographic information then completed, in order, measures of quality of contact, intergroup norms, willingness to cooperate, intergroup anxiety, and attitudes towards police. Participants then read a debriefing form and indicated whether they consented to their data being included in analyses. Five participants who failed to respond to each scale were excluded from all analyses, hence analyses were conducted with n = 195. As such, sample size met requirements for path modelling analyses (e.g., Kline, 2005; Nunally, 1967).

Measures

All measures employed in this thesis are included in Appendix A.

Quality of contact. Consistent with previous research linking the type of police contact with quality of contact (Cheurprakobkit, 2000; see also Viki et al., 2006), participants responded to two items measuring the type of contact they typically had with police. First, they completed a measure of **enforcement contact**. To measure enforcement (i.e., low-quality) intergroup contact, participants first read the following definition: "Police contact in which the police are imposing law and order". Next, they rated how typical this was of their contact with police on a scale from 1-*Very Typical* to 7–*Very Atypical*. Scores were reverse-

[2] The author would like to thank two anonymous reviewers and a journal editor whose peer-review of a previous version of the study outlined in this chapter led to improvements in the analysis of the data. The original manuscript is available on requiest.

keyed so that higher scores indicated more typical enforcement contact. Next, participants completed a measure of **service delivery contact**. To measure service delivery (i.e., high-quality) intergroup contact, participants read the following definition: "Police contact in which the police are providing a public service." Next, they rated how typical this was of their contact with police on a scale from 1-*Very Typical* to 7–*Very Atypical*. Scores were reverse-keyed so that higher scores indicated higher quality contact.

Intergroup norms

Equal status. Participants responded to a single item on a scale from 1-*Strongly Disagree* to 5-*Strongly Agree*: "Neither Black people nor the UK Police have more power in society than the other." Higher scores indicated warmer norms of equal status.

Goal interdependence. Three items assessed the absence of conflict and the presence of common goals between police and Blacks: "The UK Police and Black people get along just fine", "Black people are not in conflict with the UK Police", and "Black people and the UK Police have the same overarching goals." Participants responded on a scale from 1-*Strongly Disagree* to 5-*Strongly Agree*. Items were averaged, with higher scores indicating warmer norms of goal interdependence ($\alpha = .68$)[3].

Willingness to cooperate. Participants responded to Viki et al.'s (2006) five scenarios, each of which described an offence that participants might hypothetically witness (e.g., "If you saw someone being beaten up outside a pub…"). For each scenario, participants indicated how likely they would be to: "call the Police"; "provide witness statements to the Police if necessary"; "give evidence in court if necessary." Participants responded on a scale

[3] Inter-item reliability on this scale could not be improved by the removal of any of the three items.

from 1-*Very unlikely* to 7-*Very likely.* The 15 items were averaged, with higher scores indicating more willingness to cooperate (α = .95).

Intergroup anxiety. Stephan and Stephan's (1985) 12-item intergroup anxiety scale was administered[4]. Participants indicated how they would feel "If you met a UK Police officer face-to-face." Participants indicated how they would feel in terms of 12 emotions (e.g., uncertain, threatened, awkward, suspicious) on a scale from 1-*Not at all* to 10-*Extremely.* Responses were averaged, with higher scores indicating higher intergroup anxiety (α = .92).

Attitudes towards police. Participants responded to the Feelings Thermometer measure of intergroup attitudes, indicating how 'warm' they felt towards the UK Police. Responses were on a ten-point scale beginning at 0-10°, and increasing in ten degree increments to 91-100°, with higher values indicating warmer (i.e., more positive) intergroup attitudes.

Results

Contact and Climate Effects

A small number (< .1%) of missing data were replaced with the sample mean prior to analyses. Table 2.1 displays means, standard deviations, and zero-order correlations between study variables. Regarding contact effects, more (*vs.* less) typical service delivery contact related to warmer attitudes towards police. However, more (*vs.* less) typical enforcement contact did not relate to attitudes towards police. Regarding intergroup climate effects,

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[4] Participants responded to measures of all four components of the integrated threat theory (i.e., intergroup anxiety, realistic threat, symbolic threat, and negative stereotyping) (Stephan & Stephan, 1985), however, consistent with Chapters 6 and 7 of this thesis, my primary interest was in assessing the mediating role of intergroup anxiety. Among threat variables, intergroup anxiety was the strongest predictor of intergroup attitudes. Raw data are available on request.

warmer intergroup norms of equal status and warmer intergroup norms of goal interdependence related to warmer attitudes towards police. Therefore, as expected, more (*vs.* less) typical high quality intergroup contact and warmer (*vs.* cooler) intergroup climate each related to warmer attitudes towards police at the zero-order level.

Mediation Analyses

To investigate the mechanisms of contact effects, a base model was constructed using AMOS software version 22.0. As indices of intergroup contact, typicality of enforcement and service delivery were modelled as covarying quality of contact predictors of willingness to cooperate, intergroup anxiety, and attitudes towards police. Willingness to cooperate was modelled as predicting intergroup anxiety and attitudes towards police. Intergroup anxiety was modelled as predicting attitudes towards police. From this base model, the parallel mediation model was estimated by constraining the path from willingness to cooperate to intergroup anxiety to zero. Next, the serial mediation model was estimated by removing the constraint on the pathway from willingness to cooperate to intergroup anxiety, and instead constraining the pathway from willingness to cooperate to attitudes towards police to zero. AMOS provided inferential statistics for indirect effects using bootstrapping (10,000 samples herein) to calculate *p*-values based on bias-corrected confidence-intervals. Model fit was assessed with three indices: good fit may be inferred when chi-square is non-significant, the root mean square estimate of approximation (RMSEA) is less than .05, and the comparative fit index (CFI) is greater than .90 (see Hooper, Coughlan & Mullen, 2008, for a review of fit indices).

Parallel mediation model. Standardised coefficients for each pathway of the parallel mediation model are displayed in Table 2.2. The model had poor fit, $\chi^2(1) = 21.93$, $p < .001$, RMSEA = .33, CFI = .87. Regarding significant direct effects: there was an effect (marginal) whereby those perceiving enforcement as more (*vs.* less) typical perceived higher intergroup

anxiety, p = .081; further, those perceiving more (*vs.* less) typical service delivery contact perceived lower intergroup anxiety, and warmer attitudes towards police; and an effect of more willingness to cooperate on warmer attitudes towards police. Regarding significant indirect effects, there was an effect of perceiving more typical service delivery contact on warmer attitudes towards police, via more willingness to cooperate and less intergroup anxiety, p = .027, 95%CI [.01, .23]. Therefore, consistent with predictions, and the proposed parallel mediation model (Figure 2.1a): perceiving more typical enforcement contact predicted higher intergroup anxiety; perceiving more typical service delivery contact predicted lower intergroup anxiety and warmer attitudes towards police; and more willingness to cooperate predicted warmer attitudes towards police; and perceiving more typical service delivery contact predicted warmer attitudes via the proposed parallel mediators. However, contrary to hypotheses: neither perceived typicality of enforcement nor of service delivery contact directly predicted willingness to cooperate; perceived typicality of enforcement contact did not directly predict attitudes towards police; and there was no indirect effect of typicality of enforcement contact on warmer attitudes towards police.

Table 2.1

Means, standard deviations and correlations among study variables.

	Mean	*SD*	1	2	3	4	5	6
Quality of contact								
1. Enforcement	3.90	2.02	-					
2. Service	4.45	1.94	.50*	-				
Intergroup norms								
3. Equal status	2.74	1.33	-.03	-.03	-			
4. Goal Interdependence	2.85	.97	.003	.02	.33*	-		
Proposed Mediators								
5. Willingness to cooperate	4.88	1.41	-.04	.05	.20*	.26*	-	
6. Intergroup anxiety	4.67	2.08	.04	-.14	-.10	-.29*	-.34*	-
Outcome								
7. Attitudes towards police	59.50	26.02	.01	.15*	.18*	.44*	.30*	-.59*

Note. $N = 195$. *$p < .05$.

Table 2.2

Standardised direct and indirect effects of enforcement (ENF) and service delivery (SER) on attitudes towards police (ATP), via willingness to cooperate (WTC) and intergroup anxiety (IA), by parallel, and serial mediation.

Model		*Parallel*				*Serial*	
		Criteria					
Predictors	Effect	SER	WTC	IA	ATP	IA	ATP
Enforcement (ENF)	Covariance	1.93*					
	Direct		-.08	.14^{t}	.003	.12	-.001
	Indirect				-.09	.03	-.08
Service Delivery (SER)	Direct		.08	-.21*	.07	-.18*	.07
	Indirect				.13*	-.03	.12*
Wilingness to Cooperate (WTC)	Direct				.12*	-.32*	-
	Indirect						.19*
Intergroup Anxiety (IA)	Direct				-.56*		-.58*
R^2			.01	.03	.34	.14	.36

Note. *$p < .05$, $^{t}p < .1$.

Serial mediation model. Standardised coefficients for each pathway of the serial mediation model are displayed in Table 2.2. The model had poor fit, χ^2 (1) = 3.83, p = .050, RMSEA = .12, CFI = .87. Identical to the parallel mediation model, enforcement contact had a marginal positive effect on intergroup anxiety, and service delivery contact had a significant negative effect on intergroup anxiety. Regarding significant direct effects, there was an effect of more typical service delivery on lower intergroup anxiety, and of more willingness to cooperate on lower intergroup anxiety. Regarding significant indirect effects, there was an effect of more typical service delivery contact on warmer attitudes towards police via more willingness to cooperate and less intergroup anxiety, in serial, p = .026, 95%CI [.01, .22]. Further, there was effect of more willingness to cooperate on attitudes towards police, via less intergroup anxiety, p < .001, 95%CI [.11, .28]. Therefore, consistent with the proposed serial mediation model (Figure 2.1b), more typical service delivery contact and more willingness to cooperate each predicted lower intergroup anxiety, and more typical service delivery contact predicted warmer attitudes towards police via more willingness to cooperate and lower intergroup anxiety. Further, more willingness to cooperate predicted warmer attitudes towards police via lower intergroup anxiety.

Model comparison. To evaluate whether the serial model (*vs.* the parallel model) (Figure 2.1) provided a better fit to the data I compared the respective Bayesian Information Criteria (BIC) of the two models. BIC is a measure of comparative fit, and as such can be used to compare non-nested models, such as those in the present study. Lower values indicate better fit. Comparisons revealed that the serial mediation model better fit the data, BIC = 77.65, than did the parallel mediation model, BIC = 95.75. Critically, the magnitude of the difference between these indices exceeded the conventional threshold for ‘very strong evidence’ that the serial mediation model better fit the data, ΔBIC = -18.10 (Raftery, 1995; Kass & Raftery, 1995).

I also fitted and tested a more traditional model of contact, wherein cooperation was modelled as a predictor (*vs.* mediator) of contact effects (e.g., Allport, 1954; Pettigrew, 1998). Enforcement, service delivery, and willingness to cooperate were entered as covaried predictors of intergroup anxiety, which in turn was modelled as predicting attitudes towards police. Standardised coefficients for each pathway of this model are displayed in Table 2.3. Model fit was good, $\chi^2(3) = 5.18$, $p < .001$, RMSEA = .06, CFI = .99, BIC = 68.46. There was an indirect effect of more typical service delivery contact on warmer attitudes toward police, via lower intergroup anxiety, 95% CI [.003, .21], $p = .044$. Further, there was an indirect effect of more willingness to cooperate on warmer attitudes toward police, via lower intergroup anxiety, 95% CI [.11, .29], $p < .001$. However, there was no indirect effect of enforcement on attitudes toward police via intergroup anxiety, 95% CI [-.17, .04], $p = .202$. Consistent with hypothesis 2a, results showed that this traditional model fit the data significantly better than did the parallel mediation model, $\Delta BIC = -9.19$, and the serial mediation model, $\Delta BIC = -27.29$ (Raftery, 1995; Kass & Raftery, 1995).

Table 2.3

Standardised direct and indirect effects of enforcement, service delivery, and willingness to cooperate on attitudes towards police, via intergroup anxiety

		Criteria			
Predictors	Effect	SER	WTC	IA	ATP
ENF	Covariance	1.93*	-.10	-	-
	Direct			.12	-
	Indirect				-.07
SER	Covariance		.12	-	-
	Direct			-.20*	-
	Indirect			-	.11*
WTC	Direct			-.32*	-
	Indirect			-	.19*
IA	Direct			-.59*	-
R^2				.14	.35

Note. *$p < .05$.

Intergroup Climate and Intergroup Attitudes

Hierarchical regression analyses were employed to explore whether intergroup norms of equal status, and intergroup norms of goal interdependence predicted attitudes towards police, and moderated the effect of intergroup contact on attitudes towards police. In the first regression, intergroup norms of equal status were modelled as a predictor and moderator. In the first step of this hierarchical regression, attitudes towards police were regressed onto standardised variables of typicality of enforcement contact, typicality of service delivery

contact, and willingness to cooperate, respectively. In the second step, standardised intergroup norms of equal status and the three two-way interactions were entered. Unstandardised coefficients of these standardised variables are presented in Table 2.4. In the first step, the regression model significantly predicted attitudes towards police, $F(3,191) = 8.16$, $p < .001$, with warmer attitudes towards police significantly predicted by more typical service delivery contact, $p = .037$, $sr^2 = .15$, and more willingness to cooperate, $p < .001$, $sr^2 = .30$. Typicality of enforcement contact did not predict attitudes towards police, $p = .441$, $sr^2 = -.06$. In the second step, the inclusion of intergroup norms of equal status and its interaction terms did not significantly improve the model, $F(7, 187) = 4.49$, $p < .001$, R^2 change = .030, $p = .162$. Higher intergroup norms of equal status predicted warmer attitudes towards police, $p = .044$, $sr^2 = .15$. However, intergroup norms of equal status did not moderate the relation between attitudes towards police and enforcement contact, $p = .978$, $sr^2 = .002$, service delivery contact, $p = .315$, $sr^2 = -.07$, or willingness to cooperate, $p = .231$, $sr^2 = - .09$. Therefore, contrary to hypotheses, intergroup norms of equal status did not moderate the relation between quality of contact and attitudes towards police.

A second regression was conducted in which intergroup norms of goal interdependence were tested as a predictor and moderator; predictor variables were standardised as in the previous regression, with product terms calculated using these standardised predictors. Table 2.4 displays the unstandardised coefficients of these standardised variables. Results for the first step of the regression are identical to those in the analysis of intergroup norms of equal status. In the second step, the inclusion of intergroup norms of goal interdependence and its interaction terms resulted in a significant improvement on the Step 1 model, $F(7, 187) = 9.61$, $p < .001$, R^2 change = .15, $p < .001$. Intergroup norms of goal interdependence significantly predicted attitudes towards police, $p < .001$, $sr^2 = .40$. However, intergroup norms of goal interdependence did not moderate the relation between

attitudes towards police and typicality of enforcement contact, p = .978, sr^2 = -.004, typicality of service delivery contact, p = .161, sr^2 = -.10, or willingness to cooperate, p = .806, sr^2 = .02. Therefore, contrary to hypotheses, intergroup norms of goal interdependence did not moderate the relation between contact and attitudes towards police

Table 2.4.

Unstandardised regression coefficients for effect of quality of contact on attitudes towards police (Model 1), moderated by intergroup norms of equal status (Model 2), and intergroup norms of goal interdependence (Model 3), and total variance in attitudes towards police explained by each model.

	Model		
Predictor	1	2	3
Intergroup Contact			
Enforcement contact	-.16	-.14	-.16
Service delivery contact	.43*	.46*	.44*
Willingness to cooperate	.77*	.67*	.51*
Intergroup Climate			
Intergroup norms	-	.37*	1.01*
Moderation			
Intergroup norms x Enforcement	-	.01	-.01
Intergroup norms x Service Delivery	-	-.19	-.23
Intergroup norms x Willingness to cooperate	-	-.22	.04
R^2	.11	.14	.26

Note. N = 195. $^*p < .05$.

Discussion

In the present study, I explored competing models of contact, focusing on Blacks' attitudes towards police (e.g., Allport, 1954; Pettigrew, 1998; Koschate & van Dick, 2011). Results strongly supported a more traditional model (Allport 1954; Pettigrew, 1998) in which cooperation was modelled as a predictor (*vs.* mediator) of contact effects. Concerning the relations between contact conditions, this first empirical chapter therefore suggests that contact conditions are independent, unique predictors of prejudice; such a conclusion is qualified by the cross-sectional design of the present study.

Regarding the relations between intergroup contact constructs, and between contact and climate constructs, I also tested whether Blacks' attitudes towards police could be explained by quality of intergroup contact, intergroup norms of equal status and goal interdependence, and the interactions of these constructs. Consistent with hypotheses, more (*vs.* less) typical service delivery contact and more (*vs.* less) willingness to cooperate each predicted warmer attitudes towards police. These findings suggest that Police-Black relations might be improved by fostering cooperation between groups, and also by encouraging individuals identifying as Black to access the UK policing provisions of service delivery – that is, by encouraging high quality contact. To this extent, results were consistent with the principle whereby higher quality contact facilitates warmer intergroup attitudes (Allport, 1954; Eller et al., 2007; Pettigrew, 1998; Pettigrew & Tropp, 2006; Viki et al., 2006). However, unexpectedly, more typical enforcement (i.e., low-quality) contact did not predict attitudes towards police (cf. Barlow et al., 2012). I propose three potential explanations for this null finding. First, while the sample size meets recommendations for path analyses (see e.g., Kline, 2005), contemporary methodologists are moving away from suggesting 'minimum' sample sizes (Mundfrom, Shaw, & Ke, 2005); larger (*vs.* smaller) samples are generally agreed to be desirable. There are, however, practical difficulties associated with the

recruitment of minority participants (e.g., Blau, 1970; Herring et al., 2004), especially in countries like the UK where people identifying as Black comprise only 3% of the population (Office for National Statistics, 2012). Second, enforcement contact, specifically, might not affect attitudes towards police; individuals (particularly Black individuals; Eller et al., 2007; Viki et al., 2006) might hold enforcement contact as the *status quo* for contact with police, thus making such low-quality contact unremarkable and non-transformational. This interpretation is consistent with the observation that service delivery contact – arguably less 'normal', and thus more transformational – *was* associated with warmer attitudes towards police, an interpretation that is consistent with the phenomenon by which information that defies expectancies is more salient (e.g., Stangor & McMillan, 1998), but is contrary to the phenomenon of confirmation bias, in which individuals seek and interpret information in ways that confirm existing beliefs (e.g., Nickerson, 1998). Therefore, further research is needed to select between these possibilities in the present context of contact between the police and Black people. Third, service delivery and enforcement policing paradigms might not be valid proxies for quality of contact. For instance, Tyler and Folger (1980) investigated the satisfaction of individuals who had been pulled over following a speeding violation. Interestingly, civilians' satisfaction with the police following such contact was determined more by whether they felt that the officer had behaved fairly than whether a penalty ticket was issued. In other words, even within a situation of enforcement contact, the quality of the outgroup member's behaviour was crucial in determining intergroup outcomes. As such, the policing paradigms of enforcement and service delivery might be better conceptualised as the *context* (*vs.* content) of contact. Put another way, these paradigms might actually be part of the intergroup climate – intergroup norms specifically – rather than a measure of quality of contact. Given the exploratory nature of this research into intergroup climate, this possibility is explored in the following chapter of this thesis. To summarise, the present null findings

might be explicable by the large sample sizes needed for such research, and there might also be theoretical explanations.

I also explored competing models of contact, testing whether the data would be better explained by a more complex model of contact (e.g., Koschate & van Dick, 2011; see Figure 2.1) in which willingness to cooperate was modelled as a mediator. Consistent with classic contact theory (e.g., Allport, 1954; Pettigrew, 1998; Figure 1.1), data were more consistent with a model in which willingness to cooperate was placed as an independent predictor (*vs.* a mediator). As such, the present findings did not support more contemporary models of contact in which cooperation is seen as an outcome of the structure of contact. Similarly, and contrary to hypotheses, the relation between higher quality of contact and warmer attitudes towards police was not moderated by intergroup norms of equal status and goal interdependence. However, as noted, path analyses and moderation analyses benefit from larger sample sizes than that employed in the present study, hence Chapters 6 and 7 will revisit the potential role of cooperation as a mediator of contact effects, and the moderating effect of intergroup norms on contact effects.

Some limitations are acknowledged: First, the cross-sectional design of the present study precludes strong causal statements regarding the relations between contact conditions, intergroup climate, and intergroup attitudes; however, the aim of this study was to test whether such models were viable. Second, whereas the present study adds to research on a relatively understudied phenomenon, namely, intergroup contact from the perspective of minority groups, the use of service delivery and enforcement paradigms as proxies for quality of contact might be difficult to generalise to other intergroup relationships. However, the Police-Black relationship in the UK is an important topic in its own right. Further, results might be indicative of more general mechanisms of intergroup relations between marginalised groups and authority groups, (e.g., Romani gypsies and civic planning

authorities; sexual minorities and family courts; refugees and local authorities). Future research, therefore, might continue to explore the processes of intergroup relations between marginalised groups and authority groups using similar methodologies as in the present research.

In the present chapter, I employed a cross-sectional design to explore the processes of intergroup contact and intergroup climate, however, as acknowledged, but notwithstanding previous research employing similar methods to test such structures (e.g., Eller et al., 2007; Koschate & van Dick, 2011; Viki et al., 2006), such methodology has limited the scope of inference to correlation (*vs.* causation). As such, the following chapter will continue to consider intergroup processes germane to Police-Black relations utilising experimental methodologies.

CHAPTER 3: EFFECTS OF INTERGROUP NORMS AND SOCIOHISTORIC NORMS

In Chapter 2, I considered the effects of intergroup norms – perceptions of how groups typically interact – on intergroup attitudes and contact effects. The present chapter extends upon the previous by also exploring the effects of another proposed index of intergroup climate: sociohistoric norms, conceptualised as perceptions relating to the traditional or historical relationship between groups. Further, I employed presently an experimental design to ascertain the causal relations between constructs. In the studies reported in this chapter, I manipulated intergroup norms, sociohistoric norms, and (in the context of a particular contact) equal status and goal interdependence, using full-factorial designs to assess the effects of intergroup climate variables on the relation between contact variables and the effect of contact and climate variables on intergroup relations.

As explained in Chapter 1, intergroup norms are personal-level perceptions regarding general patterns of attitudes and behaviour between ingroup and outgroup members, and as such are distinct from personally experienced intergroup contact. For instance, a Black person might perceive negative intergroup norms regarding Police-Black relations, believing that interactions between Black people and the police are generally characterised by low equal status and low goal interdependence (Eller et al., 2007; Gatto, Dambrun, Kerbrat, & De Oliveira. 2010; Viki et al., 2006). However, even when meeting a police officer within such an ostensibly negative context, the behaviour of individuals within the interaction (i.e., the quality of contact) might still exert an independent effect on intergroup outcomes (Tyler & Fogler, 1980). One prediction made in Chapter 1 was that intergroup norms might relate directly to outgroup attitudes, with warmer intergroup norms resulting in warmer attitudes towards the outgroup. Further, I predicted that intergroup norms might moderate the relation between contact and prejudice by changing perceptions of contact conditions. For instance, where intergroup norms are of negative (*vs.* positive) goal interdependence, group members

undergoing cross-group contact might be more likely to perceive the contact as being characterised by conflict irrespective of the objective reward structure within contact. In other words, intergroup norms might alter the relation between the objective and subjective levels of contact conditions, a possibility that Allport (1954) alluded to, albeit at the interpersonal (*vs.* intergroup) level, in terms of 'Role aspects' (see Chapter 1). Specifically, Allport noted that the context of the relationship among individuals *outside* of contact might moderate the effectiveness of contact. I extend upon Allport's (1954) theory in this regard by suggesting that the relations between intergroup (*vs.* interpersonal) relations outside of contact could moderate contact effects. Therefore, one aim of the studies presented in this chapter is to explore experimentally whether intergroup norms affect perceptions of intergroup contact.

In any given intergroup relationship, there may be multiple sets of intergroup norms. For instance, an individual might consider the local authority as a civic service that provides housing, but also as an authority group that punishes the breach of planning laws; either one of these sets of norms might be salient depending on the situation. Similarly, during a fire, a person might regard the fire service as an emergency service, but following a fire they might be seen as a statutory body with investigatory powers. Police-Black relations in the UK might also have various intergroup norms, salient at different times, with different contexts facilitating group members (Black people or police) perceiving the contact as one of either law enforcement or of public service; these different intergroup norms could evoke particular general conditions of equal status and goal interdependence. Hence, as noted in Chapter 2, whether a person is approaching the police for help or being approached by the police for questioning could elicit different intergroup norms for the ensuing contact (see Cheurprakobit, 2000). Given the exploratory nature of this research, whereas the dichotomy of policing paradigms was considered in terms of quality of contact in Chapter 2, in the present chapter I reconsider whether enforcement and service delivery paradigms of policing might be better

considered as intergroup norms (i.e., intergroup climate) relating to how groups *typically* interact within these paradigms. As alluded earlier, the objective levels of Allport's (1954) contact conditions in a situation may be quite different from those promulgated by intergroup norms; whether the salient intergroup norms during a given instance of Police-Black contact are that of authority-civilian ('Enforcement') or servant-service-user ('Service Delivery') is separable from levels of contact conditions in a given interaction. For instance, Enforcement contact such as a stop-and-search encounter might be perceived as generally involving low equal status and low goal interdependence between a police officer and a Black male; yet, a Black male might share the police officer's goal of keeping the neighbourhood safe. Thus, intergroup norms are distinct from contact conditions, and different intergroup norms (e.g., Enforcement or Service Delivery) may differentially affect the relation between contact conditions. Therefore, I extend Chapter 2, which examined the content (*vs.* valence) of intergroup norms, testing presently whether paradigms of Police-Black contact might be better employed as indicators of intergroup norms reflecting general patterns of intergroup relations (*vs.* personally experienced contact). Specifically, in line with the framework presented in Chapter 1, I test whether positively valenced intergroup norms (i.e., Service Delivery) would elicit more positive perception of the structure of contact (i.e., equal status and goal interdependence), and negatively valenced intergroup norms (i.e., Enforcement) would elicit more negative perception of the structure of contact.

Also in Chapter 1, sociohistoric norms were defined as personal-level perceptions regarding whether intergroup conflict is deep-seated, entrenched, or inevitable due to the history between groups. For example, a woman might perceive that men have always oppressed women and will continue to do so, and an Israeli might perceive that Palestinians have historically been aggressive, and that the conflict will never end. Equally, a Black person might believe that police are racist, have always oppressed Blacks, and will always do

so. I proposed that sociohistoric norms might relate directly to outgroup attitudes, with more negative (*vs.* positive) sociohistoric norms relating to cooler attitudes, and more (*vs.* less) salient sociohistoric norms, regardless of valence, hindering the effects of positive contact and buffering the effects of negative contact. Further, sociohistoric norms might affect the relations between contact conditions. Whereas classic contact theory (e.g., Allport, 1954; Pettigrew, 1998) has conceptualised contact conditions as distinct (i.e., independent) predictors of contact, Pettigrew and Tropp (2006) later stated that the contact conditions might be best conceptualised as "an interrelated bundle" (p.1). Within the present chapter I attempt to reconcile this divergence in the literature by exploring the boundary conditions of the independence of contact conditions, considering whether sociohistoric norms moderate the relation between contact conditions. For instance, returning again to the relationship between Black people and the police in the UK, one key axis of conflict between groups is the perception that police abuse their statutory powers to harass the Black community, such as in disproportional use of 'Stop and Search' powers (e.g., Eller et al., 2007). In other words, one of the reasons for perceived low goal interdependence (i.e., high conflict) centres on low equal status, namely, the elevated position of the police. Given this salient sociohistoric *status quo*, equal status and goal interdependence might be psychologically interlinked within this specific relationship and, potentially, other relationships between authority groups and marginalised groups. Specifically, within such relationships, situations of low equal status (e.g., the police officer having the power to enforce a law) might be interpreted as automatically featuring low goal interdependence, and situations of low goal interdependence (e.g., the police officer wanting a Black person to stop and answer questions) might facilitate the perception of low equal status, with the Black individual becoming aware that police officers generally have more power and inferring such power onto the present situation.

Therefore, amid salient (*vs.* non-salient) sociohistoric norms, Allport's (1954) contact conditions might be more interdependent.

The Present Studies

The goal of the studies presented in this chapter was to test the effects of intergroup norms and sociohistoric norms on intergroup relations. In Study 2, participants read one of eight vignettes depicting an intergroup contact interaction that varied in levels of intergroup norms, equal status, and goal interdependence. Each of these vignettes lacked strong sociohistoric norms, depicting instead contact between minimal groups. Participants then gave subjective ratings of levels of intergroup norms, equal status, and goal interdependence. In Study 3, the experiment was repeated using vignettes featuring a situation of high salience sociohistoric norms, Police-Black contact specifically. In Study 4, the effect of sociohistoric norms on perceived quality of contact and intergroup outcomes was further assessed using an imagined contact intervention. Participants imagined interacting with an outgroup member for whom members of their ingroup might have low salience sociohistoric norms (i.e., a minimal groups interaction) or high salience sociohistoric norms (i.e., a Muslim male). Participants then gave subjective ratings of levels of intergroup norms, equal status, goal interdependence, and intergroup outcomes.

Study 2

In Study 2, I tested the relations between equal status, goal interdependence, and intergroup norms. Participants read a vignette depicting a situation based on a police officer interacting with a Black male, but stripped of context so as to convey a minimal groups interaction (i.e., low intensity sociohistoric norms). Consistent with classic models of contact (e.g., Allport, 1954; Pettigrew, 1998), I predicted that perceptions of equal status would be affected only by the manipulation of equal status, and perceptions of goal interdependence would be affected only by the manipulation of goal interdependence such that those in the

High Equal Status/Goal Interdependence conditions would perceive higher equal status and goal interdependence compared to those in the 'low' conditions, respectively. Similarly, perceptions of intergroup norms should only be affected by the manipulation of Intergroup Norms such that those in the Service Delivery condition would perceive higher service delivery compared to those in the Enforcement condition, and those in the Enforcement condition would perceive higher enforcement compared to those in the Service Delivery condition.

Hypotheses

Hypothesis 1. I predicted a main effect of objective intergroup norms on perceived intergroup norms, such that participants reading about a scene of Enforcement (*vs.* Service Delivery) would perceive higher enforcement, and participants reading about a scene of Service Delivery (*vs.* Enforcement) would perceive higher service delivery (Hypothesis 1a). I also predicted a main effect of objective intergroup norms on perceived equal status, such that participants reading about a scene of Enforcement (*vs.* Service Delivery) would perceive lower equal status (Hypothesis 1b). Further, I predicted a main effect of objective intergroup norms on perceived goal interdependence, such that participants reading about a scene of Enforcement (*vs.* Service Delivery) would perceive lower goal interdependence (Hypothesis 1c).

Hypothesis 2. I predicted a main effect of objective Equal Status on perceptions of equal status, such that participants reading a scene of high (*vs.* low) Equal Status would perceive higher equal status.

Hypothesis 3. I predicted a main effect of objective Goal Interdependence on perceptions of goal interdependence, such that participants reading a scene of high (*vs.* low) Goal Interdependence would perceive higher goal interdependence.

Method

Participants and Procedure

British adults (n = 106; 75.5% female; M_{age} = 28.45, SD_{age} = 13.13, age range: 18-87; 78.3% White/Caucasian) participated in an online study called 'Perceptions in Social Situations'. Power analyses indicated a 17% chance of detecting a small effect (f = .10), a 69% chance of detecting a medium effect (f = .25), and a 97% chance of detecting a large effect (f = .40) with this sample size.

After giving consent, participants read background information about "Bright Town":

> "Bright Town is a fictional place where lots of different Groups of people live. Each member of a particular Group shares characteristics with other members of their Group, and is different from members of other Groups. Blue Group likes to ensure that everybody in the city is safe and that everybody follows the rules. Green Group likes to make sure that Bright Town is an attractive place to live."

Next, participants were randomly assigned to read one of eight vignettes, each depicting a short scene in which one Blue Group member and one Green Group member were interacting in response to an instance of 'rule-breaking'. Each vignette corresponded to one cell in a 2(Equal Status: Low *vs.* High) x 2(Goal Interdependence: Low *vs*. High) x 2(Intergroup Norms: Enforcement *vs*. Service Delivery) between-subjects design.

Each vignette contained four sections. The first was a brief overview of the situation and was the same for all participants:

> "A member of Blue Group is walking through a neighbourhood in Bright Town, and learns that somebody has been breaking the rules. In order to ensure that no more rules are broken, he tries to speak to anybody from a different Group that he sees in the area. The Blue Group member stops a member of Green Group who lives in the area and explains what he is doing."

The second section manipulated objective Intergroup Norms (differences between conditions are noted by italics). Participants in the **Enforcement** conditions read: "The Blue Group member tells the Green Group member that he is *searching local people for evidence of rule-breaking, so that he can catch the rule-breakers.* The Blue Group member explains that he would like the Green Group member *to turn out his pockets and open up his bag."* Participants in the **Service Delivery** conditions read: "The Blue Group member tells the Green Group member that he is *taking down contact details of local people so he can send out advice on how to avoid being harmed by rule-breakers.* The Blue Group member explains that he would like the Green Group member *to give his name, address and a contact telephone number so that he can be sent such advice*."

The third section manipulated objective Equal Status. Participants in the **Low Equal Status** conditions read: "*The rules say* that the Green Group member must do what he is asked by the Blue Group member in this situation, and the Blue Group member informs the other man of this," whereas participants in the **High Equal Status** conditions read: "*The rules do not say* that the Green Group member must do what he is asked by the Blue Group member in this situation, and the Blue Group member informs the other man of this."

The final section manipulated objective Goal Interdependence. Participants in the **Low Goal Interdependence** conditions read: "It is important that the Blue Group member carries out his duty to make the neighbourhood a safe and pleasant to live in. The Green Group member *is clearly in a real hurry to get to work and doesn't have time to stop right now*." Participants in the **High Goal Interdependence** conditions read: "It is important that the Blue Group member carries out his duty to make the neighbourhood safe and pleasant to live in. The Green Group member *shows an interest in improving the neighbourhood and takes note of what the Blue Group member is saying*."

Participants then responded to measures of perception of equal status, goal

interdependence, and intergroup norms. Participants were then debriefed.

Measures

Perceptions of intergroup contact

Perceptions of status inequality. Participants rated the status (i.e., power) of the Blue and Green Group characters individually. The first item tested *agency*, the extent to which he could freely choose his own behaviour: "Realistically, the [Blue/Green] Group member had to do whatever the [Green/Blue] Group member told him to do" (reversed). The second item assessed *control*, the extent to which he could determine the behaviour of the other: "The [Blue/Green] Group member was not able to dictate the [Green/Blue] Group member's behaviour during the situation" (reverse scored). Participants responded to these four items on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree*.

Each character's status was created by averaging his control and agency scores. Internal consistency was poor ($\alpha = .38$ for Blue Group member, $\alpha = .11$ for Green Group member); however, a strong correlation between agency and control is conceptually unnecessary (one might reasonably have high agency and high control, or high agency and low control).

A **status inequality** variable was calculated by subtracting the Blue character's status from the Green character's status. Absolute scores were calculated so that scores reflected the absolute difference in status, which is theoretically more important than the direction of the inequality (Riordan, 1978; Riordan & Ruggiero, 1980). Higher scores indicated higher perceived status inequality.

Perceptions of goal interdependence. Four items assessed the perceived presence of interdependence and conflict between the characters. Interdependence was assessed with two items: "The only way for the Blue Group member to get what he wanted from the situation was if the Green Group member also got what he wanted" and "There was no way that both

the Blue Group member and the Green Group member could get what they want from the situation." Conflict was assessed with two items: "In this situation, the Blue Group member's goals were the same as the Green Group member's goals" and "There was no conflict of desires between the Blue Group member and the Green Group member." Participants responded using a scale ranging from 1-*Strongly Disagree* to 7-*Strongly Agree*. Conflict items were reverse-scored to reflect their relation with the overall construct of goal interdependence. The items were averaged, with higher scores indicating higher perceived goal interdependence ($\alpha = .70$).

Perceptions of intergroup norms

Participants read definitions of Rule Enforcement Work ("Blue Group work to ensure that the rules are adhered to") and Service Delivery Work ("Blue Group work aimed at providing a service to a member of another Group"), then rated the extent to which each description corresponded to the vignette they had just read using a scale from 1-*Not at all* to 7-*Completely*. Participants' enforcement rating and service delivery rating, respectively, indicated the two different intergroup norms.

Results

Four three-way ANOVAs were conducted on perceptions of enforcement, service delivery, status inequality, and goal interdependence. Objective Intergroup Norms (Enforcement *vs.* Service Delivery), Equal Status (Low *vs.* High), and Goal Interdependence (Low *vs.* High) were the between-subjects variables. Table 3.1 displays sample-level descriptive statistics and zero-order correlations for all study variables. Table 3.2 displays condition-level means and standard deviation for each study variable.

Table 3.1.

Means, standard deviations, and zero-order correlations for Study 2 (below diagonal) and Study 3 (above diagonal) variables (Study 2, *n* = 104; Study 3, *n* = 80).

	M(SD) Study 2	M(SD) Study 3	M(SD) Both	1	2	3	4
1. ENF	5.84(1.67)	4.05(2.01)	5.08(2.03)	-	-.36*	.01	.10
2. SER	3.21(1.96)	4.43(1.84)	3.74(2.00)	-.09	-	.04	.16
3. ES	1.49(1.54)	2.02(1.56)	1.72(1.57)	.32*	.10	-	-.23
4. GI	3.64(1.18)	3.99(1.33)	3.80(1.25)	-.19	.09	.01	-

Note. *ENF* Enforcement; *SER* Service delivery; *ES* Equal status; *GI* Goal interdependence.

Main Effects

Perceptions of intergroup norms

With regards to perceptions of enforcement, the main effects of Intergroup Norms, $F(1, 95) = .68$, $p = .412$, $\eta^2 = .01$, Equal Status, $F(1,95) = 1.79$, $p = .184$, $\eta^2 = .02$, and Goal Interdependence, $F(1, 95)=.70$, $p = .407$, $\eta^2 = .01$, were not significant. Therefore, contrary to predictions, perceptions of enforcement were unaffected by manipulations.

Participants in the Service Delivery conditions perceived significantly higher service delivery ($M = 3.65$, $SD = 2.11$) than did participants in the Enforcement conditions ($M = 2.77$, $SD = 1.71$), $F(1, 96) = 5.57$, $p = .02$, $\eta^2 = .06$. There were no main effects of Equal Status, $F(1, 96) = .02$, $p = .899$, $\eta^2<.001$, or Goal Interdependence, $F(1, 96) = 1.35$, $p = .248$, $\eta^2 = .01$. Therefore, consistent with hypotheses, the only main effect on perceptions of service delivery was that of Intergroup Norms.

Perceptions of intergroup contact

Perceptions of status inequality. Perception of status inequality data violated the assumption of equal variances, though a log10 transformation resolved the violation. Inferential statistics were calculated using the transformed data. The main effect of Equal

Status was significant, $F(1,96) = 15.42$, $p < .001$, $\eta^2 = .14$, with participants in the Low Equal Status conditions perceiving more status inequality ($M = 2.04$, $SD = 1.71$) than participants in the High Equal Status conditions ($M = .91$, $SD = 1.09$). The main effects of Goal Interdependence, $F(1,96) = .004$, $p = .952$, $\eta^2 = .001$, and Intergroup Norms were not significant, $F(1, 96) = .05$, $p = .818$, $\eta^2 = .001$. Therefore, only the manipulation of Equal Status affected perceptions of status inequality, as predicted.

Perceptions of goal interdependence. The main effect of Goal Interdependence was significant, F(1, 93) = 44.23, p < .001, ŋ2 = .32, with participants in the Low Goal Interdependence conditions perceiving less goal interdependence (M = 3.01, SD = 1.01) than participants in the High Goal Interdependence conditions (M = 4.33, SD = .96). The main effects of Equal Status, F(1, 93) = 1.01, p = .32, ŋ2 = .011 and Intergroup Norms were not significant, F(1, 93) = .21, p = .650, ŋ2 = .002. Therefore, only the manipulation of Goal Interdependence affected perceptions of goal interdependence, as predicted.

Interactions

There was a significant interaction between Intergroup Norms and Equal Status on perceptions of enforcement, F(1, 95) = 4.28, p = .041, ŋ2 = .04. Pairwise comparisons revealed that, among participants in the High Goal Interdependence conditions who read about a Service Delivery contact, those in the Low Equal Status group perceived higher enforcement (M = 4.73, SD = 1.79) than participants in the High Equal Status group (M = 3.50, SD = 2.32), p = .020. No other comparisons were significant, ps > .05. Therefore, contrary to predictions, the effect of Intergroup Norms on perceptions of enforcement was moderated by Equal Status.

Table 3.2.

Condition-level means and standard deviations for each study variable in Study 2 (minimal groups)

				M(SD)			
Intergroup Norms	Equal Status	Goal Int.	*n*	Enforcement	Service	Equal Status	Goal Int.
Enforcement	Low	Low	14	5.79(1.89)	3.14(1.66)	1.36(1.20)	2.54(1.09)
		High	12	5.91(1.73)	2.85(2.03)	2.11(1.57)	4.18(1.29)
		Total	26	5.85(1.78)	3.00(1.82)	1.72(1.42)	3.25(1.42)
	High	Low	12	6.33(1.15)	2.67(1.50)	.96(1.11)	3.44(.67)
		High	13	5.85(1.91)	2.38(1.71)	1.04(1.01)	4.31(.84)
		Total	25	6.08(1.58)	2.52(1.58)	1.00(1.04)	3.88(.87)
	Total	Low	26	6.04(1.59)	2.92(1.57)	1.17(1.15)	2.99(1.00)
		High	25	5.88(1.79)	2.62(1.86)	1.58(1.40)	4.25(1.04)
		Total	51	5.96(1.67)	2.77(1.71)	1.37(1.29)	3.58(1.19)
Service	Low	Low	13	6.23(1.79)	3.62(2.40)	2.25(1.45)	2.98(1.07)
		High	14	6.29(.91)	3.14(2.03)	2.46(2.35)	4.55(.89)
		Total	27	6.26(1.38)	3.37(2.19)	2.37(1.95)	3.80(1.25)
	High	Low	13	5.54(1.39)	4.31(1.93)	1.08(1.37)	3.08(1.04)
		High	12	4.75(2.14)	3.58(2.15)	.54(.86)	4.21(.90)
		Total	25	5.16(1.80)	3.96(2.03)	.82(1.16)	3.62(1.12)
	Total	Low	26	5.88(1.61)	3.96(2.16)	1.64(1.50)	3.03(1.04)
		High	26	5.58(1.75)	3.35(2.06)	1.58(2.04)	4.39(.89)
		Total	52	5.73(1.67)	3.65(2.11)	1.61(1.78)	3.71(1.18)
Total	Low	Low	27	6.00(1.82)	3.37(2.02)	1.02(1.22)	2.76(1.08)
		High	26	6.12(1.34)	3.00(2.00)	.80(.96)	4.40(1.07)
		Total	53	6.06(1.59)	3.19(2.00)	.92(1.09)	3.54(1.35)
	High	Low	25	5.92(1.32)	3.52(1.90)	1.02(1.22)	3.26(.88)
		High	25	5.32(2.06)	2.96(1.99)	.80(.96)	4.26(.85)
		Total	50	5.62(1.74)	3.23(1.94)	.92(1.09)	3.75(1.00)
	Total	Low	52	5.96(1.58)	3.44(1.94)	1.39(1.34)	3.01(1.00)
		High	51	5.73(1.76)	2.98(1.98)	1.58(1.73)	4.33(.96)
		Total	103	5.84(1.67)	3.21(1.96)	1.49(1.54)	3.65(1.18)

There were no significant interactions on perceptions of status inequality, *p*s > .148, η^2s < .02, goal interdependence, all *p*s > .103, all η^2s < .03, or service delivery, all *p*s > .178, all η^2s < .02. Therefore, neither the contact conditions nor the intergroup norms of contact exerted an interdependent effect upon these variables, as expected.

Discussion

When reading about situations involving ‘minimal’ groups – that is, groups without strong, salient sociohistoric norms – participants’ perceptions of contact conditions were only affected by the manipulation of the respective contact condition. These results support Allport’s (1954) contact hypothesis that goal interdependence and equal status have separate effects on intergroup relations.

The extent to which participants perceived the authority figure as having a public service role was only affected by the manipulation of intergroup norms. When the authority figure was attempting to give advice, he was perceived as having a greater service delivery function than when he was attempting to search the civilian. However, the extent to which participants perceived the authority figure as carrying out an enforcement function was not directly affected by the intergroup norms within the interaction. Rather, perceptions of enforcement were influenced by differences in status between the authority figure and the other character, with higher inequality resulting in higher perceptions of enforcement. These findings provide initial support that the "Role aspects" of intergroup climate are germane to intergroup contact (Allport, 1954).

Study 3

In Study 3, I tested the relation between equal status and goal interdependence in the context of a 'real groups' relationship with intense sociohistoric norms: a situation involving a police officer and a Black civilian. In this particular context (i.e. intense sociohistoric norms), contrary to Allport's (1954) contact theory, but consistent with contemporary research

(Pettigrew & Tropp, 2006), I hypothesised that the contact conditions would be interdependent (see Chapter 1 for discussion of the proposed conditional relations between contact conditions). Specifically, I predicted that those in the High Equal Status conditions would perceive higher goal interdependence *and* equal status, and those in the High Goal Interdependence conditions would perceive higher equal status *and* goal interdependence. Further, I expected that participants reading about enforcement (*vs*. service delivery) intergroup norms would perceive lower equal status and goal interdependence. I expected that perceptions of contact would be affected by the interplay between intergroup norms and contact variables (i.e., equal status and goal interdependence) such that when enforcement norms (*vs.* service delivery norms) were salient, equal status would have a larger effect on perceptions of goal interdependence, and that when service delivery norms (*vs.* enforcement norms) were salient, goal interdependence would have a larger effect on perceptions of equal status. The depicted situations were structurally identical to those in Study 2, to allow for comparisons of the effect of sociohistoric norms on perceptions of contact.

Hypotheses

Hypothesis 1. I predicted a main effect of objective intergroup norms on perceptions of intergroup norms, such that participants reading about a scene of Enforcement (*vs.* Service Delivery) would perceive higher Enforcement, and participants reading about a scene of Service Delivery (*vs.* Enforcement) would perceive higher Service Delivery (Hypothesis 1a). I also predicted a main effect of objective intergroup norms on perceptions of equal status, such that participants reading about a scene of Enforcement (*vs.* Service Delivery) would perceive lower equal status (Hypothesis 1b). Further, I predicted a main effect of objective intergroup norms on perceived goal interdependence, such that participants reading about a scene of Enforcement (*vs.* Service Delivery) would perceive lower goal interdependence (Hypothesis 1c).

Hypothesis 2. I predicted a main effect of objective equal status on perceptions of equal status, such that participants reading a scene of high (*vs.* low) Equal Status would perceive higher equal status (Hypothesis 2a). I also predicted an effect of objective equal status on perceptions of goal interdependence, such that participants reading a scene of high (*vs.* low) Equal Status would perceive higher goal interdependence.

Hypothesis 3. I predicted a main effect of objective goal interdependence on perceptions of equal status, such that participants reading a scene of high (*vs.* low) goal interdependence would perceive higher equal status (Hypothesis 3a). I also predicted an effect of objective goal interdependence on perceptions of goal interdependence, such that participants reading a scene of high (*vs.* low) Goal Interdependence would perceive higher goal interdependence (Hypothesis 3b).

Method

Participants and Procedure

Participants were recruited for a study entitled ‘Perceptions in Social Situations’ either ‘on-street’ in the city centre of a moderate-sized city in the UK (n = 26) or online via a website listing online psychological studies (n = 63). Eight participants identifying as non-White/Caucasian were excluded leaving 81 participants aged between 18 and 64 (M_{age} = 30.39, SD_{age} = 10.07; 88% female). Power analyses indicated a 14% chance of detecting a small effect (f = .10), a 56% chance of detecting a medium effect (f = .25), and a 92% chance of detecting a large effect (f = .40) with this sample size.

A tablet presenting the consent form, scenarios, questionnaire, and debrief in the same format as administered online was used on-street. The procedure was identical to Study 2 with two exceptions. First, participants did not read an initial contextual statement about the background of "Bright Town". Second, all references to 'Blue Group member' were changed to 'Police officer', all references to 'Green Group member' were changed to 'Black man', and

all references to 'the rules' were changed to 'the law'.

Measures

Questionnaire items were identical to Study 2, thus participants indicated perceptions of intergroup norms with two one-item scales, measuring the perception of service delivery and enforcement respectively. Participants responded to four items that tested the agency and control of the police officer and Black civilian. As in Study 2, the agency and control items for each character were averaged to show his ‘status’, and then the officer’s status was subtracted from the civilians to give an absolute score of status inequality; again these were not expected to correlate, and, as expected, internal consistency was poor ($\alpha = .42$ for police officer, $\alpha = .32$ for Black civilian). Finally, participants responded to four items that assessed conflict (reverse-keyed) and interdependence between the characters. Scores were averaged to create perceptions of goal interdependence. Inconsistent with Study 2, inter-item reliability for these four items was poor ($\alpha = .47$).

Results

To determine whether Intergroup Norms, Equal Status, and Goal Interdependence had independent effects on perceptions of intergroup contact, four three-way ANOVAs were conducted on perceptions of status inequality, goal interdependence, enforcement, and service delivery. Intergroup Norms (Enforcement *vs*. Service Delivery), Equal Status (Low *vs.* High), and Goal Interdependence (Low *vs.* High) were the between-subjects variables. Sample-level means, standard deviations, and zero-order correlations for all study variables are displayed in Table 3.1. Condition-level means and standard deviations for all study variables are displayed in Table 3.3.

Main Effects

Perceptions of intergroup norms. Contrary to expectations, but consistent with Study 2, the main effects of Intergroup Norms, $F(1, 69) = .06$, $p = .803$, $\eta^2 = .001$, and Goal

Interdependence were not significant, $F(1, 69) = .011$, $p = .917$, $\eta^2 < .001$. There was a significant main effect of Equal Status, with the Low Equal Status condition rating the contact as higher in enforcement ($M = 4.77$, $SD = 1.77$) than the High Equal Status condition ($M = 3.32$, $SD = 2.01$), $F(1, 69) = 10.62$, $p = .002$, $\eta^2 = .13$. Therefore, consistent with Study 2, perceptions of enforcement were affected by factors other than Intergroup Norms, and were not affected by the manipulation of Intergroup Norms.

The main effect of Intergroup Norms was not significant, $F(1, 72) = 2.69$, $p = .105$, $\eta^2 = .04$; however, the means were in the anticipated direction with participants in the Service Delivery conditions rating the contact as being higher in service delivery ($M = 4.73$, $SD = 1.91$) than participants in the Enforcement conditions ($M = 4.06$, $SD = 1.72$). The main effects of Equal Status, $F(1, 72) = 1.44$, $p = .234$, $\eta^2 = .02$, and Goal Interdependence, $F(1, 72) = .09$, $p = .77$, $\eta^2 = .001$, were not significant. Therefore, consistent with Study 2, the portrayal of service delivery Intergroup Norms fostered higher perceptions of service delivery.

Perceptions of intergroup contact

Perceptions of status inequality. Perception of status inequality data violated the assumption of equal variances, though a log10 transformation resolved the violation. Inferential statistics were calculated using the transformed data. The main effect of Equal Status was significant, $F(1, 73) = 5.59$, $p = .021$, $\eta^2 = .07$, with participants in the Low Equal Status condition perceiving higher status inequality ($M = 2.45$, $SD = 1.67$) than participants in the High Equal Status condition ($M = 1.59$, $SD = 1.31$). Contrary to predictions, the main effects of Goal Interdependence, $F(1, 73) = 2.60$, $p = .111$, $\eta^2 = .03$, and Intergroup Norms were not significant, $F(1, 73) = .001$, $p = .988$, $\eta^2 < .001$. Therefore, consistent with Study 2, only the manipulation of Equal Status affected perception of status inequality.

Table 3.3.

Condition-level means and standard deviations for each study variable in Study 3 (real groups)

				M(SD)			
Intergroup Norms	Equal Status	Goal Int.	*n*	Enforcement	Service	Equal Status	Goal Int.
Enforcement	Low	Low	10	4.50(2.12)	4.45(2.02)	2.64(1.40)	4.39(1.36)
		High	9	5.44(1.13)	4.38(1.41)	2.28(2.11)	3.59(1.62)
		Total	19	4.95(1.75)	4.42(1.74)	2.48(1.71)	4.05(1.49)
	High	Low	7	3.86(1.86)	3.25(1.58)	1.44(1.24)	3.06(.98)
		High	8	2.63(1.30)	4.00(1.73)	1.78(1.43)	4.75(1.44)
		Total	15	3.20(1.66)	3.65(1.66)	1.62(1.32)	3.96(1.49)
	Total	Low	17	4.24(1.99)	3.95(1.90)	2.13(1.43)	3.83(1.36)
		High	17	4.12(1.87)	4.18(1.55)	2.03(1.77)	4.21(1.59)
		Total	34	4.18(1.90)	4.06(1.72)	2.08(1.58)	4.01(1.47)
Service	Low	Low	9	4.44(1.94)	5.00(.94)	3.05(2.02)	4.28(.83)
		High	11	4.73(1.79)	4.64(1.75)	1.86(1.10)	3.77)1.47)
		Total	20	4.60(1.82)	4.81(1.40)	2.43(1.68)	4.01(1.21)
	High	Low	13	3.31(2.29)	5.00(2.16)	2.08(1.48)	3.15(.94)
		High	10	3.50(2.32	4.20(2.53)	.90(.70)	4.88(.85)
		Total	23	3.39(2.25)	4.65(2.31)	1.57(1.33)	3.93(1.24)
	Total	Low	22	3.78(2.18)	5.00(1.71)	2.50(1.76)	3.66(1.04)
		High	21	4.14(2.10)	4.43(2.11)	1.40(1.03)	4.30(1.31)
		Total	43	3.95(2.13)	4.73(1.91)	1.98(1.55)	3.97(1.21)
Total	Low	Low	19	4.47(1.98)	4.71(1.59)	2.83(1.69)	4.33(1.11)
		High	20	5.05(1.54)	4.53(1.58)	2.05(1.60)	3.70(1.49)
		Total	39	4.77(1.77)	4.63(1.56)	2.45(1.67)	4.03(1.32)
	High	Low	20	3.50(2.12)	4.33(2.11)	1.83(1.40)	3.11(.93)
		High	18	3.11(1.94)	4.11(2.13)	1.32(1.17)	4.82(1.14)
		Total	38	3.32(2.01)	4.23(2.09)	1.59(1.31)	3.94(1.34)
	Total	Low	39	3.97(2.08)	4.52(1.85)	2.33(1.61)	3.74(1.19)
		High	38	4.13(1.98)	4.32(1.86)	1.69(1.44)	4.26(1.43)
		Total	77	4.05(2.02)	4.43(1.85)	2.03(1.56)	3.99(1.33)

Perceptions of goal interdependence. The main effect of Goal Interdependence was marginally significant, $F(1, 71) = 3.71$, $p = .058$, $\eta^2 = .05$, with participants in the Low Goal Interdependence conditions ($M = 3.74$, $SD = 1.19$) perceiving lower goal interdependence than participants in the High Goal Interdependence conditions ($M = 4.26$, $SD = 1.43$). Contrary to predictions, the main effects of Equal Status, $F(1, 71) = .031$, $p = .860$, $\eta^2 < .001$ and Intergroup Norms, $F(1, 71) = .06$, $p = .803$, $\eta^2 = .001$, were not significant.

Interactions

None of the interactions on perceptions of enforcement were significant, *p*s > .208, η^2s < .02. None of the interactions on perceptions of service delivery were significant, *p*s > .278, η^2s < .02.

There were no significant interactions on perceptions of status inequality, all *p*s > .377, all η^2s < .01. However, as predicted, a significant interaction between Equal Status and Goal Interdependence emerged for perceptions of goal interdependence, $F(1, 71) = 18.31$, $p < .001$, $\eta^2 = .21$: in the High Goal Interdependence conditions, participants in the High Equal Status condition perceived higher goal interdependence ($M = 4.82$, $SD = 1.13$) than participants in the Low Equal Status condition ($M = 3.70$, $SD = 1.49$), $p = .006$, whereas in the Low Goal Interdependence conditions, participants in the Low Equal Status condition perceived higher goal interdependence ($M = 4.33$, $SD = 1.11$) than participants in the High Equal Status condition ($M = 3.11$, $SD = .93$), $p = .002$. Figure 3.1 illustrates this interaction. Therefore, perceptions of goal interdependence were affected by factors other than Goal Interdependence.

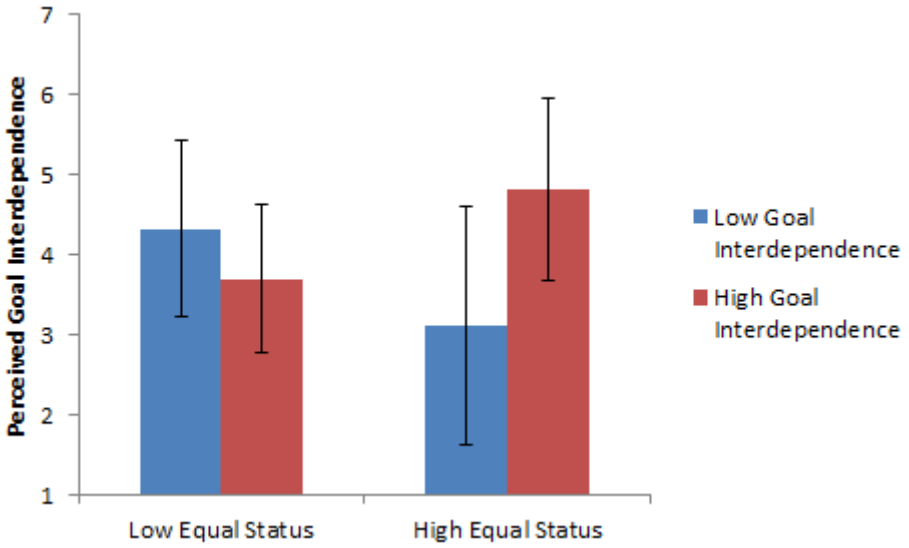

Figure 3.1. Interaction of Equal Status and Goal Interdependence on perceptions of goal interdependence.

Discussion

In a Police-Black context, participants' perceptions of equal status were affected only by the characters' relative power. However, as indicated by a significant interaction, contrary to Allport's (1954) contact hypothesis, perceptions of goal interdependence were also affected by levels of equal status, suggesting that in this particular intergroup relationship, the contact conditions were not psychologically distinct – a finding consistent with Pettigrew & Tropp's (2006) position that contact conditions might be interrelated.

With respect to the effect of intergroup norms on perceptions of contact (e.g., Allport, 1954), the extent that participants viewed the police officer as an agent of law enforcement was unaffected by intergroup norms; however, it was affected by equal status. When there was less equality between the police officer and the black civilian, participants rated the situation as more congruent with 'enforcement' contact. Conversely, perceptions of the officer as an agent of public service were only affected by the intergroup norms of contact, however this was a non-significant trend.

Exploratory Cross-Study Analyses and Discussion

In *post-hoc* exploratory analyses, I also tested the role of Sociohistoric Norms – specifically, whether perceptions of contact differed between a minimal groups or real groups situation. Four 4-way ANOVAs were conducted on perceptions of status inequality, goal interdependence, enforcement and service delivery, with Intergroup Norms (Enforcement *vs.* Service Delivery), Sociohistoric Norms (Minimal groups *vs.* Real groups), Equal Status (Low *vs.* High), and Goal Interdependence (Low *vs.* High) as the between-subjects variables. For brevity the main effects of Sociohistoric Norms only are reported in full; the primary purpose of these analyses was to determine whether sociohistoric norms affected perceptions of contact (full output is available in Appendix B; significant interactions are noted below).

Table 3.4 displays descriptive statistics for Studies 2 and 3 combined. All main effects of Sociohistoric Norms were significant, with participants in the Police/Black study scoring higher on perceptions of status inequality, $F(1,169) = 7.48$, $p = .007$, $\eta^2 = .04$, goal interdependence, $F(1,164) = 3.85$, $p = .052$, $\eta^2 = .02$, and service delivery, $F(1,168) = 16.26$, $p < .001$; $\eta^2 = .09$, but lower on enforcement, $F(1,164) = 43.63$, $p<.001$, $\eta^2 = .21$. There was a significant violation of the assumption of homogeneity of variance for perceptions of enforcement, Levene's statistic =.04. Transformations were unable to rectify this violation so results should be interpreted with caution. Perception of status inequality data also violated the assumption of equal variances, though a log10 transformation resolved the violation. Inferential statistics were calculated using the transformed data. There were significant interactions between Sociohistoric Norms and Goal Interdependence for perceptions of goal interdependence, $F(1,164) = 5.51$, $p = .020$, $\eta^2 = .03$, such that there was a weaker effect of manipulated Goal Interdependence on perceived goal interdependence in the Police/Black study (vs. minimal groups study), and between Sociohistoric Norms, Goal Interdependence and Equal Status for perceptions of goal interdependence, $F(1, 164) = 20.31$, $p < .001$, η^2

= .11, such that in the minimal groups study, higher Goal Interdependence was associated with perceptions of higher goal interdependence, irrespective of the level of Equal Status; however in the Police/Black study higher Goal Interdependence was associated with higher goal interdependence when Equal Status was high, but with *lower* goal interdependence when Equal Status was low. Therefore, these post-hoc analyses provided preliminary support for a moderating effect of sociohistoric norms on the relations between contact conditions.

Table 3.4.

Study 2 and 3 (combined) means and standard deviations for study variables, by experimental group.

				M(SD)			
Intergroup Norms	Equal Status	Goal Int.	*n*	Enforcement	Service	Equal Status	Goal Int.
Enforcement	Low	Low	24	5.25(2.05)	3.72(1.90)	1.92(1.42)	3.39(1.52)
		High	21	5.71(1.49)	3.43(1.94)	2.19(1.76)	3.92(1.43)
		Total	45	5.47(1.80)	3.59(1.90)	2.04(1.58)	3.61(1.49)
	High	Low	19	5.42(1.87)	2.90(1.52)	1.14(1.15)	3.30(.81)
		High	21	4.62(2.31)	3.05(1.86)	1.34(1.23)	4.49(1.12)
		Total	40	5.00(2.12)	2.98(1.69)	1.24(1.18)	3.91(1.14)
	Total	Low	43	5.33(1.95)	3.36(1.77)	1.57(1.35)	3.34(1.23)
		High	42	5.17(2.00)	3.23(1.89)	1.76(1.56)	4.23(1.28)
		Total	85	5.25(1.96)	3.30(1.82)	1.66(1.45)	3.76(1.32)
Service	Low	Low	22	5.50(2.02)	4.22(2.00)	2.61(1.74)	3.54(1.15)
		High	25	5.60(1.55)	3.80(2.02)	2.20(1.89)	4.21(1.22)
		Total	47	5.55(1.77)	4.00(2.00)	2.39(1.81)	3.89(1.22)
	High	Low	26	4.42(2.18)	4.65(2.04)	1.58(1.49)	3.11(.97)
		High	22	4.18(2.26)	3.86(2.29)	.70(.80)	4.51(.92)
		Total	48	4.31(2.19)	4.29(2.17)	1.18(1.29)	3.77(1.17)
	Total	Low	48	4.92(2.15)	4.45(2.01)	2.05(1.67)	3.32(1.08)
		High	47	4.94(2.03)	3.83(2.13)	1.50(1.65)	4.35(1.09)
		Total	95	4.93(2.08)	4.15(2.08)	1.78(1.68)	3.83(1.20)
Total	Low	Low	46	5.37(2.02)	3.96(1.95)	2.24(1.60)	3.46(1.34)
		High	46	5.65(1.51)	3.63(1.97)	2.20(1.81)	4.09(1.30)
		Total	92	5.51(1.78)	3.80(1.95)	2.22(1.70)	3.76(1.35)
	High	Low	45	4.84(2.09)	3.89(2.01)	1.38(1.35)	3.20(.89)
		High	43	4.40(2.27)	3.45(2.11)	1.02(1.07)	4.50(1.01)
		Total	88	4.63(2.18)	3.68(2.06)	1.21(1.23)	3.83(1.15)
	Total	Low	91	5.11(2.06)	3.93(1.97)	1.81(1.53)	3.33(1.14)
		High	89	5.04(2.01)	3.54(2.03)	1.63(1.60)	4.30(1.18)
		Total	180	5.08(2.03)	3.74(2.00)	1.72(1.57)	3.80(1.25)

Study 4

In Study 4, I refined and simplified the design of Studies 2 and 3 by removing intergroup norms, and applying *a priori* hypotheses based on the theoretical framework outlined in Chapter 1 of this thesis and the results of the cross-study analyses in this chapter. I tested whether sociohistoric norms, intergroup contact constructs, and their interactions affected perceptions of contact and intergroup outcomes – intergroup attitudes and behavioural intentions, specifically. First, and drawing on imagined contact theory (Crisp & Turner, 2009), I tested the effect of imagined contact (*vs.* imagining a scene in which other individuals underwent contact) on intergroup outcomes. Given the difficulties inherent in recruiting participants belonging to ethnic minority groups (Blau, 1970; Herring et al., 2004), and the potential political sensitivities involved with recruiting police participants for a study on race relations, I focused on a different intergroup relationship, non-Muslims' perceptions of Muslims, specifically. Second, amidst equivocal results regarding the effects of intergroup norms, and given that the intergroup norms explored in Studies 2 and 3 (i.e., Enforcement and Service Delivery) are somewhat specific to intergroup relationships involving authority groups, I removed this factor from the design, focusing on levels of Allport's (1954) contact conditions of equal status and goal interdependence, as well as sociohistoric norms. Therefore, in Study 4, non-Muslim participants underwent an imagined contact interaction featuring a Muslim individual, with levels of sociohistoric norms, equal status, and goal interdependence manipulated in a full-factorial design, similar to Studies 2 and 3.

Hypotheses

Hypothesis 1. I predicted a main effect of Sociohistoric Norms on perceptions of equal status, such that participants reading about a situation featuring high-salience (*vs.* low salience) Sociohistoric Norms would perceive lower equal status (Hypothesis 1a). I also predicted an effect of Sociohistoric Norms on perceptions of goal interdependence, such that

participants reading about a situation featuring high-salience (*vs.* low-salience) Sociohistoric Norms would perceive lower goal interdependence (Hypothesis 1b). Further, I predicted a main effect of Sociohistoric Norms on intergroup attitudes, such that participants imagining a situation featuring high-salience (*vs.* low salience) Sociohistoric Norms would express cooler attitudes towards their imagined interaction partner (Hypothesis 1c). Finally, I predicted a main effect of Sociohistoric Norms on behavioural intentions, such that participants imagining a situation featuring high-salience (*vs.* low-salience) Sociohistoric Norms would express less positive behavioural towards their imagined interaction partner (Hypothesis 1d).

Hypothesis 2. I predicted a main effect of objective equal status on perceptions of equal status, such that participants imagining a situation featuring high (*vs.* low) Equal Status would perceive higher equal status.

Hypothesis 3. I predicted a main effect of objective goal interdependence on perceptions of goal interdependence, such that participants imagining a situation featuring high (*vs.* low) Goal Interdependence would perceive higher goal interdependence.

Hypothesis 4. I predicted two-way interactions between Sociohistoric Norms and objective quality of contact variables (i.e., Equal Status and Goal Interdependence, respectively) on perceptions of equal status, such that, among participants in the high-, but not low-, salience Sociohistoric Norms conditions, those in the high (*vs.* low) Goal Interdependence conditions would perceive higher equal status (Hypothesis 4a). Next, I predicted two-way interactions between Sociohistoric Norms and objective quality of contact variables on perceptions of goal interdependence, such that, among participants in the high-, but not low-, salience Sociohistoric Norms conditions, those in the high (*vs.* low) Equal Status conditions would perceive higher goal interdependence (Hypothesis 4b). Further, I predicted two-way interactions between Sociohistoric Norms and objective quality of contact variables on intergroup outcomes, such that, among participants in the low-(*vs.* high-)

salience Sociohistoric Norms conditions, those in the high-(*vs.* low-) Equal Status conditions would report warmer intergroup attitudes (Hypothesis 4c[i]) and more positive behavioural intentions (Hypothesis 4c[ii]); and those in the high (*vs.* low) Goal Interdependence conditions would report warmer intergroup attitudes (Hypothesis 4d[i]) and more positive behavioural intentions (Hypothesis 4d[ii]).

Method

Participants and Procedure

Participants (n = 431) were recruited for a study called 'Perceptions of Social Situations' through 'SampleSize' a Reddit a social media webpage where individuals volunteer to complete surveys for recreational purposes. Due to the focus on intergroup relations with Muslims, 10 participants identifying themselves as Muslim were excluded from analyses. Two participants selecting the same scalepoint on each response were also excluded, leaving a final sample of 419 (M_{age} = 26.73, SD_{age} = 9.71, 53% female, 82% White/Caucasian, 6% mixed race, 4% Hispanic, 3% Chinese, 1% Indian, 1% Black, 54% no religion/atheist, 13% Christian). Power analyses revealed an 80% chance of detecting a small-medium effect (f = .14).

After clicking a link posted on the 'SampleSize' webpage, participants were informed of their ethical rights and then completed a demographic questionnaire. Next, participants were randomly allocated to one condition in a 2(Intergroup Norms: Minimal *vs.* Real) x 2(Equal Status: Low *vs.* High) x 2(Goal Interdependence: Low *vs.* High) full-factorial design and read a vignette corresponding to their condition. Vignettes depicted an intergroup interaction based upon a scenario of a non-Muslim meeting a Muslim during a team-building exercise (Choma et al., 2014). In the first sentence of the scenario, all participants read the instruction "Imagine you're taking part in a team-building exercise at your place of work or study."

The second section of the scenario manipulated Sociohistoric Norms. Participants in the **Minimal** conditions read:

"During the first exercise, you find yourself paired up with a man named Rob. You spend a minute introducing yourselves. Rob explains that he is from a different social background than you. You have a brief conversation about your different experiences of growing up, and day-to-day life."

Participants in the **Real** conditions read:

"During the first exercise, you find yourself paired up with a man named Matak with a short trimmed beard. You spend a minute introducing yourselves. Matak explains that he is from Somalia, a predominantly Muslim country, and that he has only recently received citizenship in your country. You have a brief conversation about your different experiences of growing up, and day-to-day life."

The next section of the scenario manipulated **Equal Status**. Participants in the Low Equal Status conditions read:

"The workshop leader explains to everybody that the task for each pair is to play thumb-wrestling and attempt to get the maximum number of pins within a given time. The leader then goes around and assigns one person from each pair to be in charge of deciding the rules for pinning, and deciding whether each pin is awarded a point or is disqualified. In your group, your partner is chosen to be the leader."

Participants in the High Equal Status conditions read:

"The workshop leader explains to everybody that the task for each pair is to play thumb-wrestling and attempt to get the maximum number of pins within a given time. The leader then explains that each group must spend a minute to agree upon the rules for pinning, and that you will need to also agree whether each pin is awarded a point or disqualified.

The final section of the scenario manipulated Goal Interdependence. Participants in the **Low Goal Interdependence** conditions read:

> "Finally, the workshop leader explains that at the end of this exercise, the person in each pair that has achieved the highest number of pins will be the winner, and only they will get points for this part of the team-building day."

Participants in the **High Goal Interdependence** conditions read:

> "Finally, the workshop leader explains that at the end of this exercise, the pair that has achieved the highest combined number of pins will be the winners and will both get points for this part of the team-building day."

Participants then completed measures of their perceived equal status and perceived goal interdependence regarding the scenario they had read, a measure of attitudes towards their partner, and attitudes towards Muslims, behavioural intentions to engage in contact with Muslims in future, and willingness to engage in contact with Muslims.

Measures

Perceived equal status. Participants read the root statement "During the interaction I imagined…" followed by six items measuring perception of equal reputation and equal power in the scenario they had read (e.g., "…my partner and I had the same social status") (see Chapter 1 for a discussion of the distinction between equal reputation and equal power). Responses were on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree*. Responses on these six items were averaged, with higher scores indicating higher perceived equal status ($\alpha = .77$).

Perceived goal interdependence. Participants read the root statement "During the interaction I imagined…" followed by three items measuring perception of goal interdependence in the scenario they had read (e.g. "… we were trying to achieve the same things"). Responses were on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree.*

Responses on these three items were averaged, with higher scores indicating higher perceived goal interdependence (α = .87).

Interpersonal and intergroup attitudes. Participants responded to the Feelings Thermometer, a measure of global attitudes towards a target person or group. Participants indicated how 'warm' (i.e., positive) they felt towards their interaction partner in the imagined scenario, and towards various social groups including Muslims, responding on a 10-point scale beginning at 1-*'0-10°'* and increasing in 10-degree increments to 10-*'91-100°'*. Higher values indicated warmer (i.e., more positive) attitudes.

Behavioural intentions. Participants responded to Husnu and Crisp's (2010) four items measuring intentions to interact with Muslims and learn about Islam in the future (e.g., "How much do you intend to interact with Muslims in the future?"). Responses were on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree.* Responses were on a scale from 1-*Not at all* to 9-*Very much*. Scores were averaged, with higher scores indicating more positive behavioural intentions (α = .78).

Willingness to engage in contact. Participants responded to Bogardus' (1925) willingness to engage in contact scale, modified for a Muslim outgroup. Participants read the instruction "To what degree would you be willing to engage in each of the following activities with a Muslim?", followed by seven items (e.g., "Having as a close relative by marriage"). Responses were on a scale from 1-*Not Willing At All* to 7-*Extremely Willing*. Responses to these seven items were averaged, with higher scores indicating higher desired closeness (α = .92).

Results

Sample-level means, standard deviations, and zero-order correlations for all study variables are displayed in Table 3.5. Condition-level means and standard deviations are displayed in Table 3.6.

Perception of Equal Status

Consistent with predictions, participants in the Minimal groups conditions perceived higher equal status than did participants in the Real groups conditions, $F(1, 411) = 16.65$, $p < .001$, $\eta^2 = .04$. Also consistent with predictions, participants in the high (*vs.* low) equal status conditions perceived higher equal status, $F(1, 411) = 25.27$, $p < .001$, $\eta^2 = .06$. However, there was no effect of Goal Interdependence on perceptions of equal status, $F(1, 411) = 1.25$, $p = .264$, $\eta^2 = .003$, and, contrary to predictions, no significant interactions, all *p*s > .263. Therefore, unexpectedly, perceptions of equal status were affected by Sociohistoric Norms and Equal Status manipulations only.

Perception of Goal Interdependence

Participants in the High Equal Status conditions perceived higher goal interdependence than did participants in the Low Equal Status conditions, $F(1, 411) = 4.20$, $p = .031$, $\eta^2 = .01$. Further, and consistent with predictions, participants in the High Goal Interdependence conditions perceived higher goal interdependence than did participants in the Low Goal Interdependence conditions, $F(1, 411) = 30.12$, $p < .001$, $\eta^2 = .07$. However, contrary to predictions, participants in the Real groups conditions perceived higher goal interdependence than did participants in the Minimal groups conditions, $F(1, 411) = 3.59$, $p = .005$, $\eta^2 = .02$. Further, and also contrary to predictions, there were no significant interactions, all *p*s > .242. Therefore perceptions of goal interdependence were affected by Sociohistoric Norms, Equal Status, and Goal Interdependence manipulations, but not by an interaction of Sociohistoric Norms and Equal Status.

Attitudes Towards Partner and Muslims

Participants in the Real groups conditions expressed warmer attitudes towards their interaction partner than did participants in the Minimal groups conditions, $F(1, 411) = 15.25$, $p < .001$, $\eta^2 = .04$. However, there was no effect of Equal Status, $F(1, 411) = .31$, $p = .579$, η^2

= .001, or Goal Interdependence, $F(1, 411) = 2.18$, $p = .141$, $\eta^2 = .01$. There were no significant interactions, all *p*s > .392. Therefore, only the manipulation of sociohistoric norms affected attitudes towards the interaction partner.

Contrary to predictions, there were no effects of Sociohistoric Norms, $F(1, 411) = .47$, $p = .495$, $\eta^2 = .001$, Equal Status, $F(1, 411) = .003$, $p = .956$, $\eta^2 < .001$, or of Goal Interdependence on attitudes towards Muslims, $F(1, 411) = 1.85$, $p = .174$, $\eta^2 = .004$. There were no significant interactions, all *p*s > .176. Therefore the manipulations did not affect attitudes towards Muslims.

Behavioural Intentions

Contrary to predictions, there were no main effects of Intergroup Norms, $F(1, 411) = .60$, $p = .438$, $\eta^2 = .001$, Equal Status, $F(1, 411) = .04$, $p = .847$, $\eta^2 < .001$, or Goal Interdependence condition on behavioural intentions, $F(1, 411) = 2.57$, $p = .110$, $\eta^2 = .01$. However, consistent with predictions a single two-way interaction emerged between Equal Status and Goal Interdependence such that, among participants in the Low Equal Status conditions, Goal Interdependence had no effect on behavioural intentions, but among those in the High Equal Status conditions, participants in the Low Goal Interdependence conditions expressed more positive behavioural intentions than did participants in the High Goal Interdependence conditions, $F(1,411) = 4.36$, $p = .037$, $\eta^2 = .01$. Figure 5.2 illustrates this interaction. Therefore behavioural intentions were affected by an interaction of Equal Status and goal interdependence only.

Table 3.5.

Means, standard deviations, and zero-order correlations for Study 4 variables (*n* = 420).

	M	SD	1	2	3	4	5	6
1. Perceived Equal Status	4.61	1.13	-					
2. Perceived Goal Interdependence	5.25	1.23	.40*	-				
3. Behavioural Intentions	5.58	1.85	.17*	.19*	-			
4. Willingness to Engage	6.24	1.14	.27*	.19*	.51*	-		
5. Attitudes towards Muslims	7.77	2.44	.29*	.20*	.55*	.70*	-	
6. Attitudes towards Partner	8.03	1.96	.40*	.43*	.36*	.49*	.61*	-

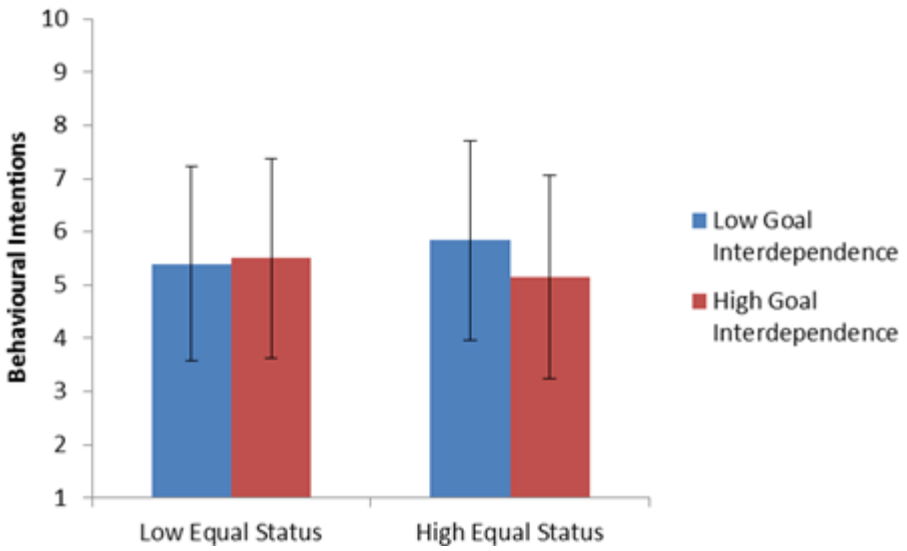

Figure 3.2. Interaction of Equal Status and Goal Interdependence on behavioural intentions, in Study 4.

Willingness to Engage in Contact

Contrary to predictions, there was no main effect of Sociohistoric Norms, $F(1, 411) = .05$, $p = .816$, $\eta^2 < .001$, Equal Status, $F(1, 411) = .24$, $p = .626$, $\eta^2 = .001$, or Goal Interdependence on willingness to engage in contact, $F(1, 411) = 2.34$, $p = .127$, $\eta^2 = .01$. Further, there were no significant interactions, *p*s > .160. Therefore the manipulations did not affect willingness to engage in contact.

Table 3.6.

Condition-level means and standard deviations for study variables.

Condition				DVs					
Norms	ES	GI	n	PES	PGI	BI	AtP	AtM	WtE
Minimal	Low	Low	51	4.25 (1.06)	4.03 (.64)	5.29 (1.90)	7.27 (2.06)	7.78 (2.19)	6.28 (1.01)
		High	53	4.06 (1.21)	4.40 (.65)	5.39 (1.87)	7.87 (1.67)	7.77 (2.51)	6.12 (1.14)
		Total	104	4.15 (1.14)	4.22 (.67)	5.34 (1.88)	7.58 (1.88)	7.78 (2.34)	6.20 (1.08)
	High	Low	43	4.64 (.96)	4.12 (.94)	5.82 (1.68)	7.67 (1.84)	8.09 (2.06)	6.46 (.84)
		High	49	4.60 (.96)	4.63 (.71)	5.11 (2.09)	7.80 (1.86)	7.16 (2.75)	6.15 (1.25)
		Total	92	4.62 (.95)	4.39 (.86)	5.44 (1.93)	7.74 (1.84)	7.60 (2.48)	6.29 (1.08)
	Total	Low	94	4.43 (1.03)	4.07 (.79)	5.53 (1.81)	7.46 (1.96)	7.93 (2.12)	6.36 (.94)
		High	102	4.32 (1.13)	4.51 (.69)	5.25 (1.97)	7.83 (1.75)	7.48 (2.63)	6.13 (1.19)
		Total	196	4.37 (1.08)	4.30 (.77)	5.39 (1.90)	7.65 (1.86)	7.69 (2.41)	6.24 (1.08)
Real	Low	Low	45	4.59 (.83)	4.24 (.58)	5.53 (1.76)	8.22 (2.25)	7.80 (2.53)	6.46 (.89)
		High	52	4.46 (.95)	4.62 (.61)	5.61 (1.89)	8.50 (1.72)	7.81 (2.37)	6.30 (1.09)
		Total	97	4.52 (.90)	4.44 (.63)	5.58 (1.82)	8.37 (1.98)	7.80 (2.43)	6.38 (1.00)
	High	Low	63	5.16 (1.20)	4.44 (.71)	5.85 (2.01)	8.35 (2.04)	8.11 (2.40)	6.19 (1.28)
		High	63	5.04 (1.12)	4.64 (.51)	5.19 (1.80)	8.46 (1.72)	7.75 (2.46)	6.16 (1.12)
		Total	126	5.10 (1.16)	4.54 (.62)	5.52 (1.93)	8.40 (1.88)	7.93 (2.42)	6.17 (1.19)
	Total	Low	108	4.92 (1.10)	4.35 (.66)	5.72 (1.90)	8.30 (2.12)	7.98 (2.45)	6.30 (1.13)
		High	115	4.78 (1.08)	4.63 (.56)	5.38 (1.85)	8.48 (1.71)	7.77 (2.41)	6.22 (1.10)
		Total	223	4.85 (1.09)	4.50 (.62)	5.54 (1.88)	8.39 (1.92)	7.87 (2.42)	6.26 (1.11)
Total	Low	Low	96	4.40 (.97)	4.13 (.62)	5.40 (1.83)	7.72 (2.19)	7.79 (2.34)	6.37 (.96)
		High	105	4.26 (1.10)	4.51 (.64)	5.50 (1.87)	8.18 (1.71)	7.79 (2.43)	6.21 (1.11)
		Total	201	4.33 (1.04)	4.33 (.65)	5.45 (1.85)	7.96 (1.96)	7.79 (2.38)	6.28 (1.04)
	High	Low	106	4.95 (1.13)	4.31 (.82)	5.84 (1.87)	8.08 (1.98)	8.10 (2.26)	6.30 (1.12)
		High	112	4.85 (1.07)	4.63 (.60)	5.15 (1.92)	8.17 (1.81)	7.49 (2.59)	6.15 (1.17)
		Total	218	4.90 (1.10)	4.48 (.73)	5.49 (1.92)	8.12 (1.89)	7.79 (2.45)	6.22 (1.15)
	Total	Low	202	4.69 (1.09)	4.22 (.74)	5.63 (1.86)	7.91 (2.08)	7.96 (2.30)	6.33 (1.04)
		High	217	4.56 (1.12)	4.57 (.62)	5.32 (1.90)	8.18 (1.76)	7.64 (2.51)	6.18 (1.14)

Note. IVs: *ES* Equal Status, *GI* Goal Interdependence. DVs: *PES* Perceived Equal Status, *PGI* Perceived Goal Interdependence, *BI* Behavioural Intentions, *AtP* Attitudes towards Partner, *AtM* Attitudes towards Muslims, *WtE* Willingness to Engage in Contact

Discussion

As predicted, participants imagining a situation in which minimal groups interacted perceived higher equal status within their imagined contact than did participants imagining a situation involving real groups. This finding suggests that individuals recruit sociohistoric norms information when they perceive contact. Therefore, the results of Study 4 provide

further support for a relation between intergroup climate and perceptions of intergroup contact, consistent with the position of Brewer and Kramer (1985) that such conditions as equal status must also be present outside of contact (i.e., arguably, within the intergroup climate) to improve intergroup relations. Relatedly, participants imagining a minimal (*vs.* real) groups situation perceived lower goal interdependence. This finding also supports a relation between intergroup climate and intergroup contact constructs, consistent with the main argument of this thesis; however, the direction of the effect was contrary to that predicted, a finding that might be explained by the real-groups scenario facilitating a clearer mental simulation of the contact. As such, participants in the real (*vs.* minimal) groups conditions might have been able to better relate to how they would feel in such a situation. This interpretation is consistent with the observation that participants reading about a minimal (*vs.* real) situation expressed cooler attitudes towards their interaction partner, suggesting that the effects of the mental simulation were less transformational. Further research is needed to establish whether such findings represents a robust effect of sociohistoric norms on perceptions of goal interdependence, and to explain such an effect with greater certainty.

In Study 4, I also attempted to extend the preceding studies in this chapter by testing whether sociohistoric norms, intergroup contact constructs, and their interactions, might affect intergroup outcomes, behavioural intentions, willingness to engage in contact, and intergroup attitudes, specifically. Among these variables, behavioural intentions were affected by the study manipulation, an interaction between equal status and goal interdependence specifically, but again, not in the anticipated direction. Further, neither attitudes towards Muslims, nor willingness to engage in future contact were affected by manipulations. These null findings might be explained by the low power of the present research, therefore future exploration of these phenomena would benefit from larger samples. Alternatively, the null findings might suggest that the imagined contact manipulations were

ineffective, contrary to previous findings that elaborated imagined contact, such as that used in the present study, are particularly effective at reducing prejudice (Husnu & Crisp, 2010). It should be noted, however, that the present sample displayed fairly warm attitudes towards Muslims and thus the failure of manipulation might represent a ceiling effect. Relatedly, the present research did not use a control group or a pre-manipulation measure of behavioural intentions and intergroup attitudes, thus prejudice reduction might have been effected across all groups. Future research, therefore, should examine whether intergroup outcomes can be improved using the present methodology among a less tolerant sample.

General Discussion

Across three studies, I tested whether sociohistoric norms and intergroup norms moderated the relation between objective structure of contact and participants' perceptions of contact, as well as intergroup outcomes. Given that some social groups (e.g., police, fire service, local authority) are associated with more than one set of intergroup norms, I tested in Studies 2 and 3 whether making salient different intergroup norms within a single intergroup relationship affected participants' perceptions of intergroup contact. In Study 2, consistent with classic models of contact (Allport, 1954; Pettigrew, 1998), participants' perceptions of each contact condition were influenced only by the manipulation of that contact condition. In Study 3, however, in line with more contemporary conceptualisations of contact (e.g., Pettigrew & Tropp, 2006) there was interrelation between contact conditions. Further, consistent with the theoretical framework presented in Chapter 1, perceptions of contact were also affected by intergroup climate (i.e., intergroup norms). Exploratory analyses, incorporating the results of Studies 2 and 3, provided preliminary support that Role aspects (Allport, 1954) – defined herein as intergroup norms relating to paradigms of contact – are germane to perceptions of contact, and that sociohistoric norms might moderate the relation between objective and subjective elements of intergroup contact. Such results are consistent

with previous researchers' assertions that personal intergroup contact is perceived through the filter of previous experience, and knowledge of the wider and historical relations between groups (e.g. Brewer, 1996; Wang, Leu & Shoda, 2011).

Given the exploratory nature of these cross-study findings, and low experimental power, in Study 4 I explored whether sociohistoric norms moderated the relation between contact conditions, and between objective structure and subjective perceptions of contact. In this study, there were none of the hypothesised – and previously noted – interactions, suggesting that the cross-study results might have been a statistical artefact. However, given the particularly tolerant sample, displaying warmer than expected attitudes towards Muslims, further exploration of these phenomena might be fruitful. It is further noted that, in order to employ an imagined contact paradigm featuring an outgroup member, the outgroups used in Study 3 and Study 4 were different. This methodological change might also explain the discrepancies between studies, so future attempts to explore such effects should focus on a single intergroup relationship. Conversely, the differences in sociohistoric norms relating to different intergroup relationships are worthy of investigation in their own right; exploring such differences across a range of relationships might further inform the dimensions of the sociohistoric norms construct. Therefore, uncovering generalisable indices of sociohistoric norms might be a useful avenue of study for future research into intergroup climate.

Some further limitations should be noted. Across all three studies outlined in this chapter, intergroup phenomena were explored by means of vignettes and imagined contact, so it is unclear whether results can be generalised to direct contact. Further, whereas the structure of contact was carefully controlled in a full-factorial design, levels of sociohistoric norms, intergroup norms, equal status and goal interdependence in real intergroup contact are likely to be far more complex and dynamic – indeed, the structure of contact might change during contact as individuals navigate intergroup contact and continually renegotiate their

positions (e.g., Taylor, 2006). Further, as previously noted, all three studies would likely benefit from larger samples given the focus on interaction effects.

The studies presented in this chapter focused on the relation between the objective structure of intergroup contact and participants' perceptions of contact, exploring whether these relations were moderated by intergroup climate. In the next chapter, I explore experimentally the effects of a further index of intergroup climate: ingroup norms.

CHAPTER 4: INGROUP NORMS

As proposed in Chapter 1, ingroup norms regarding an outgroup can be defined as perceptions relating to whether 'important others' such as friends and family, or individuals in one's own social group, would approve of one having positive relationships with that outgroup. Such norms might be germane to intergroup relations, forming part of the intergroup climate. For instance, knowledge of good contact between an ingroup and outgroup member can reduce prejudice (i.e., extended contact; Wright et al., 1997). Also, Christ et al. (2014) found that ingroup norms of diversity predicted less prejudice more than did direct contact with an outgroup. As such, in Study 5 I test the relations between ingroup norms, intergroup contact, and prejudice.

Manipulating ingroup norms might be challenging. Regarding many ingroups, by definition, participants are likely to have strong perceptions of prevailing and acceptable intergroup attitudes. For instance, an individual is likely to have beliefs regarding whether close friends and family members would approve of their having close contact with Muslims, Black people, and gay men. Thus, it might be difficult to manipulate ingroup norms regarding the beliefs of friends and family in order to test their effects on prejudice. Therefore, in the present study I utilised ingroups regarding which individuals might feel strong affiliation, but for which they might not have clear norms regarding specific outgroups. Specifically, I used the social affiliations that had arisen during the UK referendum on membership to the European Union (an issue colloquially termed 'Brexit'): 'Remainers' and 'Leavers'. Social commentators have noted that Britain is 'deeply divided' on the issue of Brexit (Armstrong, 2016), and patterns of hostility and antilocution have been witnessed between groups, such as the 'losing' side being routinely and pejoratively referred to as 'Remoaners' (e.g., Maddox, 2016). Amid such intergroup antipathies surrounding an issue about which many individuals have strong feelings, psychological investment in Brexit ingroups might be particularly

strong (Brewer, 2001), however, unlike family and friend ingroups, Brexit ingroups, which have formed relatively recently, might only have clear norms regarding specific outgroups (e.g., ‘Europeans’, ‘immigrants’; e.g., Bloomberg, 2016). However, many social groups, such as ‘the homeless’, were not such explicit foci of debate during the approach to Brexit, and thus Brexit ingroup norms regarding such groups might be more amenable to manipulation. Hence, the use of Brexit ingroups, which individuals might strongly identify with, and homeless people as an outgroup that is generally marginalised, but for whom there are no clear Brexit ingroup norms, might provide an ideal intergroup relationship within which to test experimentally the effects of ingroup norms on intergroup relations.

Study 5

In the present study, participants in the experimental condition were informed that other members of their Brexit ingroup had expressed favourable attitudes towards homeless people, whereas participants in the control condition received no ingroup norms information. Participants then underwent an imagined contact interaction with a homeless woman. I hypothesised that participants in the positive ingroup norms condition (*vs.* control) would imagine more positive contact, and report warmer attitudes and more positive behavioural intentions towards homeless people following imagined contact. I further hypothesised that, among participants in the positive ingroup norms condition (*vs.* control), the effect of higher quality of imagined contact on warmer attitudes towards homeless people would be stronger.

Method

Participants and Procedure

The survey link was displayed for ten weeks, between August 2016 and October 2016, on a social media webpage where individuals take part in surveys for recreational purposes[5]. During this period, fifty-three British participants voluntarily took part in the study. Five participants were excluded for response set, and failing to respond to each scale, leaving a final sample of n = 48 (M_{age} = 26.15, SD_{age} = 8.43, age range 18-55 years, 27% female). Power analyses revealed that a sample of 77 was required to detect a medium effect (f^2 = .15), and that the present sample size was sufficient to detect a medium-large effect (f^2 = .24).

Upon following the study link, participants read a consent form explaining the aims of the research and outlining their ethical rights. Participants next completed a measure of attitudes towards homeless people, and measures of political identification. Crucially, these latter measures included a single item that asked how they had voted – or would have voted – in the recent EU referendum (90% of participants identified with the 'Remain' camp).

Ingroup norms were then manipulated. Participants read instructions explaining that they would now answer some questions about their views of another social group. Participants were randomly allocated to one of two conditions. Participants in the positive ingroup norms condition were also told that they would be informed of how people who voted the same as them in the EU referendum (i.e., their Brexit ingroup) had responded to these items. Participants in the control condition did not receive this extra instruction. All participants next responded to four items created for the present study, relating to their own

[5] I considered various other hosting platforms to supplement data collection (e.g., Psychological Research on the Net), however, the decision to recruit British (*vs.* international) participants made these options unacceptably inefficient.

attitudes towards the homeless: “Homeless people are just the same as I am”, “Homeless people are usually not very clean”, “I get along just fine with homeless people”, “I would go out of my way to help a homeless person”. After each of these items, participants in the positive ingroup norms condition received false feedback showing that the majority of individuals who had voted the way they had voted in the EU referendum had responded favourably to the item (e.g., “Agreeing” that homeless people were the same as them). Participants in the control condition did not receive any feedback. All participants then responded to a manipulation check item.

All participants then read the following elaborated imagined contact instructions:

> “Imagine that you are waiting for a bus one afternoon; you have not ridden on this bus route before.
>
> “A middle-aged woman enters the bus shelter and takes a look at the timetable. She is of average height and weight, with mousy hair pulled back into a ponytail. She is wearing faded jeans and a dark jacket, along with a backpack. After a moment she looks over at you and smiles, and admits that she cannot make sense of the timetable. She asks if you know when the next bus is.
>
> “You take a look at the timetable and realise that it is, indeed, very confusing. Over the next minutes, you figure it out between you, and you get talking more generally. During the conversation the woman explains that she is currently homeless, and you get talking about issues in the economy.
>
> “By the time the bus arrives you are having a pleasant conversation, and you sit together on the bus and continue chatting for the rest of the journey.”

Consistent with Husnu and Crisp’s (2010) elaboration techniques (see Chapter 1), participants then spent three minutes imagining meeting the homeless woman for the first time, and then wrote a description of what happened during their meeting. After imagining

contact with the woman, participants completed measures of quality of imagined contact, attitudes towards homeless people, and behavioural intentions. Participants were then fully debriefed as to the purposes of the research and the deception.

Measures

Manipulation checks. Two single-item scales measured participants' perception of positive ingroup norms regarding similar others: "Most people that are like me do not like homeless people" (reversed), and important others: "People who are important to me have positive views about homeless people". Responses were on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree*. Higher scores indicated more positive ingroup norms. The correlation between these scales was moderate, $r = .53$, $p < .001$.

Quality of imagined contact. Participants responded to three items tapping Allport's (1954) contact conditions. Specifically, the items assessed the extent to which their imagined contact had been high in: imagined equal status ("... we both had an equal say during the meeting; nobody was in charge"), imagined goal interdependence ("... we both wanted the same things out of the meeting"), and imagined cooperation ("... we both worked together to achieve our goals"). A composite measure of quality of imagined contact was created by averaging the three items, with higher scores indicating higher quality of imagined contact ($\alpha = .83$).

Interpersonal and intergroup attitudes. Participants responded to the Feelings Thermometer, a measure of global attitudes towards a target person or group. Participants indicated how 'warm' (i.e., positive) they felt towards various social groups, including homeless people, responding on a ten-point scale beginning at 1-*'0-10°'* and increasing in ten-degree increments to 10-*'91-100°'*. Measures of attitudes towards the homeless were taken at the start of the study (i.e., pre-contact) and following the imagined contact

interaction (post-contact); these two measures correlated very highly, $r = .92$, $p < .001$. Higher values indicated warmer (i.e., more positive) attitudes.

Behavioural intentions. Participants responded to four items developed by Husnu and Crisp (2010) measuring intentions to interact with homeless people in the future (e.g., "How much do you intend to interact with homeless people in the future?"). Responses were on a scale from 1-*Not at all* to 9-*Very much*. Scores were averaged, with higher scores indicating more positive behavioural intentions ($\alpha = .89$).

Results

Table 4.1 displays means, standard deviations, and zero-order correlations for all study variables.

Effect of Imagined Contact on Intergroup Outcomes

Regarding the effect of imagined contact on intergroup outcomes, consultation of the correlations between variables (Table 4.1) revealed that higher quality imagined contact was associated with warmer post-contact attitudes towards the homeless and more positive behavioural intentions, *p*s < .001.To further test whether imagining contact with a homeless person resulted in warmer attitudes towards the homeless, a paired-samples *t*-test was conducted with pre- and post-contact attitudes towards the homeless as the repeated measures variables. Pre-contact attitudes were cooler ($M = 6.46$, $SD = 1.85$) than post-contact attitudes ($M = 6.79$, $SD = 1.85$), a difference that was significant, $t(47) = -3.06$, $p = .004$, $d = .44$. Therefore, consistent with predictions, imagined contact with a homeless woman resulted in warmer attitudes towards the homeless, and was associated with more positive behavioural intentions.

Table 4.1.

Means, standard deviations, and zero-order correlations for all study variables (*n* = 48).

	M	SD	1	2	3	4	5	6	7
1. ‘Similar others’ norms	5.19	1.51	-						
2. ‘Important others’ norms	4.88	1.36	.53*	-					
3. Quality of imagined contact	5.33	1.27	.39*	.49*	-				
4. Imagined Equal Status	5.71	1.47	.33*	.37*	.88*	-			
5. Imagined Goal Interdependence	4.69	1.60	.39*	.54*	.89*	.67*	-		
6. Imagined Cooperation	5.58	1.32	.26*	.34*	.82*	.59*	.58*	-	
7. Attitudes towards homeless (post)	6.79	1.85	.40*	.59*	.53*	.48*	.49*	.41*	-
8. Behavioural Intentions	4.82	1.99	.43*	.60*	.67*	.50*	.69*	.54*	.70*

Note. *p<.05

Manipulation Check

To test whether the manipulation of ingroup norms was successful, a one-way MANOVA was conducted with condition as the between-subjects factor, and perceived 'similar others' norms and perceived 'important others' norms as the dependent variables. Participants in the control condition (n = 23) perceived cooler ingroup norms ('similar others', M = 4.87, SD = 1.79; 'important others' M = 4.65, SD = 1.34) than did participants in the positive ingroup norms condition ('similar others', M = 5.48, SD = 1.16; 'important others' M = 5.08, 1.38). However, the effect of condition on ingroup norms was not significant, $F(2, 45) = 1.06$, p =.353, $\eta^2 = .05$, with no effect of condition on perceptions of 'similar others' norms, $p = .164$, or 'important others' norms, $p = .282$. Therefore the manipulation of perceived ingroup norms was unsuccessful.

Effects of Perceived Ingroup Norms: Internal Analyses

Given the unsuccessful manipulation, I conducted internal analyses to explore whether the manipulation check variables – perceived ingroup norms – might predict intergroup outcomes and moderate the relation between higher quality imagined contact and more positive intergroup outcomes. As such, I computed a measure of *perceived ingroup norms* as the mean of the two manipulation check variables. Warmer perceived ingroup norms (sample-level M = 5.03, SD = 1.26) were associated with higher quality imagined contact, $r = .50$, $p < .001$, warmer attitudes towards the homeless, $r = .56$, $p = .001$, and more positive behavioural intentions, $r = .58$, $p = .001$, at the zero-order level.

To test the effects of perceived ingroup norms on intergroup outcomes, I conducted two hierarchical regressions, with attitudes towards the homeless and behavioural intentions as the dependent variables, respectively. In each analysis, the intergroup outcome variable was regressed onto: (Step 1) condition (control = -1; positive ingroup norms = 1), to control for any effects of the manipulation (see Aiken & West, 1991); (Step 2) standardised values of

quality of imagined contact and perceived ingroup norms, and the two-way product term. Unstandardised coefficients are reported throughout.

Regarding the first regression, as expected, the Step 1 model did not predict post-manipulation attitudes towards the homeless[6], $F(1, 46) = .02$, $p = .903$. The Step 2 model accounted for 45% of the variance in attitudes towards the homeless, $F(4, 43) = 8.75$, $p < .001$. Warmer attitudes towards the homeless were predicted by higher quality imagined contact, $b = .73$, $t(43) = 2.96$, $p = .005$, $sr^2 = .41$, and warmer perceived ingroup norms, $b = .77$, $t(43) = 3.18$, $p = .003$, $sr^2 = .44$. Contrary to predictions, the interaction did not significantly predict attitudes towards the homeless, $b = .08$, $t(43) = .38$, $p = .703$, $sr^2 = .06$.

Regarding the second regression, as expected, the Step 1 model did not predict behavioural intentions, $F(1, 46) = 1.05$, $p = .311$. The Step 2 model accounted for 55% of the variance in behavioural intentions, $F(4, 43) = 15.06$, $p < .001$. More positive behavioural intentions were predicted by higher quality imagined contact, $b = 1.09$, $t(43) = 4.67$, $p < .001$, $sr^2 = .58$, and warmer perceived ingroup norms, $b = .71$, $t(43) = 3.14$, $p = .003$, $sr^2 = .43$. Consistent with expectations, the interaction significantly predicted behavioural intentions, $b = .44$, $t(43) = 2.18$, $p = .035$, $sr^2 = .32$, such that, among individuals perceiving warmer (*vs.* cooler) ingroup norms, the effect of higher quality imagined contact on more positive behavioural intentions was stronger. Simple slopes analysis revealed that the effect of higher quality imagined contact on behavioural intentions was significant for individuals perceiving cooler ingroup norms (-1SD), $b = .65$, $p = .036$, 95%CI [.04, 1.25], and warmer ingroup

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[6] Due to the reversion to a continuous between-subjects moderator variable (i.e., perceived ingroup norms), the planned use of mixed-model ANOVA to explore the moderation of imagined contact effects using pre- and post-manipulation attitude scores was abandoned. Further, the high correlation between pre- and post-manipulation attitude scores precluded the inclusion of pre-manipulation scores as a covariate in a regression analysis.

norms (1SD), $b = 1.53$, $p < .001$, 95%CI [.89, 2.17]. I further explored the interaction by repeating the regression analysis with the position of the predictor and moderator variable inverted, and applying the Johnson-Neyman technique – such an analysis reveals the values of the focal predictor variable (quality of imagined contact, herein) at which there is a significant difference between levels of the moderator (ingroup norms) on the dependent variable (see Hayes, 2013, for a full discussion of this technique). This analysis revealed that the difference in behavioural intentions between participants perceiving lower ingroup norms and higher ingroup norms was significant when quality of contact was > 4.38. With respect to the 7-point response scale for quality of imagined contact, this finding suggests that the difference was significant for participants imagining positive (*vs.* neutral, or negative) contact (i.e., scoring above the scale midpoint). Figure 4.1 illustrates this interaction.

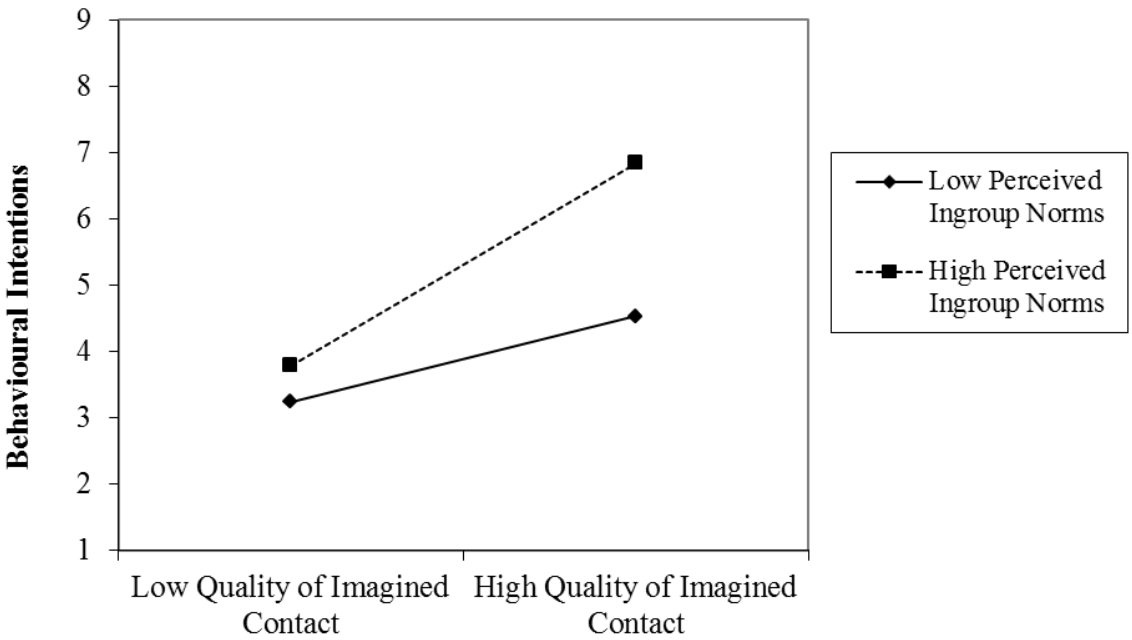

Figure 4.1. Effect of quality of imagined contact on behavioural intentions, for participants perceiving cooler (-1SD) and warmer (+1SD) ingroup norms.

Exploratory Analyses: Path Modelling

I conducted exploratory analyses of the effect of condition on quality of imagined contact. An independent samples *t*-test revealed that participants in the positive ingroup norms condition imagined significantly higher quality contact than did participants in the control condition, $t(46) = -2.09$, $p = .042$, $d = .62$. Further, previous analyses within this chapter had revealed that higher quality imagined contact predicted more favourable intergroup outcomes, including warmer attitudes towards the homeless, and more positive behavioural intentions. Therefore, two mediation models were tested to ascertain whether there was an indirect effect of condition on these respective intergroup outcome variables, via higher quality imagined contact[7]. Each of these models was estimated using the PROCESS macro (Hayes, 2013) running in SPSS software version 22. Employing model 4, which specifies simple mediation, PROCESS tested each model utilising an ordinary least squares regression-based path analytical framework to evaluate direct and indirect effects, and employed bias-corrected bootstrap methods (10,000 samples herein) to make inferences about the indirect effects. Significant indirect effects are indicated by a 95% confidence interval that does not contain zero; whereas such a bootstrapped confidence interval is not a null-hypothesis significance test, its results lead to the same substantive conclusion (Hayes, 2013). Condition was entered as the predictor variable. The standardised variable of quality of imagined contact was entered as the mediator variable.

Table 4.2 displays all direct and indirect path coefficients (unstandardised). In the first model, the indirect effect of condition on attitudes towards the homeless was significant,

[7] Whereas the Baron and Kenny (1986) method of mediation relies upon a main effect of the predictor variable on the criterion variable, mediation does not logically depend upon such an effect (see Hayes, 2013, and Kraemer, Wilson, Fairburn, & Agras, 2002, for discussions and demonstration of such phenomena).

95%CI [.06, .64], such that participants in the positive ingroup norms condition (*vs.* control) reported warmer attitudes via higher quality imagined contact. In the second model, the indirect effect of condition on behavioural intentions was significant, 95%CI [.06, .82]. Therefore, the positive ingroup norms manipulation resulted in more favourable intergroup outcomes via higher quality imagined contact. However, these findings are qualified by a non-significant manipulation check, and because these analyses were conducted *post-hoc*.

Table 4.2.

Unstandardised direct and indirect effects of mediation model of the effect of condition on intergroup outcomes, via quality of imagined contact.

	Criterion	QIC	ATT	BI
Predictor	Effect			
Condition	Direct	.29*	-.35	-.11
	Indirect	-	.32*	.40*
QIC	Direct	-	1.09*	1.37*
	R^2	.09	.32	.45

Note. *QIC* Quality of Imagined Contact, *ATT* Attitudes towards homeless, *BI* Behavioural Intentions. *$p < .05$.

Discussion

In the present study, I tested experimentally the effect of positive ingroup norms regarding intergroup relations with the homeless. Specifically, I explored the direct and moderation effects of such norms on intergroup outcomes regarding homeless people – a marginalised outgroup. Participants – some of whom had been informed that ingroup members held positive attitudes towards the homeless – experienced an elaborated imagined contact interaction with a homeless woman, then reported their attitudes towards the

homeless and behavioural intentions to engage in contact with homeless people in future. Unexpectedly, there was no effect of the ingroup norms manipulation on perceived ingroup norms, despite a non-significant trend whereby participants in the experimental condition expressed more positive ingroup norms than did participants who did not receive feedback about the view of their Brexit ingroup. Therefore, even regarding an ingroup that might not be expected to have clear norms regarding the homeless, my attempt to manipulate ingroup norms was unsuccessful. This result might suggest that ingroup norms are difficult to manipulate through single-session interventions, an interpretation consistent with findings in the direct and imagined contact literature. For instance, Pettigrew (1998) asserted that friendship potential – which affords repeated interactions – was a necessary condition for prejudice-reduction through contact, and Miles and Crisp (2014) note that imagined contact results have been most effective among studies employing multiple-session interventions (e.g., Vezzali, Capozza, Giovannini, & Stathi, 2012). Conversely, the manipulation used in the present study might have been ineffective; it is possible that participants that did not agree with the ostensibly positive ingroup norms were made to feel atypical rather than persuaded to adopt the ingroup's apparent position. Future research should continue to ascertain the extent to which perceptions of such norms are amenable to manipulation, using different – or repeated – interventions. Relatedly, the psychological precursors to membership to the respective ingroups employed in this study might explain the null findings. Insofar as nationalism and the issue of immigration drove Brexit ingroup selection, such choices might also be explicable by personality factors (Duckitt, 2006), with Leavers being potentially lower in Openness and Agreeableness. Further, the ideological precedents of 'Leave' ingroup selection might include derogation of low-status outgroups such as 'immigrants' and 'the homeless'. Therefore, although ingroup norms for the homeless might not be clear within Brexit ingroups, there might be systematic differences between Leavers and Remainers on

attitudes towards different outgroups, and outgroups in general. As such, the specific ingroups selected for this research, as well as the largely 'Remain' sample, might account to some extent for the null findings. Future research should consider such issues carefully when attempting to manipulate ingroup norms.

Due to the null effect of condition on perceived ingroup norms, I tested whether participants' (unmanipulated) ingroup norms might relate to intergroup outcomes. Interestingly, more positive perceived ingroup norms predicted warmer attitudes towards the homeless and more positive behavioural intentions to engage with the homeless in future. Such findings are consistent with previous research demonstrating that knowledge of good relations between an ingroup and outgroup member is sufficient to reduce prejudice (Pettigrew et al., 2007; Turner et al., 2007; Wright et al., 1997). However, the present methodology does not allow for the discernment of the direction of causality, and as such it might equally be the case that warmer intergroup attitudes led to more positive perceptions of ingroup norms. Further, and consistent with predictions of a moderating effect of ingroup norms on (imagined) contact effects, the relation between higher quality imagined contact and more positive behavioural intentions was facilitated by warmer perceived ingroup norms. This finding might suggest that contact is even more effective amidst perceptions of an ingroup that supports such contact. Further, considering that one benefit of imagined contact might be the reduction of anxiety preceding direct contact (Crisp & Turner, 2009, 2010), that less intergroup anxiety can increase the likelihood of an individual engaging in contact (Plant & Devine, 2003), and that individuals' default position might be the avoidance of intergroup contact (McKeown & Dixon, 2017), positive ingroup norms might therefore increase the likelihood that individuals who undergo imagined contact will engage in direct contact in the future. However, these possibilities are qualified by the failure to manipulate (*vs.* measure) ingroup norms; as stated, the causal relations between variables cannot be established by the

present methodology. As such, the present study serves as a preliminary exploration of these proposed relations between constructs, but further research is required to establish causality.

Further exploratory analyses suggested indirect effects of positive ingroup norms manipulation on warmer attitudes towards the homeless, and more positive behavioural intentions, respectively, via higher quality imagined contact. Therefore, whereas attempts to foster ingroup norms of positive intergroup relations might not directly affect participants' attitudes and intentions, such attempts might still effect more positive intergroup relations by improving individuals' mental simulations of what it might be like to meet an outgroup member. As such, ingroup norms might be effectively employed alongside imagined contact and direct contact to reduce prejudice (see Crisp & Turner, 2009, 2010, for similar arguments regarding the importance of a combination of prejudice-reduction strategies). Future research is needed to probe the robustness of this effect of exposure to positive messages regarding ingroup norms on quality of imagined contact through the testing of *a priori* hypotheses, and to explore whether positive ingroup norms also improve participants' perceptions of direct (*vs.* imagined) contact.

Some limitations of the present study should be noted. Participants displayed unexpectedly positive attitudes towards the homeless; perhaps resulting in a ceiling effect that could have masked imagined contact effects. The favourable (i.e., above the scale midpoint) pre-contact attitudes towards the homeless may have been due to social desirability bias, with members of both Brexit groups attempting to present themselves as tolerant and inclusive amid the ongoing political fallout of the referendum. It is also possible that the decision to use what may have been an atypical outgroup interaction partner (i.e., homeless female, rather than male) in the elaborated imagined contact intervention led to more positive reactions from both groups in the post-contact measures, again perhaps driving a higher affective baseline from which improvement was difficult to detect. Future attempts to

replicate this study might therefore benefit from the use of a more typical outgroup member. Finally, as with all research utilising imagined contact methodology, the generalisability of results to direct contact, and the longevity of effects remains a matter of debate.

The present chapter furthers the goals of this thesis by testing the effects of intergroup climate on intergroup relations, focusing on ingroup norms, specifically. Utilising similar methodology, the next chapter explores similar research questions but with regards to another index of intergroup climate: macro authority norms.

CHAPTER 5: MACRO AUTHORITY NORMS[8]

According to traditional contact theory (Allport, 1954; Pettigrew, 1998) authority support is present in intergroup contact to the extent that a relevant authority explicitly sanctions such contact. Allport (1954) stated that authority support was a key component of prejudice-reducing contact, a position later reiterated by Pettigrew (1998). As stated in Chapter 1, notwithstanding extensive research into the effects and mechanisms of contact, the specific role of authority sanction lacks clarity in the literature (e.g., Pettigrew & Tropp, 2006). Interestingly, whereas authority sanction has traditionally been explored as a direct predictor of warmer intergroup attitudes – that is, as authority support – Allport originally theorised that "the effect [of equal status and goal interdependence] *is greatly enhanced* if this contact is sanctioned by institutional support" (Allport, 1954, p.281, emphasis added), a statement that could be interpreted as placing authority sanction as a moderator (*vs.* direct predictor) of contact effects. Further, whereas authority support relates to whether *a specific contact* takes place under the auspices of a relevant authority, the extent to which positive intergroup relations are *generally* supported by a relevant authority might also be germane to intergroup relations . As such, I theorised that, distinct from the contact condition of authority support, authority sanction might also form part of the intergroup climate – a construct I conceptualise as macro authority norms (see Chapter 1). Further, as discussed in Chapter 1, authority sanction is difficult to manipulate in direct contact; interventions within which groups are brought into contact are likely to automatically be perceived as having authority support, because an authority figure (e.g., an experimenter) has arranged such contact

[8] The study reported in this chapter has been submitted for publication at the International Journal of Intercultural Research. The submitted manuscript is available on request.

(Pettigrew & Tropp, 2006). This phenomenon might make it difficult to compare low authority support contact with high authority support contact in direct contact, or to experimentally isolate the effects of authority support from those of macro authority norms. Thus, following the design of Study 5 (in Chapter 4), the present study utilised an elaborated imagined contact design to test experimentally the effects of macro authority norms, specifically, on intergroup relations.

Similar to direct contact, there may be situations in which imagined contact interventions can produce less favourable intergroup outcomes (see Barlow et al., 2012, for a review of negative contact effects). West and Greenland (2016, Experiment 1), for example, found that participants whose focus was on avoiding appearing prejudiced (*vs*. on having a positive interaction) while imagining contact with an outgroup member experienced *higher* intergroup anxiety towards the target group. A second experiment demonstrated a causal link between avoidance (*vs.* approach) focus and negative outcomes following imagined contact. This phenomenon might be particularly germane to the effect of macro authority norms on intergroup relations; whereas many civic authorities in Western countries (e.g., UK and Canada) sanction good relations between various social groups, such as Muslims and non-Muslims, such sanction often comes in the form of prohibitive legal requirements. In other words, such norms are focused on what individuals should *not* do. For instance, overt Islamophobic behaviour in England and Wales carries a maximum penalty of two years imprisonment (Crown Prosecution Service, 2016). Thus, 'negative' macro authority norms – that is macro authority norms that emphasise avoiding negative (*vs.* adopting positive) intergroup behaviour – might foster attitudes and behaviour deterring individuals from holding positive intergroup attitudes or wishing to engage in direct or imagined contact. This possibility raises the question as to whether authority group messages that promote *positive* intergroup relations (i.e., rather than castigating *negative* intergroup relations) might be used

to facilitate imagined contact effects. Hence, I extend previous research suggesting that 'avoidance' messages from authorities might hinder imagined contact effects, focusing on positive macro authority norms, presently.

Drawing on Allport's (1954) original discussions, and following the themes of this thesis, macro authority norms were explored as a predictor of prejudice, and as a moderator of the effects of contact conditions (equal status, goal interdependence, and cooperation, specifically) on two indices of prejudice: intergroup attitudes and behavioural intentions. More specifically, I tested whether elaborated imagined contact with a Muslim woman fostered more positive intergroup outcomes when salient, positive macro authority norms for good intergroup relations were present (*vs.* absent).

Study 6

The purpose of the present study was to investigate the effects of macro authority norms on intergroup attitudes in an elaborated imagined contact situation. Participants imagined interacting with a Muslim woman named Zainab. I examined whether participants exposed to a message of positive macro authority norms (*vs.* a control group) would imagine higher quality contact (i.e., higher equal status, goal interdependence, and cooperation), and would report warmer attitudes towards the woman specifically and Muslims generally, and more positive behavioural intentions towards Muslims in the future. Further, consistent with Allport (1954), I hypothesised that, among participants exposed to a message of positive macro authority norms (*vs.* control), the relations between higher quality imagined contact and warmer attitudes towards the woman specifically, towards Muslims generally, and more positive behavioural intentions would be stronger.

Method

Participants and Procedure

Participants were first year psychology students at a Canadian university (n = 156, M_{age} = 20.83, SD_{age} = 4.94, age range 18-50 years, 80% female) who participated in exchange

for partial course credit. Given my focus on intergroup relations, participants identifying as Muslim (n = 6) were excluded from analyses[9], leaving a final sample of n = 150. Power analyses revealed that this sample size provided an 80% chance to detect a small-medium effect size (f^2 =.12).

Upon arrival at the lab, participants read a consent form explaining the aims of the research and outlining their ethical rights, then completed several measures intended for a larger study on attitudes towards women who wear Islamic veils – these measures included right-wing authoritarianism, social dominance orientation, Islamophobia, and intergroup disgust sensitivity, but did not form part of the goals or hypotheses of this thesis. Next, participants were randomly assigned to one of two conditions. In the **positive macro authority norms condition**, participants read a short article entitled "Canadian Authorities Continue to Support Integration"; in the article the notion that authorities support good relations between Muslims and non-Muslims was emphasised. Specifically, the article stated that a range of social authorities, including universities, and persons at the Ontario Court of Justice, encouraged Muslims and non-Muslims in Canada to have positive civic engagement. Participants in the **control condition** read a short article noting that the federal government encouraged healthy eating habits.

All participants then read the following elaborated imagined contact instructions: "Imagine that you are starting a new assignment worth a huge portion of your grade in the course. The assignment is a 40-minute presentation given by yourself and another student who you have been allocated to work with. You will need to spend lots of time researching

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[9] As in Chapter 4, this exclusion criterion was agreed *a priori*.

and rehearsing together. We are now going to show you a photo of your partner for the assignment. Please imagine that you are meeting her for the first time."

All participants were then presented with a personal profile of a fictitious 19-year-old female student named Zainab Shaheen, including her hometown and her personal and academic interests. Critically, this profile included a picture of a young woman smiling and wearing a hijab – an Islamic head covering that covers the hair but leaves the face completely visible. Participants were instructed to spend three minutes imagining meeting Zainab for the first time, and to write a description of what happened during their meeting. After imagining contact with Zainab, participants completed measures of quality of imagined contact, attitudes towards Zainab, attitudes towards Muslims[10], and behavioural intentions. Participants were then fully debriefed as to the purposes of the research.

Measures[11]

Manipulation check. A single item measured participants' perception of positive macro authority norms: "Canadian authorities support good relations between Muslims and non-Muslims". Responses were on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree*, with higher scores indicating more positive macro authority norms.

Quality of imagined contact. Participants responded to three items tapping Allport's (1954) contact conditions. Specifically, the items assessed the extent to which their imagined

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[10] Similar to Chapter 4, participants completed a measure of attitudes towards Muslims during pre-screening. However, a technical issue made it impossible to assign pre-screen scores to the correct participants with an appropriate degree of certainty.

[11] As noted, participants also completed measures of right-wing authoritarianism (Altemeyer, 1998), social dominance orientation (Pratto et al., 1994), Islamophobia (Lee, Gibbons, Thompson & Timani, 2009) and intergroup disgust sensitivity (Hodson et al., 2013) as part of a larger study. Regarding these 7-point scales, the sample was low on right-wing authoritarianism (M = 2.71, SD = 1.02), social dominance orientation, (M = 2.78, SD = .74), intergroup disgust sensitivity (M = 1.73, SD = .82), intergroup threat (M = 2.45, SD = 1.30), and Islamaphobia (M = 1.47, SD = .59).

contact had been high in: imagined equal status ("... we both had an equal say during the meeting; nobody was in charge"), imagined goal interdependence ("... we both wanted the same things out of the meeting"), and imagined cooperation ("... we both worked together to achieve our goals"). A composite measure of quality of imagined contact was created by averaging the three items, with higher scores indicating higher quality of imagined contact (α = .88)[12].

Interpersonal and intergroup attitudes. Participants responded to the Feelings Thermometer, indicating how 'warm' (i.e., positive) they felt towards Zainab, and towards various social groups including 'Muslims'[13], responding on a ten-point scale beginning at 1-*'0-10°'* and increasing in ten-degree increments to 10-*'91-100°'*. Higher values indicated warmer (i.e., more positive) attitudes.

Behavioural intentions. Participants responded to four items developed by Husnu and Crisp (2010) measuring intentions to interact with Muslims and learn about Islam in the future (e.g., "How much do you intend to interact with Canadian Muslims in the future?"). Responses were on a scale from 1-*Not at all* to 9-*Very much*. Scores were averaged, with higher scores indicating more positive behavioural intentions (α = .83).

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[12] To test whether participants in the experimental condition imagined less positive contact interactions (see Husnu & Crisp, 2010; West & Greenland, 2016), participants rated the pleasantness of the interaction immediately after the imagined contact intervention. There was no relation between condition and pleasantness of the interaction, $r = .11$, $p = .167$

[13] I also measured attitudes towards women wearing the niqab, women wearing the hijab, and Muslim men. Whereas attitudes towards all Muslim groups were highly correlated, attitudes towards Zainab did not relate to attitudes towards these specific Muslim subgroups. Raw data are available on request.

Results

Table 5.1 displays means, standard deviations, and zero-order correlations for all study variables.

Manipulation Check

To determine whether the manipulation of macro authority norms was successful, an independent samples *t*-test with condition as the between-subjects factor and perceived macro authority norms as the dependent variable was conducted. Means and standard deviations are displayed in Table 5.2. As expected, participants in the positive macro authority norms condition (n = 76) perceived significantly more positive macro authority norms than did participants in the control condition (n = 74), $t(148) = -2.77$, $p = .006$, $d = .46$. Therefore, the manipulation of macro authority norms was successful.

Effects of Macro Authority Norms on Interpersonal and Intergroup Outcomes

To determine whether positive macro authority norms resulted in more positive interpersonal and intergroup outcomes, a one-way MANOVA was conducted with condition as the independent variable and quality of imagined contact, attitudes towards Zainab, attitudes towards Muslims, and behavioural intentions as the dependent variables. Means and standard deviations for each condition on each outcome variable are shown in Table 5.2. There was a significant effect of condition on interpersonal and intergroup outcomes, $F(4, 145) = 2.88$, $p = .025$, $\eta^2 = .07$. Consistent with hypotheses, participants in the positive macro authority norms condition reported significantly more positive behavioural intentions than did participants in the control condition, $p = .007$, $\eta^2 = .05$. However, there was no difference between conditions on quality of imagined contact, $p = .879$, $\eta^2 < .001$, attitudes towards Zainab, $p = .426$, $\eta^2 = .004$, or attitudes towards Muslims, $p = .845$, $\eta^2 < .001$.

Moderating Effects of Macro Authority Norms

A series of regressions were employed to test the effects of macro authority norms and quality of imagined contact, and whether they interacted[14]. Specifically, each respective outcome variable was regressed onto condition (0=control condition, 1=experimental condition), standardised scores for quality of imagined contact, and the two-way product term of these variables. Unstandardised variables are reported throughout.

The first regression was conducted with attitudes towards Zainab as the criterion variable. The model predicted 25% of the variance in attitudes towards Zainab, $F(3, 146) = 16.16$, $p < .001$. Warmer attitudes towards Zainab were predicted by higher quality of imagined contact, $b = .63$, $sr^2 = .42$, $t(146) = 5.59$, $p < .001$, but not by condition, $b = .19$, $sr^2 = .11$, $t(146) = 1.28$, $p = .203$. The interaction was not significant, $b = -.24$, $sr^2 = .11$, $t(145) = -1.62$, $p = .108$. Therefore, contrary to predictions, positive macro authority norms did not predict attitudes towards Zainab, or moderate the relation between higher quality imagined contact and warmer attitudes towards Zainab.

[14] To address the potential issue of family-wise error, I later attempted to fit an SEM model wherein attitudes towards Zainab, attitudes towards Muslims and behavioural intentions were modelled as indicators of a latent factor. Condition, quality of contact, and their product term were modelled as covaried predictors of this factor. The model could not be identified.

Table 5.1.

Means, standard deviations, and zero-order correlations for all study variables.

	M	*SD*	1	2	3	4	5	6	7
1. Perceived Macro Authority Norms	5.17	1.46	-						
2. Quality of Imagined Contact	6.45	.77	.24*	-					
3. Imagined Equal Status	6.43	.80	.26*	.90*	-				
4. Imagined Goal Interdependence	6.34	1.01	.15^{t}	.91*	.69*	-			
5. Imagined Cooperation	6.57	.77	.26*	.90*	.75*	.72*	-		
6. Attitudes towards Zainab	8.99	1.02	.18*	.48*	.41*	.48*	.38*	-	
7. Attitudes towards Muslims	8.54	1.47	-.02	.36*	.32*	.39*	.26*	.51*	-
8. Behavioural Intentions	6.30	1.80	-.05	.25*	.17*	.31*	.18*	.44*	.52*

Note. *p<.05, ^{t}p<.1

Table 5.2.

Descriptive statistics for control (*n* = 74) and experimental (*n* = 76) conditions for study outcome variables.

DV	Condition	Mean	SD
Perceived Macro Authority Norms	Control	4.79	1.38
	Experimental	5.53	1.44
Quality of Imagined Contact	Control	6.49	.74
	Experimental	6.41	.85
Attitudes towards Zainab	Control	8.92	1.16
	Experimental	9.05	.88
Attitudes towards Muslims	Control	8.57	1.42
	Experimental	8.52	1.54
Behavioural Intentions	Control	5.91	1.87
	Experimental	6.69	1.64

The second regression was conducted with attitudes towards Muslims as the criterion variable. The model predicted 13% of the variance in attitudes towards Muslims, $F(3, 146) = 7.47$, $p < .001$. Warmer attitudes towards Muslims were predicted by higher quality of imagined contact, $b = .61$, $sr^2 = .28$, $t(146) = 3.48$, $p = .001$, but not by condition, $b = .01$, $sr^2 = .003$, $t(146) = .04$, $p = .967$. The interaction was not significant, $b = -.13$, $sr^2 = -.05$, $t(146) = .56$, $p = .580$. Therefore, contrary to predictions, macro authority norms did not predict warmer attitudes towards Muslims, or moderate the effect of quality of imagined contact on attitudes towards Muslims.

The final regression was conducted with behavioural intentions as the criterion variable. The model predicted 14% of the variance in behavioural intentions, $F(3, 146) = 7.60$,

$p < .001$. Higher quality of imagined contact predicted significantly more positive behavioural intentions, $b = .77$, $sr^2 = .29$, $t(146) = 3.60$, $p < .001$, as did condition, with the experimental group reporting more positive behavioural intentions, $b = .84$, $sr^2 = .24$, $t(146) = 3.03$, $p = .003$. The interaction was not significant, $b = -.52$, $t(146) = -1.86$, $p = .064$, $sr^2 = -.15$. Therefore, as expected, positive macro authority norms predicted warmer attitudes towards Muslims. However, contrary to predictions, macro authority norms did not moderate the effect of quality of imagined contact on attitudes towards Muslims.

Mediation Analyses

To allow for clearer comparison with Chapter 4, I employed mediation analyses to assess whether positive macro authority norms (*vs.* control) resulted in more positive interpersonal and intergroup outcomes (i.e., attitudes towards Zainab, attitudes towards Muslims, and behavioural intentions), via higher quality imagined contact. I estimated three models using the PROCESS macro (Hayes, 2013), running in SPSS version 22 (see Chapter 4 for further details on PROCESS), using model 4, which specifies simple mediation. Condition was entered as the predictor variable. The standardised variable of quality of imagined contact was entered as the mediator variable. Table 5.3 displays all direct and indirect path coefficients (unstandardised). In the first model, the indirect effect of condition on attitudes towards Zainab was not significant, 95%CI [-.17, .17]. In the second model, the indirect effect of condition on attitudes towards Muslims was not significant, 95%CI [-.17, .21]. Finally, in the third model, the indirect effect of condition on behavioural intentions was not significant, 95%CI [-.16, .20]. Therefore, data were not consistent with an indirect effect of macro authority norms manipulation on interpersonal and intergroup outcomes, via quality of imagined contact.

Table 5.3.

Unstandardised direct and indirect effects of mediation model of the effect of condition on intergroup outcomes, via quality of imagined contact.

	Criterion	QIC	AttZ	AttM	BI
Predictor	Effect				
Condition	Direct	-.02	.14	-.03	.80*
	Indirect	-	-.01	-.01	-.01
QIC	Direct	-	.69*	.75*	.70*
	R^2	<.001	.27	.15	.13

Note. *QIC* Quality of Imagined Contact, *AttZ* Attitudes towards Zainab, *AttM* Attitudes towards Muslims, *BI* Behavioural Intentions. *$p < .05$.

Discussion

As expected, and consistent with Allport's (1954) contact hypothesis, participants exposed to positive macro authority norms reported more positive behavioural intentions towards Muslims. However, contrary to predictions based on previous research (e.g., Landis et al., 1984; Parker 1968), participants exposed to positive macro authority norms did not imagine significantly better contact, and did not report warmer attitudes to Zainab, or to Muslims generally. In other words, whereas the quality of imagined contact was similar across conditions regarding levels of equal status, goal interdependence, and cooperation, individuals in the positive macro authority norms condition (*vs.* control) expressed more desire to engage in closer direct contact with Muslims in future. Therefore these results might suggest that Allport's (1954) notion of positive authority sanction contributes to an intergroup climate (i.e., in the form of macro authority norms) that is conducive to good contact, rather than comprising a condition of good contact *per se* (Pettigrew, 1998). That is, whereas the

absence of positive macro authority norms might not hinder prejudice-reduction through contact, the presence of positive macro authority norms might increase the likelihood of direct contact occuring in the first place. As in Chapter 4, which revealed a potential similar effect regarding the effect of ingroup norms, such a possibility should not be understated given that individuals' default behaviours might lean towards the avoidance of intergroup contact (McKeown & Dixon, 2017). Further, and importantly, the null findings regarding a relation between macro authority norms and both interpersonal and intergroup outcomes when controlling for other contact conditions (equal status and goal interdependence, specifically) is consistent with other research showing null results regarding authority support (e.g., Molina & Wittig, 2006; Koschate & van Dick, 2011).

The present research also explored the moderating role of positive macro authority norms in contact, following Allport's (1954) observations, and other research suggesting a potential moderation effect (Serow & Solomon, 1979). Among participants for whom positive macro authority norms were made salient (*vs*. a control group), behavioural intentions were more positive, yet higher quality of imagined contact had no positive effect, and the interaction effect was not significant. Further, positive macro authority norms did not moderate the relation between higher quality of imagined contact and warmer attitudes towards either Zainab specifically, or Muslims, generally. Given the difficulty of detecting interactions – which require greater power to detect than do main effects (see Aiken & West, 1991; Cohen et al., 2003; Jaccard et al., 1990; McClelland & Judd, 1993) – and the relative dearth of research on authority support, future research into the role of authority support and macro authority norms in contact should continue to explore the possibility of moderation effects.

The present research gives preliminary support for the claim that positive macro authority norms, that is, macro authority norms with an 'approach' focus (West & Greenland,

2016), may have positive effects on imagined contact. Given the exploratory nature of this study, future research is needed to assess its generalisability. For instance, the role of macro authority norms in imagined contact with different outgroups, such as ethnic and sexual minorities, should be explored. Relatedly, I focused presently on attitudes towards a Muslim woman (*vs.* man); the basis for prejudice towards these outgroups – and thus the mechanisms by which such prejudice might be reduced – might be very different, so future research should continue to explore attitudes towards different Muslim subgroups. Also, the question remains as to whether macro authority norms are related to direct contact in the same ways in which they are related to imagined contact. Exploration of this latter issue may be demanding due to the resource intensity of direct contact interventions, and the practical difficulties inherent in manipulating authority support – and thus perhaps macro authority norms – during direct contact (Pettigrew & Tropp, 2006). Finally, whereas I tested the specific role of support of civic and social authorities (e.g., government and universities), further research should experimentally test the effects of different types of authority, such as religious authorities (e.g., Parker, 1968) and employers (e.g., Landis, Hope & Day, 1984).

In previous research (West & Greenland, 2016), among participants primed with an avoidance (*vs.* approach) focus, imagined contact with an outgroup member resulted in *more* prejudice. Therefore, the present study focused on *positive* macro authority norms, that is, authority messages that focused on the benefits of good intergroup relations rather than the consequences of poor intergroup relations. Yet, as noted, macro authority norms are often negative, with legislation punishing intergroup hostility. Whereas the results of the present study might inform on the benefits of positive macro authority norms, further research on the effects of negative macro authority norms – in imagined and direct contact – would therefore be beneficial for theoretical and applied purposes.

As noted in Chapter 1, authority sanction might be conceptualised as two distinct constructs: authority support (Allport, 1954) and macro authority norms, with the latter referring to general (*vs.* specific; i.e., contact-level) sanction for good intergroup relations (see Figure 1.5.1). Whereas the present research was concerned exclusively with climate-level sanction, that is, macro authority norms, the relation between this construct and authority support might be a fruitful avenue for future research. Specifically, research is needed to ascertain the extent to which authority support and macro authority norms are empirically distinct, and the extent to which they have separate (i.e., unique) effects on intergroup outcomes. Relatedly, the simultaneous effects of different – and perhaps antagonistic – macro authority norms should be explored. To illustrate: A local workplace manager might be overtly sexist even while the area manager advocates gender equality; religious and civic authorities might adopt opposing stances on the issue of same-sex marriage; a local council might systematically reject planning applications proposed by Gypsies, contrary to national laws on racial equality. Such potentially intricate interplays between distinct sets of macro authority norms, and the results of such on intergroup relations, warrant further scientific scrutiny.

Some limitations in the present research should be noted. First, the student sample was drawn from a cosmopolitan city in Canada, and as such had relatively liberal and inclusive worldviews. Also, as with all imagined contact research, the extent to which such intervention could effect lasting change in intergroup relations is unclear. As observed in Chapter 4, longitudinal research into imagined contact effects, and research into the effects of repeated applications of imagined contact interventions is thus required.

Pursuant to the goals of this thesis, I explored the potential for a moderating effect of intergroup climate on intergroup contact effects (e.g., Allport, 1954; Serow & Solomon, 1979), focusing specifically on one proposed index of intergroup climate: macro authority

norms. Sixty years of contact research has traditionally considered the role of authorities in intergroup contact at the level of contact, with far fewer exploring the role of authorities in intergroup contact at society- or relationship-level. Further, I am aware of no other study that has manipulated macro authority norms *or* authority support to test their effects experimentally. Yet findings of the largest meta-analysis within the contact literature suggest that authority support might be as effective a tool in prejudice-reduction as are equal status, goal interdependence, and cooperation, combined (Pettigrew & Tropp, 2016). As such, more research is needed, and more rigorous research is required to increase understanding of the structure and effects of various types of authority, authority support and macro authority norms, specifically. At a time when an incumbent and influential world leader is actively pursuing a "total and complete shutdown" of an entire religious group entering his country (Trump, 2016), and has been publically seen to advocate the sexual assault of women (Fahrenthold, 2016), such research has never been more timely.

Across four empirical chapters, this thesis has thus far tested the structure of contact, and how various indices of intergroup climate might relate to outgroup attitudes. In the following chapters I test the structure of intergroup climate against my proposed four-factor model (Figure 1.5), and, in large-scale cross-sectional studies, continue to test whether intergroup climate might moderate the prejudice-reducing effects of intergroup contact.

CHAPTER 6: CONTACT, INTERGROUP CLIMATE, AND WHITES' PERCEPTIONS OF BLACKS

As reviewed in Chapter 1, decades of contact research generally support the principle that neutral or positive contact reduces prejudice, with higher quality contact, characterised by equal status, goal interdependence, cooperation, and authority support, particularly likely to result in warmer attitudes (Pettigrew & Tropp, 2006). The process by which contact relates to outgroup attitudes has received much attention in the literature (e.g., Pettigrew & Tropp, 2008); however, there remains some debate about the relations between contact conditions (see Chapter 1). For instance, classic contact theory suggested that equal status, goal interdependence, cooperation, and authority support have independent and direct effects on prejudice (Pettigrew, 1998). In contrast, a more recent study by Koschate and van Dick (2011) argued that equal status and goal interdependence might lead to cooperation, and cooperation might then drive the prejudice-reducing effects of contact – a model empirically supported by their data. Further, and contrary to classic contact theory (e.g., Pettigrew, 1998), the pattern of relations between contact conditions in the literature might suggest that perceptions that an agent of authority sanctions good intergroup relations precedes equal status and goal interdependence (see Chapter 1). Therefore, further exploration of the relations between contact conditions, and perceptions of authority sanction would be a useful addition to the literature. A model of contact as auspices (i.e., authority support), structure (i.e., equal status and goal interdependence), and behaviour (i.e., cooperation) (see Figure 1.4) was thus proposed in Chapter 1. In Chapter 2, Study 3 of this thesis supported Allport's (1954) model of contact (e.g., Figure 1.1), however, as noted this previous study would have benefitted from greater statistical power, and thus I revisit the relations between contact conditions and authority sanction in the present study, testing competing models with a more appropriate sample size. Given the fledgling stage of the literature on intergroup climate, and the

difficulties inherent in fitting statistical models with highly correlated constructs (Field, 2005), I consider authority sanction in terms of intergroup climate, macro authority norms (*vs.* authority support) specifically.

Whereas this question of the relation between equal status, goal interdependence, cooperation, and macro authority norms pertains to the structure of contact, some clarification might also be sought as to the structure of the individual contact conditions – see Chapter 1 for more detailed discussion of this issue. For instance, equal status has been variously defined in the literature as equal reputation and equal power (e.g., Koschate & van Dick, 2011; Walker & Crogan, 1998), bringing into question whether this contact condition is better conceptualised as a two-factor construct. Further, some contact theorists have regarded goal interdependence and cooperation as a single construct (i.e., cooperative interdependence; see, for instance, Molina & Wittig, 2006), leaving unclear the extent to which the contact conditions are separate. Therefore, amid some divergence in the literature about the nature of contact conditions, and the relations between contact conditions, a further goal of this chapter is to test competing models of contact conditions (e.g., equal status as a two factor construct), and the process of contact.

Researchers are beginning to explore the effects of intergroup climate – society-level situational variables relating to intergroup relations, such as the perception of general (*vs.* personally-experienced) patterns of intergroup behaviour. However, to date, no overarching theoretical framework has been proposed that can be applied to the intergroup climates across various intergroup relationships. Early research into intergroup climate (e.g., Barth, 1974) produced factors and constructs that were specific to the relationships under scrutiny, and whereas more recent research has been much more generalisable (e.g., Christ et al., 2013, 2014), such research has relied upon various indices of climate individually; that is, without exploration of the interrelation of these indices. Therefore, another goal of this chapter is to

test a four-factor model of intergroup climate (see Figure 1.5). Specifically, I proposed that a 'warmer' (i.e., more positive) intergroup climate is comprised of: more positive intergroup norms, such that individuals perceive that the relevant social groups usually have good relations; more positive ingroup norms, such that individuals perceive that important ingroup members would approve of good relations with the outgroup; and less negative sociohistoric norms, such that individuals do not perceive intergroup conflict as a deeply entrenched or immutable status quo. Further, I questioned whether more positive macro authority norms – in the form of individuals' beliefs that the law and other agencies of authority sanction positive intergroup relations – might rather form part of a warmer intergroup climate (*vs.* contact).

Finally, intergroup contact and intergroup climate might be related constructs. It is possible that the effect of personal contact with an outgroup on attitudes towards that group would be affected by one's wider knowledge of how that group and one's ingroup generally coexist. However, this possibility of an interaction between intergroup contact and intergroup climate has received only preliminary exploration, and so the testing of such moderation hypotheses is a further goal of the present study. Relatedly, I test whether the process of contact effects changes as a function of intergroup climate. Specifically, I explore whether the effect of contact on less prejudice via lower intergroup anxiety (e.g., Turner et al., 2013) is moderated by indices of intergroup climate.

Study 7

Research into intergroup contact (indeed, prejudice, generally) has predominantly focused on racial/ethnic groups (e.g., Pettigrew & Tropp, 2006), and Black-White tensions are arguably the most salient and entrenched in the United States. To facilitate comparison with previous literature, in the present study, individuals identifying as 'White' living in the United States responded to a questionnaire regarding their perceptions of Blacks, their

personal contact with Blacks, and their perceptions of the general relationship between White people and people identified as Black.

Hypotheses

Structure of contact conditions. The first section of the present study explored the structure of the constructs comprising participants' perceptions of personally experienced intergroup contact, that is, the composition of contact conditions. As such, the following hypotheses were proposed regarding items measuring personally experienced contact:

Hypothesis 1. Equal status items would load most strongly onto two interrelated factors: equal reputation and equal power.

Hypothesis 2. Goal interdependence and cooperation items would load most strongly onto two (*vs.* one) separate but related constructs, respectively, consistent with previous research (Gaertner et al., 1999).

Hypothesis 3. Macro authority norms items would load most strongly onto two constructs, that is, 'formal' (e.g., rules) and 'informal' (e.g., behaviour) macro authority norms (see Blader & Tyler, 2003; see also Chapter 1 of this thesis for discussion of the structure of macro authority norms).

Relations between contact conditions. The second section of the present study explored the relations between the constructs comprising participants' perceptions of personally experienced intergroup contact, that is, the relations between contact conditions. As such, the following hypotheses were proposed regarding patterns of relation between the factors that were expected to emerge from the first section of the present study:

Hypothesis 4. Regarding the relation between contact conditions, I tested competing hypotheses, that: a) a model of auspices, structure, and behaviour (i.e., a three-step model, Figure 1.4) would better fit the data than would a more traditional 'Allportian' model (Figure

1.1), or a more contemporary model of two-step mediation (Figure 1.3); and b) that the more traditional 'Allportian' model would best fit the data.

Hypothesis 5. Consistent with research suggesting that perceptions regarding authority relate to intergroup relations via different mechanisms than do the other contact conditions (e.g., Koschate & van Dick, 2011; Molina & Wittig, 2006), I predicted that macro authority norms would load onto a separate factor than equal status, goal interdependence, and cooperation.

Structure of intergroup climate constructs. The third section of the present study explored the structure of the constructs comprising participants' perceptions of general patterns of intergroup contact, that is, the composition of intergroup climate. As such, the following hypotheses were proposed regarding items measuring intergroup climate:

Hypothesis 6. I predicted that: a) items measuring specific intergroup norms of equal status between Blacks and Whites would load most strongly onto two- (*vs.* one-) factors: intergroup norms of equal reputation, and intergroup norms of equal power, respectively; b) items measuring specific intergroup norms of goal interdependence and cooperation would load most strongly onto two separate but related factors; c) items measuring global intergroup norms (i.e., the valence of intergroup norms generally; see Chapter 1), relating to perceptions of the general ('good-or-bad') state of Black-White relations, would load most strongly onto a single factor; d) items measuring ingroup norms would load most strongly onto two factors (i.e., friends norms and family norms); and e) items measuring sociohistoric norms would load most strongly onto a single factor.

Relations between intergroup climate indices. The fourth section of the present study explored the relations between the constructs comprising participants' perceptions of personally experienced intergroup contact, that is, the relations between indices of intergroup

climate. As such, the following hypotheses were proposed regarding patterns of relation between the factors expected to emerge from the third section of the present study:

Hypothesis 7. I predicted that all indices of intergroup climate would relate to intergroup attitudes, with 'warmer' intergroup climate (i.e., more positive intergroup norms, ingroup norms, and less negative sociohistoric norms) relating to warmer attitudes towards Blacks.

Hypothesis 8. I predicted that intergroup climate indices would be significantly related to attitudes towards Blacks, controlling for the effects of quality of personally-experienced contact.

Moderation. The fifth section of the present study explored whether the relation between higher quality contact and warmer attitudes towards Blacks was moderated by intergroup climate. Therefore, the following hypothesis was proposed regarding relation between contact and attitudes at different levels of climate perception:

Hypothesis 9. I predicted that: a) each intergroup climate variable would significantly moderate the relation between intergroup contact and attitudes towards Blacks such that, among participants perceiving a warmer (*vs.* cooler) intergroup climate, the effects of higher quality contact on warmer attitudes towards Blacks would be stronger; and b) macro authority norms might also moderate (*vs.* predict) contact effects, such that among participants perceiving more (*vs.* less) positive macro authority norms, the effects of higher quality contact on warmer attitudes towards Blacks would be stronger.

Moderated mediation

Hypothesis 10. I predicted that the indirect effect of higher quality contact on warmer attitudes towards Blacks, via lower intergroup anxiety, would be moderated by each intergroup climate variable. Specifically, I predicted that, among participants perceiving a

'warmer' (i.e., more positive) intergroup climate, the effect of higher quality contact on warmer attitudes towards Blacks, via intergroup anxiety, would be stronger.

Method

Participants and Procedure

Participants (n = 753) were recruited from the United States using Amazon Mechanical Turk ('MTurk') for a study called 'Perceptions of Social Groups'. This large sample was required to allow sufficient sensitivity to test hypotheses via structural equation modelling (SEM), mediation, and moderated mediation techniques; a sample of *at least* 500 is required to achieve the conventional power of .8 for a small effect (see Fritz & MacKinnon, 2007; Kline, 2005; and Preacher, Rucker & Hayes, 2007, for detailed discussions of sample size in these test families). Due to the focus on Whites' perceptions of Blacks, 158 participants not identifying as White/Caucasian were excluded from analyses[15], leaving a final sample of n = 595 (55% female; M_{age} = 38.05, age range 18-78, SD_{age} = 12.68). Participants received a $0.50US monetary incentive, a sum comparable to what other studies on MTurk were offering for the same length of study, at that time. After providing consent, participants completed measures of intergroup anxiety, quality of contact, intergroup climate, and intergroup attitudes. Measures of quality of contact, intergroup climate, and intergroup attitudes were developed for this thesis, with all items included in Appendix A. Participants then read a debriefing form explaining the specific purpose of the study.

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[15] The decision to analyse the data of White participants only was made *a priori*. I initially considered prescreening participants for racial group, but the extra cost and time required to do so exceeded the scope of my resources. I further considered adding an instruction to participants that only those identifying as White/Caucasian should participate, but rejected this option due to concerns of social desirability bias, given the high reactivity of research into racial prejudice. Finally, the software platform used to create the online survey precluded the termination of participants not identifying as White/Caucasian in the demographic section of the questionnaire. Therefore, the present methodology was employed.

Measures

Intergroup anxiety. Stephan and Stephan's (1985) intergroup anxiety scale was administered. Participants read the root statement "If you were the only member of your ethnic group alone in a group of Black people, would you feel…". Participants indicated how they would feel in terms of 10 emotions (e.g., uncertain, threatened, awkward, suspicious) on a scale from 1-*Not at all* to 10-*Extremely.* Responses were averaged, with higher scores indicating higher intergroup anxiety (α = .93).

Quality of contact

Equal reputation. Participants read the root statement "Thinking about times I have met with Black people…" followed by three items (e.g., "…we have had the same social status"). Participants responded on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree.* Responses were averaged, with higher scores indicating higher equal reputation (α = .80).

Equal power. Participants read the root statement "Thinking about times I have met with Black people…" followed by three items (e.g., "…neither of us had more influence than the other"). Participants responded on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree.* Responses were averaged, with higher scores indicating higher equal power (α = .80).

Goal interdependence. Participants read the root statement "Thinking about times I have met with Black people…" followed by three items (e.g., "…we have been trying to achieve the same things"). Participants responded on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree.* Responses were averaged, with higher scores indicating higher goal interdependence (α = .76).

Cooperation. Participants read the root statement "Thinking about times I have met with Black people…" followed by three items (e.g., "…I did not have any problem working with them"). Participants responded on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree.* Results were averaged, with higher scores indicating more cooperation (α = .91).

Macro authority norms

Law norms. Participants read the instruction "Please use the scale below to rate your agreement with the following statements about THE LAW REGARDING THE RELATIONSHIP BETWEEN BLACK PEOPLE AND WHITE PEOPLE". Next, participants responded to four items (e.g., "The law dictates that Black people and White people should be treated fairly and without bias"). Participants responded on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree*. Results were averaged, with higher scores indicating more positive law norms (α = .83).

Local authority norms. Participants read the instruction "Please use the scale below to rate your agreement with the following statements about THE LOCAL AUTHORITIES REGARDING THE RELATIONSHIP BETWEEN BLACK PEOPLE AND WHITE PEOPLE". Next, participants responded to four items (e.g., "Whether dealing with Black people or White people, the decisions of local authorities are fair and unbiased"). Participants responded on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree*. Results were averaged, with higher scores indicating more positive local authority norms (i.e., the 'behaviour' of agents of law; 'informal' authority norms; Blader & Tyler, 2003) (α = .97).

Intergroup climate

Intergroup norms

Intergroup equal reputation. Participants read the instruction "Please use the scale below to rate your agreement with the following statements regarding the relationship between BLACK PEOPLE AND WHITE PEOPLE IN GENERAL". Next, participants responded to three items (e.g., "Black people and White people have the same social standing"). Participants responded on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree.* Responses were averaged, with higher scores indicating higher intergroup equal reputation (α = .90).

Intergroup equal power. Participants read the instruction "Please use the scale below to rate your agreement with the following statements regarding the relationship between BLACK PEOPLE AND WHITE PEOPLE IN GENERAL". Next, participants responded to three items (e.g., "Overall, Black people and White people have the same power in society"). Participants responded on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree.* Results were averaged, with higher scores indicating higher intergroup equal power (α = .92).

Intergroup goal interdependence. Participants read the instruction "Please use the scale below to rate your agreement with the following statements regarding the relationship between BLACK PEOPLE AND WHITE PEOPLE IN GENERAL". Next, participants responded to three items (e.g., "The goals of Black people and White people are complementary"). Participants responded on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree.* Results were averaged, with higher scores indicating higher intergroup goal interdependence (α = .77).

Intergroup cooperation. Participants read the instruction "Please use the scale below to rate your agreement with the following statements regarding the relationship between BLACK PEOPLE AND WHITE PEOPLE IN GENERAL". Next, participants responded to three items (e.g., "There is generally cooperation between White people and Black people in society"). Participants responded on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree.* Results were averaged, with higher scores indicating more intergroup cooperation (α = .69).

Global intergroup norms. Participants read the instruction "Please use the scale below to rate your agreement with the following statements regarding the relationship between BLACK PEOPLE AND WHITE PEOPLE IN GENERAL". Next, participants responded to four items (e.g., "Contact between White people and Black people tends to be good rather than bad"). Participants responded on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree.* Results were averaged, with higher scores indicating warmer global intergroup norms (α =

.88).

Ingroup norms

Friends norms. Participants read the instruction "Please use the scale below to rate your agreement with the following statements regarding THE OPINIONS OF PEOPLE WHO ARE IMPORTANT TO YOU". Next, participants responded to six items (e.g., "My friends would be angry if they learned that I was getting close to Black people"). Participants responded on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree.* Results were averaged, with higher scores indicating warmer friend norms (α = .90).

Family norms. Participants read the instruction "Please use the scale below to rate your agreement with the following statements regarding THE OPINIONS OF PEOPLE WHO ARE IMPORTANT TO YOU". Next, participants responded to six items (e.g., "My family would be angry if they learned that I was getting close to Black people"). Participants responded on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree.* Results were averaged, with higher scores indicating warmer family norms (α = .93).

Sociohistoric norms

Participants read the instruction "Please use the scale below to rate your agreement with the following statements about THE HISTORY BETWEEN BLACK PEOPLE AND WHITE PEOPLE". Next, participants responded to six items (e.g., "Nobody can remember a time when Black people and White people got along"). Participants responded on a scale from 1-*Strongly Disagree* to 7-*Strongly Agree*. Scores were averaged, with higher scores indicating cooler (i.e., more negative) sociohistoric norms (α = .80).

Intergroup attitudes. Participants responded to the Feelings Thermometer measure of intergroup attitudes, indicating how 'warm' they felt toward various social groups, including 'Blacks.' Responses were on a ten-point scale beginning at '*0-10°*', and increasing

in ten degree increments to '*91-100*°', with higher values indicating warmer (i.e., more positive) intergroup attitudes.

Results

Structure of Intergroup Contact

To explore the structure of contact conditions, I conducted a series of exploratory factor analyses (EFA) using SPSS software version 22. Prior to EFA analyses, indicator variables were tested for singularity and multicollinearity through consultation of the *R*-matrix: acceptable indicators should be significantly correlated, but should be rejected if $r > .90$, and the determinant of the matrix should be > .00001 (Fields, 2005). Sample size adequacy was tested by means of the Kaiser-Meyer-Olkin measure (KMO), with an acceptable threshold of KMO > .50. Finally, the chi-square of Bartlett's test should be significant (Field, 2005). For conciseness, these assumptions are not reported except in the case of violations. Next, principle component analysis was employed using promax rotation.

Structure of contact conditions: Exploratory factor analyses. To test whether Allport's (1954) contact conditions were separate constructs, all contact variables (i.e., all items measuring equal reputation, equal power, goal interdependence, cooperation, law norms, and local authority norms) were entered into a single analysis. The item "Local authorities are equally fair to Black people and White people" correlated too highly with several other items (*r*s > .90; Field, 2005), and was excluded from all further analyses. Factor loadings for all quality of contact variables are displayed in Table 6.1. EFA revealed five factors with an eigenvalue above 1 that together accounted for 75% of the total variance. The first factor contained all local authority norms items and was named Local Authority Norms; this factor accounted for 33% of total variance. Contrary to hypothesis 1, the second factor contained all equal reputation and equal power items, and was named Equality; this factor explained 24% of the total variance. Items for this factor were averaged to compute a new

variable, which had excellent reliability ($\alpha = .87$). The third factor contained all cooperation items, and was named Cooperation; this factor explained 8% of the total variance. The fourth factor contained all law norms items and was named contained Law Norms; this factor explained 6% of the total variance. Therefore, consistent with hypothesis 3, macro authority norms were empirically best divided into two interrelated constructs (i.e., law norms and local authority norms). The fifth factor contained all goal interdependence items and was named Goal Interdependence; this factor explained 5% of the total variance. Crucially, items measuring goal interdependence and cooperation loaded onto two exclusive factors. Therefore, consistent with hypothesis 2, goal interdependence and cooperation were empirically separate constructs.

The factors of *Equality*, *Goal Interdependence*, and *Cooperation* were significantly and positively interrelated, *r*s > .49. However, whereas *Local Authority Norms* and *Law Norms* were significantly and positively related to one another, neither of these factors correlated as strongly with *Equality*, *Goal Interdependence*, or *Cooperation*, *r*s < .15. To test whether macro authority norms variables clustered separately from the contact variables, I entered each of the mean quality of contact variables into an exploratory factor analysis. As expected, EFA revealed two factors with an eigenvalue above 1, together explaining 75% of the variance. Factor loadings are displayed in Table 6.2. As expected, Factor 1, explaining 43% of the total variance, included equality, goal interdependence, and cooperation, and was named *Structure of Contact*, whereas Factor 2, explaining 31% of the variance, included local authority norms and law norms, and was named *Macro Authority Norms.* Therefore, consistent with hypothesis 5, macro authority norms (i.e., local authority norms and law norms) represented a separate cluster of variables, distinct from the contact conditions.

Table 6.1.

Factor loadings for intergroup contact items.

Factor	1	2	3	4	5
Thinking about times I have met with BLACK PEOPLE…					
… we have had the same social status	-.01	**.91**	-.17	.01	-.002
… neither of us was viewed as more important than the other	.02	**.71**	.23	.05	-.09
… *there were differences in our social status*	-.14	**.77**	-.32	.09	.28
… neither of us had more influence than the other	.08	**.88**	.09	-.07	-.12
… an observer would not be able to tell which of us was in charge	.08	**.77**	.19	-.12	-.10
... it has been clear that there is unequal power between us	-.08	**.50**	.14	.05	.20
… we have been trying to achieve the same things	.08	.12	.14	-.07	**.66**
… we've both been able to get what we wanted	.18	.10	.12	-.03	**.65**
... we wanted totally different things out of the situation	-.02	-.11	-.01	.07	**.93**
… we've been able to work together just fine	-.02	.01	**.91**	.02	.03
… I did not have any problems working with them	.003	.03	**.92**	.01	.01
... we just weren't able to cooperate	-.11	-.06	**.84**	.09	.09
The law dictates that Black people and White people should be treated fairly and without bias	-.25	-.09	.10	**.89**	.10
The law does not favour either Black people or White people	.29	.10	.002	**.68**	-.10
The law ensures that decisions that affect both White people and Black people are based on facts, not personal biases and opinions	.37	.03	.02	**.69**	-.07
The law is equally fair to Black people and White people	.57	<.001	-.07	**.53**	.004
Whether dealing with Black people or White people, the decisions of local authorities are fair and unbiased	**.98**	.01	-.03	-.05	.02
Local authorities apply the law consistently when dealing with Black people and White people	**.99**	-.05	-.04	-.08	.05
Local authorities' decisions affecting White people and Black people are made based on facts, not personal biases and opinions	**.99**	-.04	.003	-.05	.03
Local authorities are equally fair to Black people and White people	**.98**	-.01	.01	-.04	.03

NB. Italicised items are reverse-keyed. Factors: *1* – Local authority norms; *2* – Equality; *3* – Cooperation; *4* – Law norms; *5* – Goal Interdependence

Table 6.2.

Factor loadings for exploratory factor analysis of quality of contact variables**.**

Factor	1	2
Equality	**.81**	-.19
Goal interdependence	**.81**	-.24
Cooperation	**.74**	-.39
Local authority norms	.49	**.76**
Law norms	.32	**.85**

Note. Factors: *1* – Structure of contact; *2* – Macro authority norms

Relations between contact conditions: Path analyses. To test which of the competing models – that is, the three-step model of contact (Figure 1.4) and a more traditional model (Figure 1.1) – best fit the data, path analysis was employed using AMOS software version 22. AMOS provided inferential statistics for indirect (i.e. mediated) effects using bootstrapping (10,000 samples herein) to calculate *p*-values based on bias-corrected confidence-intervals. Due to the focus on comparative fit, the Bayesian Information Criterion (BIC) is reported. A lower BIC indicates a better fitting model, with a BIC difference of ΔBIC = -2.00 as the conventional threshold for retaining a hypothesis of better fit; chi-square and RMSEA are also reported for reference (see Hooper, Coughlan & Mullen, 2008; Kass & Raftery, 1995, for discussions of fit indices). Consistent with conventional practice (e.g., Byrne, 2016; Loehlin, 2004) poor-fitting models were improved following post-hoc consultation of the modification indices – an estimate of the change in χ^2 that would be effected by removing the constraint on a given parameter – with this process repeated until a good fit was achieved. Standardised coefficients of unstandardised variables are reported.

First, an Allportian model (e.g., Pettigrew, 1998) was estimated, in which equality, goal interdependence, cooperation, and macro authority norms (i.e., law norms and local

authority norms) were each modelled as simultaneous direct predictors of attitudes towards Blacks (based on Figure 1.1). Due to the previously discussed patterns of relation between constructs, equality, goal interdependence, and cooperation were allowed to covary, and law norms and local authority norms were also allowed to covary. Model fit was initially poor, $\chi^2(6) = 4.86$, $p < .001$, RMSEA = .11, BIC = 144.40. Following consultation of the modification indices, local authority norms were allowed to covary with cooperation; and law norms were allowed to covary with equality and goal interdependence. The fit of this revised model was acceptable, $\chi^2(3) = 7.99$, $p = .05$, RMSEA = .05, BIC = 122.98. Table 6.3 displays all pathway coefficients for this model. Among direct effects, more positive local authority norms significantly predicted cooler attitudes towards Blacks. Further, higher equality, higher goal interdependence, and higher cooperation each significantly predicted warmer attitudes towards Blacks, as expected. However, contrary to predictions, law norms did not predict attitudes towards Blacks.

Next, a model of two-step mediation (Figure 1.3) was estimated, in which the two measures of macro authority norms (i.e., law norms and local authority norms) were modelled as covaried predictors of equality, goal interdependence, and cooperation. Equality, goal interdependence, and cooperation were modelled as predicting attitudes towards Blacks. Finally, due to the previously mentioned relations between contact conditions, the errors of equality, goal interdependence, and cooperation were allowed to covary. Model fit was poor, $\chi^2(2) = 20.61$, $p < .001$, RMSEA = .13, BIC = 141.99. Following consultation of the modification indices, a direct pathway was added from local authority norms to attitudes towards Blacks. This revised model had excellent fit, $\chi^2(1) = 2.37$, $p = .124$, RMSEA = .05, BIC = 130.14. Standardised direct and indirect effects for each path are displayed in Table 6.3. As predicted, among direct effects, more positive law norms significantly predicted higher equality, higher goal interdependence, and higher cooperation. More positive local

authority norms significantly predicted cooler attitudes towards Blacks, although this pathway was added *post hoc*, as noted above. Unexpectedly, more positive local authority norms significantly predicted *less* (*vs.* more) cooperation. Finally, and consistent with predictions, higher equality, higher goal interdependence, and higher cooperation significantly predicted warmer attitudes towards Blacks. Regarding indirect effects, consistent with predictions, more positive law norms significantly predicted warmer attitudes towards Blacks via equality, goal interdependence and cooperation, 95%CI [.12, .31], $p < .001$, and more positive local authority norms significantly predicted cooler attitudes towards Blacks via equality, goal interdependence and cooperation, 95%CI [-.16, -.03], $p = .007$.

Table 6.3.

Standardised coefficients for Allportian, two-step mediation, and three-step mediation models of contact.

Model	Allportian		Two-step				Three-step	
	Criterion	ATT	ES	GI	COOP	ATT	COOP	ATT
Predictor	Effect							
LAW	Direct	-.07	.26*	.20*	.22*	-	-	-
	Indirect	-	-	-			.16*	.12*
AUTH	Direct	-.11*	-.08	-.06	-.21*	-.15*	-.12*	-.15*
	Indirect	-	-	-			-.05	-.06*
ES	Direct	.12*	-	-	-	.12*	.30*	.12*
	Indirect	-	-	-			-	.08*
GI	Direct	.22*	-	-	-	.22*	.39*	.22*
	Indirect	-	-	-			-	.10*
COOP	Direct	.27*	-	-	-	.26*	-	.26*
	R^2	.29*	.05	.03	.04	.27*	.37*	.27*

Note. *LAW* law norms, *AUTH* local authority norms, *ES* equality, *GI* goal interdependence, *COOP* cooperation, *ATT* attitudes towards Blacks. *$p < .05$

Finally, a three-step mediation model – based on Figure 1.4 – was estimated, in which law norms and local authority norms were modelled as covaried predictors of equality and

goal interdependence. Equality and goal interdependence were modelled as predicting cooperation. Cooperation was modelled as predicting attitudes towards Blacks. The errors of equality and goal interdependence were allowed to covary. Model fit was poor, $\chi^2(6) = 72.25$, $p < .001$, RMSEA = .14, BIC = 169.08. Following consultation of the modification indices, a direct pathway was added from local authority norms, to cooperation. Direct pathways were also added from local authority norms, equality, and goal interdependence to attitudes towards Blacks. This revised model had good fit, $\chi^2(2) = 5.42$, $p = .067$, RMSEA = .05, BIC = 126.80. Standardised coefficients for each path are displayed in Table 6.3. Among direct effects, more positive local authority norms significantly predicted less cooperation and cooler attitudes towards Blacks, although these pathways were added *post hoc*, as noted above. Higher equality and higher goal interdependence each significantly predicted warmer attitudes towards Blacks, although these pathways were also added *post hoc*, as noted above. Finally, as predicted, higher cooperation significantly predicted warmer attitudes towards Blacks. Regarding indirect effects, as expected, more positive law norms significantly predicted more cooperation via equality and goal interdependence 95%CI [.09, .23], $p < .001$. Further, and as expected, more positive law norms significantly predicted warmer attitudes towards Blacks via equality, goal interdependence, and cooperation 95%CI [.07, .18], $p < .001$, and more positive local authority norms significantly predicted cooler attitudes towards Blacks via equality, goal interdependence, and cooperation 95%CI [-.12, -.01], $p = .021$. Finally, as expected, higher equality significantly predicted warmer attitudes towards Blacks via cooperation 95%CI [.05, .12], $p < .001$, and higher goal interdependence significantly predicted warmer attitudes towards Blacks via cooperation [.06, .15], $p < .001$.

To test whether the three-step (*vs.* two-step or Allportian) model had the best fit, I compared the respective BICs of all three models. Comparison revealed strong evidence that the model of Allportian contact better fit the data than did the two-step mediation model,

ΔBIC = 7.16, and that the two-step mediation model better fit the data than did the three-step mediation model, *ΔBIC* = 3.82. Therefore, consistent with hypothesis 4b, the data were more consistent with the model of Allportian contact than with either of the proposed alternative models. Figure 6.1 illustrates this final model of contact on attitudes towards Blacks.

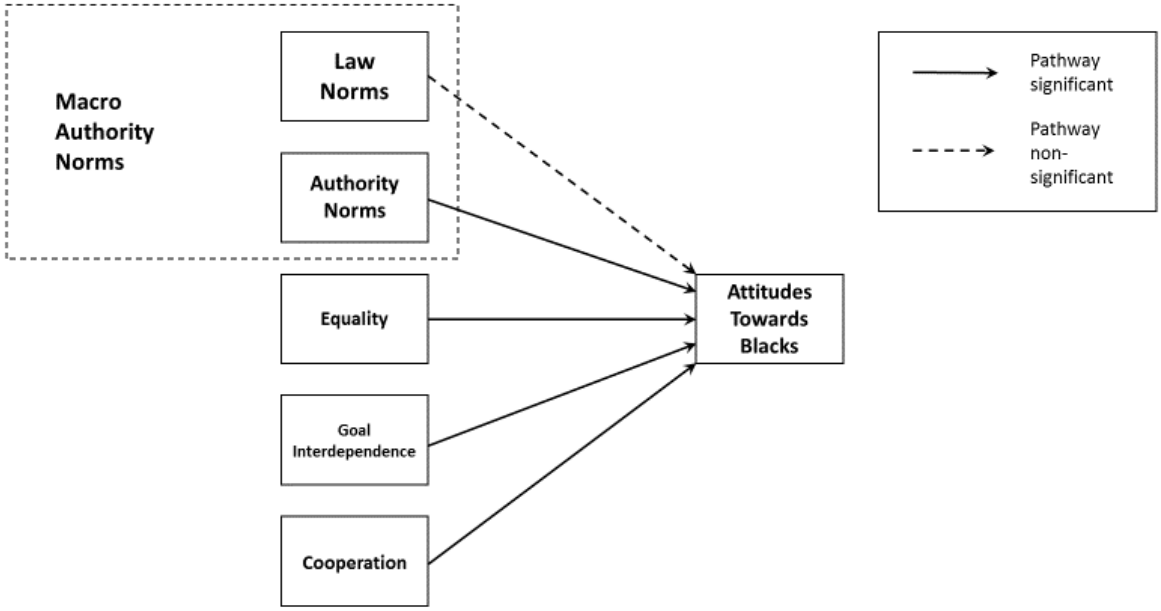

Figure 6.1. Final model of effects of quality of intergroup contact on attitudes towards Blacks.

Structure of Intergroup Climate

To test the validity of the proposed factors of intergroup climate (Figure 1.5), and, thereby, the structure of intergroup climate constructs, all intergroup climate items were entered into a single EFA analysis, following the same principles as in the EFA analysis of intergroup contact constructs.

Structure of climate indices: Exploratory factor analyses. Due to a series of non-significant correlations involving items measuring intergroup norms of equal status and intergroup norms of equal power, and the items “There is a history of intense conflict between Black people and White people” and “The conflict between Black people and White

people is deep-seated" ($p > .05$; Field, 2005), these quoted items were removed from the EFA analysis. The resulting analysis revealed five factors that together explained 69% of the variance. Factor loadings are displayed in Table 6.4.1. Factor 1 included all of the family norms items and was named *Family Norms*; this factor accounted for 43% of the total variance. Factor 2 included all of the friends norms items and was named *Friends Norms*; this factor accounted for 10% of the total variance. Therefore, consistent with hypothesis 6d, ingroup norms items loaded onto separate factors relating to friends norms and family norms, respectively. Factor 3 included items regarding intergroup norms of goal interdependence and intergroup norms of cooperation, and was named *Cooperative Interdependence*; this factor explained 7% of the total variance. Therefore, contrary to hypothesis 6b, and in contrast to the structure of goal interdependence and cooperation in perceptions of personal contact, intergroup norms of goal interdependence and cooperation overlapped in their factor loadings. Factor 4 included sociohistoric norms items relating to antipathy and the intergroup conflict as ongoing, and was named *Enduring Antipathy*; this factor explained 5% of the total variance. Finally, Factor 5 included items regarding intergroup norms of cooperation and the perception of a lack of conflict, and was named *Cooperative Coexistence*; this factor explained 4% of the total variance. Therefore, contrary to hypothesis 6c, global intergroup norms formed part of these factors rather than comprising their own separate factor.

To test whether the remaining items (i.e., items excluded from the previous analysis) formed another group of factors, these items were entered into a second EFA. Analyses revealed two factors that together explained 75% of the total variance. Table 6.4.2 displays factor loadings for each item. Factor 1 contained, exclusively, the items measuring intergroup norms of equal status and intergroup norms of equal power, and was named *Norms of Equal Status*; this factor explained 60% of the total variance. Therefore, contrary to hypothesis 6a, intergroup norms of equal status were a single-factor (*vs.* two-factor; i.e., norms of equal

reputation and equal power, respectively) construct. Factor 2 included sociohistoric norms items relating to the conflict as deep-seated, and was named *Deep Conflict*; this factor explained 15% of the total variance. Therefore, contrary to hypothesis 6e, sociohistoric norms were empirically better divided into two factors (*vs.* one factor).

Table 6.4.1.

Factor loadings of intergroup climate variables (first factor analysis).

Factor	1	2	3	4	5
The bottom line is that Black people and White people want fundamentally different things	.01	.04	**.91**	-.01	-.15
Black people can only achieve their goals if White people do not achieve their goals	.05	-.05	**.93**	.08	-.37
Black people want the same things in life as White people	-.06	-.01	**.81**	-.17	.08
The goals of Black people and White people are complementary	.07	-.13	**.68**	-.10	.27
There is generally cooperation between White people and Black people in society	.08	-.17	-.10	.13	**.79**
Black people and White people would refuse to work together	-.05	.13	**.45**	.03	.20
Black people and White people do not make an effective team	.01	.29	**.55**	.01	.05
Contact between White people and Black people tends to be good rather than bad	-.003	.04	-.12	.11	**.85**
When Black people and White people come together, things are fine	-.02	.05	.14	.11	**.67**
The evidence is clear that Black people and White people don't get along well	-.07	.07	**.50**	.22	.27
Black people and White people seem to end up fighting all the time	-.04	.08	**.36**	.27	.29
My family would approve of me being good friends with Black people	.03	**.80**	-.04	-.12	.19
My family would expect me to treat Black people with respect	-.01	**.81**	.10	-.15	.15
My family would get along well with Black people	.02	**.81**	-.04	-.15	.28
My family would be angry if they learned I was getting close to Black people	.01	**.86**	.10	.06	-.30
My family are not too keen on Black people	-.02	**.89**	.03	.10	-.15
My family would be disappointed if I had sexual relations with a Black person	.09	**.77**	-.12	.27	-.20
My family would approve of me being good friends with Black people	**.83**	.05	-.01	-.07	.09
My family would expect me to treat Black people with respect	**.71**	.11	.19	-.17	.05
My family would get along well with Black people	**.95**	-.15	.05	-.08	.16
My family would be angry if they learned I was getting close to Black people	**.85**	.07	.01	.06	-.08
My family are not too keen on Black people	**.93**	-.04	.01	.06	-.02
My family would be disappointed if I had sexual relations with a Black person	**.80**	.10	-.18	.18	-.10
White people and Black people have never gotten along well	-.07	.06	-.31	**-.59**	-.01
The fundamental issues between Black people and White people have not changed in a long time	.02	-.09	.17	**-.80**	-.14
The issues between Black people and White people go around in circles	-.01	.06	.13	**-.77**	-.16
Nobody can remember a time when Black people and White people got along	.01	-.001	-.18	**-.64**	-.07

NB. Italicised items are reverse-keyed. Factors: *1* – Family norms; *2* – Friends norms; *3* – Cooperative interdependence; *4* – Enduring antipathy; *5* – Cooperative coexistence.

Table 6.4.2.

Factor loadings of intergroup climate variables (second factor analysis).

Factor	1	2
Black people and White people have the same social standing	**.85**	.02
Black people and White people are seen as equals in society	**.89**	-.01
Black people and White people are generally seen as having a different social status	**.81**	-.07
Overall, Black people and White people have the same power in society	**.92**	.09
There are clear differences in the amount of power that White people and Black people have	**.84**	-.01
There are differences between White people and Black people in terms of the power they have in society	**.87**	-.03
There is a history of intense conflict between Black people and White people	.11	**.93**
The conflict between Black people and White people is deep-seated	-.14	**.79**

NB. Italicised items are reverse-keyed. Factors: *1* – Norms of equal status; *2* – Deep conflict

Relations between intergroup climate indices and intergroup attitudes. Following the previously reported validity tests of the intergroup contact and intergroup climate items, 12 study variables had been identified and calculated. Means, standard deviations, and zero-order correlations for all variables are displayed in Table 6.5. Consistent with hypothesis 7, warmer attitudes towards Blacks were significantly related to higher cooperative interdependence, higher cooperative coexistence, warmer family norms, warmer friends norms, lower deep conflict, and lower enduring antipathy. However, contrary to hypothesis 7, attitudes towards Blacks were not significantly related to norms of equal status.

Effect of Climate on Attitudes towards Blacks

To test whether intergroup climate predicted attitudes towards Blacks, controlling for the effect of quality of contact, a hierarchical regression was conducted. Table 6.6 displays the unstandardised coefficients for these standardised variables. In Step 1, attitudes towards Blacks were regressed onto the standardised measures of equality, cooperation, goal interdependence, and law norms and local authority norms (i.e., both macro authority norms variables). This step one model predicted 28% of attitudes towards Blacks, $F(5, 589) = 44.98$, $p < .001$. Within this model, warmer attitudes towards Blacks were predicted by higher

equality, $p = .005$, higher goal interdependence, $p < .001$, and more cooperation, $p < .001$. Conversely, warmer attitudes towards Blacks were predicted by less positive local authority norms, $p = .015$. However, attitudes towards Blacks were not uniquely predicted by law norms, $p = .120$. In Step 2, norms of equal status, cooperative interdependence, cooperative coexistence, friends norms, family norms, deep conflict, and enduring antipathy were entered. This Step 2 model predicted 38% of attitudes towards Blacks, $F(12, 582) = 31.78$, $p < .001$, representing a significant increase in R^2 of 12%, $F_{change}(7, 582) = 16.45$, $p < .001$. Within this model, warmer attitudes towards Blacks were predicted by higher equality (marginal), $p = .065$, higher goal interdependence, $p = .004$, higher cooperative interdependence, $p = .014$, higher cooperative coexistence, $p < .001$, warmer friends norms, $p = .044$, and warmer family norms, $p < .001$. Conversely, warmer attitudes towards Blacks were predicted by lower norms of equal status, $p = .003$, and more positive law norms, $p = .014$. However, attitudes towards Blacks were not uniquely predicted by cooperation, $p = .522$, local authority norms, $p = .368$, enduring antipathy, $p = .238$, and deep conflict, $p = .266$. Therefore, consistent with hypothesis 8, perceptions of some indices of intergroup climate significantly predicted attitudes towards Blacks even controlling for perceptions of personal intergroup contact.

Moderating Effect of Intergroup Climate on Contact Effects

To test whether the effect of intergroup contact on attitudes towards Blacks was moderated by intergroup climate (hypothesis 10), a series of regression analyses was conducted. For each regression, attitudes towards Blacks were regressed onto a standardised composite variable of quality of contact – this variable included all items measuring equal reputation, equal power, goal interdependence, and cooperation ($\alpha = .90$) – as well as the

respective standardised index of intergroup climate, and the interaction term[16]. Unstandardised coefficients of these standardised variables are reported throughout.

Intergroup norms

Norms of equal status. Regarding the model including intergroup norms of equal status, this model explained 24% of the variance in attitudes towards Blacks, $F(3, 591) = 60.91$, $p < .001$. Higher quality of contact (i.e. higher equal status, higher goal interdependence, and more cooperation) significantly predicted warmer attitudes towards Blacks, $b = 1.15$, $p < .001$, $sr^2 = .46$, 95%CI [.97, 1.33]. Warmer norms of equal status significantly predicted cooler attitudes towards Blacks, $b = -.31$, $p = .001$, $sr^2 = -.14$, 95%CI [-.49, -.13]. Further, and unexpectedly, the interaction was non-significant, $b = -.08$, $p = .305$, $sr^2 = -.04$, 95%CI [-.24, .08]. Therefore, contrary to hypothesis 9a, intergroup norms of equal status did not moderate the relation between quality of contact and attitudes towards Blacks.

[16] I later supplemented this planned analysis by conducting a hierarchical regression, with attitudes towards Blacks regressed onto: (Step 1) the composite measure of quality of contact, (Step 2) all intergroup climate indices; and (Step 3) all two-way interaction terms between quality of contact and intergroup climate indices. The Step 2 model was a significant improvement on the Step 1 model, R^2 change = .17, $p < .001$. The Step 3 model was not a significant improvement on the Step 2 model, R^2 change = .003, $p = .886$ There were no moderation effects. Full results are included in Appendix D.

Table 6.5.

Means, standard deviations, and zero-order correlations for all study variables.

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
Intergroup Contact															
1. Equality	5.26	1.30	-												
2. Goal Interdependence	5.34	1.28	.56*	-											
3. Cooperation	6.31	1.07	.51*	.55*	-										
4. Local Authority Norms	3.94	1.89	.09*	.07^{t}	-.07^{t}	-									
5. Law Norms	5.36	1.49	.21*	.17*	.10*	.61*	-								
Intergroup Climate															
6. Norms of Equal Status	3.41	1.52	.32*	.22*	.08^{t}	.57*	.43*	-							
7. Cooperative Interdependence	5.71	1.13	.51*	.58*	.66*	-.06	.13*	.16*	-						
8. Cooperative Coexistence	5.00	1.21	.45*	.42*	.44*	.22*	.30*	.44*	.62*	-					
9. Family Norms	5.73	1.46	.30*	.33*	.45*	-.004	.07	.09*	.47*	.38*	-				
10. Friends Norms	6.22	1.10	.42*	.49*	.65*	-.16*	.03	.05	.67*	.42*	.59*	-			
11. Deep Conflict	5.33	1.20	-.05	-.07	.03	-.20*	-.14*	-.38*	-.12*	-.26*	-.09*	-.04	-		
12. Enduring Antipathy	3.56	1.35	-.35*	-.34*	-.37*	-.09*	-.19*	-.33*	-.58*	-.53*	-.38*	-.44*	.47*	-	
Intergroup Outcomes															
13. Attitudes towards Blacks	7.43	2.32	.36*	.42*	.45*	-.15*	-.05	-.001	.53*	.41*	.43*	.50*	-.09*	-.37*	
Mediator															
14. Intergroup Anxiety	3.21	1.27	-.44*	-.41*	-.48*	.06	-.07	-.14*	-.57*	-.46*	-.43*	-.46*	-.19*	.44*	-.62*

*p<.05, ^{t}p <.1

Table 6.6.

Hierarchical regression models of the effect of intergroup contact and intergroup climate variables on attitudes towards Blacks.

	Model	1		2	
		b	sr^2	*b*	sr^2
Intergroup Contact					
Equality		.29*	.11	.19^t	.08
Goal Interdependence		.51*	.20	.30*	.12
Cooperation		.62*	.24	.07	.03
Law Norms		-.17	-.06	-.24*	-.10
Local Authority Norms		-.26	-.10	-.10	-.04
Intergroup Climate					
Norms of Equal Status				-.32*	-.13
Cooperative Interdependence				.34*	.10
Cooperative Coexistence				.41*	.15
Friends Norms				.25*	.08
Family Norms				.34*	.10
Deep Conflict				-.10	-.05
Enduring Antipathy				-.13	-.05

Note. *p<.05, ^{t} p<.1

Cooperative interdependence. Regarding the model including cooperative interdependence, this model explained 31% of the variance in attitudes towards Blacks, $F(3, 591) = 88.31$, $p < .001$. Higher quality of contact significantly predicted warmer attitudes towards Blacks, $b = .43$, $p = .001$, $sr^2 = .16$, 95%CI [.22, .64]. Further, higher cooperative

interdependence significantly predicted warmer attitudes towards Blacks, $b = .88$, $p < .001$, $sr^2 = .31$, 95%CI [.67, 1.10]. Contrary to hypothesis 9a, the interaction was only marginally significant, $b = -.10$, $p = .096$, $sr^2 = -.07$, 95%CI [-.22, .02]. Therefore, intergroup norms of cooperative interdependence partially moderated the relation between quality of contact and attitudes towards Blacks[17].

Cooperative coexistence. Regarding the model including intergroup norms of cooperative coexistence, this model explained 26% of the variance in attitudes towards Blacks, $F(3, 591) = 68.08$, $p < .001$. Higher quality of contact predicted warmer attitudes towards Blacks, $b = .75$, $p < .001$, $sr^2 = .29$, 95%CI [.55, .95]. Further, higher cooperative coexistence predicted warmer attitudes towards Blacks, $b = .51$, $p < .001$, $sr^2 = .21$, 95%CI [.32, .70]. Contrary to hypothesis 9a, the interaction was only marginally significant, $b = -.12$, $p = .055$, $sr^2 = -.08$, 95%CI [-.23, .002]. Therefore, intergroup norms of cooperation partially moderated the relation between quality of contact and attitudes towards Blacks[18].

Ingroup norms

Friends norms. Regarding the model including friends norms, the model explained 30% of the variance in attitudes towards Blacks, $F(3, 591)$, = .83.98, $p < .001$. Higher quality of contact significantly predicted warmer attitudes towards Blacks, $b = .60$, $p < .001$, $sr^2 = .25$,

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[17] Exploratory analyses of the marginal interaction showed that among participants perceiving lower (vs. higher) cooperative interdependence, the effect of higher quality contact on warmer attitudes was stronger. Simple slopes revealed that the relation between quality of contact and attitudes towards Blacks was significant for individuals perceiving lower cooperative interdependence (-1 SD), b = .53, p < .001, 95%CI [.31, .75], and higher cooperative interdependence (+1 SD), b = .33, p = .012, 95%CI = [.07, .59]. An inverted Johnson-Neyman analysis (see Chapter 4) revealed no statistical significance transition points.

[18] Exploratory analyses revealed that among individuals perceiving lower (*vs.* higher) intergroup norms of cooperative coexistence, the effect of higher quality contact on warmer attitudes towards Blacks was stronger. Simple slope analyses revealed that the relation between higher quality of contact and warmer attitudes towards Blacks was significant for individuals perceiving lower cooperative coexistence (-1SD), $b = .86$, $p < .001$, 95%CI [.66, 1.07], and higher cooperative coexistence (+1SD), $b = .63$, $p < .001$, 95%CI [.38, .89]. An inverted Johnson-Neyman analysis (see Chapter 4) revealed no significance transition points.

95%CI [.42, .80]. Further, warmer friends norms significantly predicted warmer attitudes towards Blacks, $b = .82$, $p < .001$, $sr^2 = .29$, 95%CI [.61, 1.04]. However, contrary to hypothesis 9a, the interaction was non-significant, $b = .005$, $p = .938$, $sr^2 = .003$, 95%CI [-.11, .12]. Therefore, friends norms did not moderate the relation between quality of contact and attitudes towards Blacks.

Family norms. Regarding the model including family norms, the model explained 30% of attitudes towards Blacks, $F(3, 591) = 81.46$, $p < .001$. Higher quality of contact significantly predicted warmer attitudes towards Blacks, $b = .74$, $p < .001$, $sr^2 = .32$, 95%CI [.56, .92]. Further, warmer family norms significantly predicted warmer attitudes towards Blacks, $b = .64$, $p < .001$, $sr^2 = .28$, 95%CI [.46, .81]. Consistent with hypothesis 9a, the interaction was significant, $b = -.15$, $p = .017$, $sr^2 = -.10$, 95%CI [-.28, -.03], such that, among participants perceiving cooler (*vs.* warmer) family norms, the effect of higher quality contact on warmer attitudes was stronger. Simple slopes analysis revealed that the relation between quality of contact and attitudes towards Blacks was significant among participants perceiving cooler family norms (-1SD), $b = .89$, $p < .001$, 95%CI [.71, 1.08], and warmer family norms (+.87SD), $b = .61$, $p < .001$, 95%CI [.37, .84]. Figure 6.2 illustrates this interaction. An inverted Johnson-Neyman analysis (see Chapter 4, and Hayes, 2013 for discussion of this technique) revealed no significance transition points. Therefore, consistent with hypothesis 9, family norms moderated the relation between quality of contact and attitudes towards Blacks.

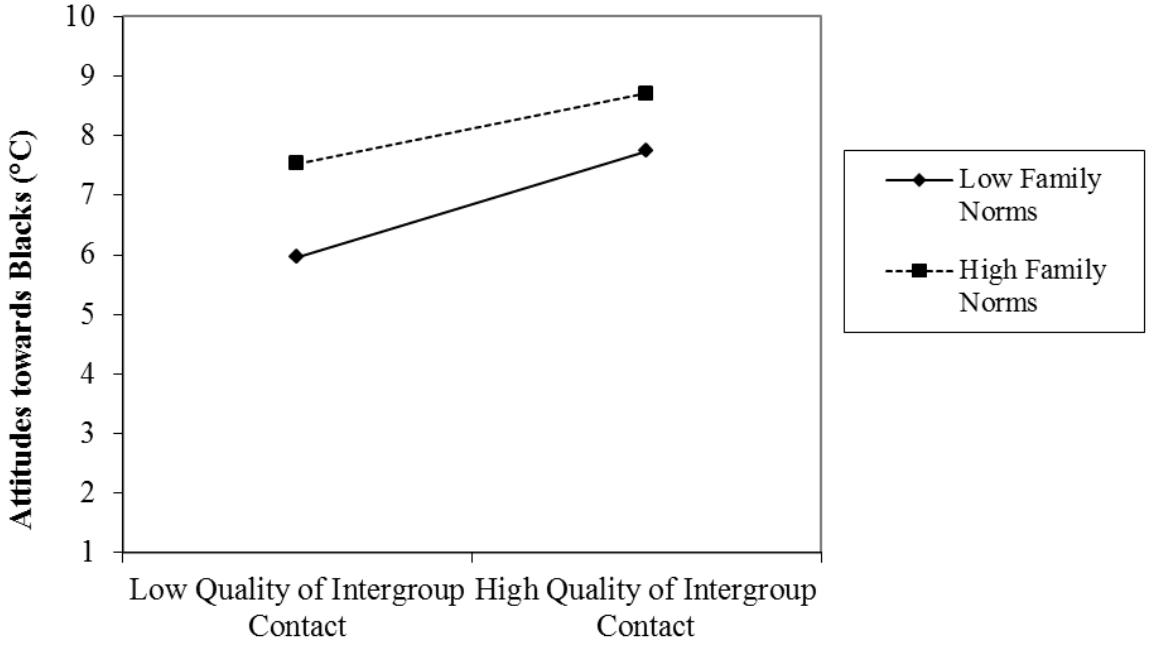

Figure 6.2. Effect of quality of intergroup contact on attitudes towards Blacks, for participants perceiving cooler (-1SD) and warmer (+1SD) family norms.

Macro authority norms

Local authority norms. Regarding the model including local authority norms, the model explained 25% of attitudes towards Blacks, $F(3, 591) = 65.93$, $p < .001$. Higher quality of contact significantly predicted warmer attitudes towards Blacks, $b = 1.10$, $p < .001$, $sr^2 = .48$, 95%CI [.94, 1.27]. Further, more positive local authority norms significantly predicted cooler attitudes towards Blacks, $b = -.43$, $p < .001$, $sr^2 = -.21$, 95%CI [-.60, -.27]. Consistent with hypothesis 9a, the interaction was significant such that, among participants perceiving more (*vs.* less) positive local authority norms, the relation between higher quality of contact and warmer attitudes towards Blacks was stronger, $b = .18$, $p = .031$, $sr^2 = .09$, 95%CI [.02, .34]. Simple slopes analyses revealed that the relation between higher quality contact and warmer attitudes towards Blacks was significant for individuals perceiving less positive local authority norms (-1SD), $b = .93$, $p < .001$, 95%CI [.70, 1.15], and more positive local authority norms (+1SD), $b = 1.28$, $p < .001$, 95%CI [1.05, 1.51]. Figure 6.3 illustrates this

interaction. An inverted Johnson-Neyman analysis revealed no significance transition points. Therefore, the relation between quality of contact and attitudes towards Blacks was moderated by perceptions of local authority norms.

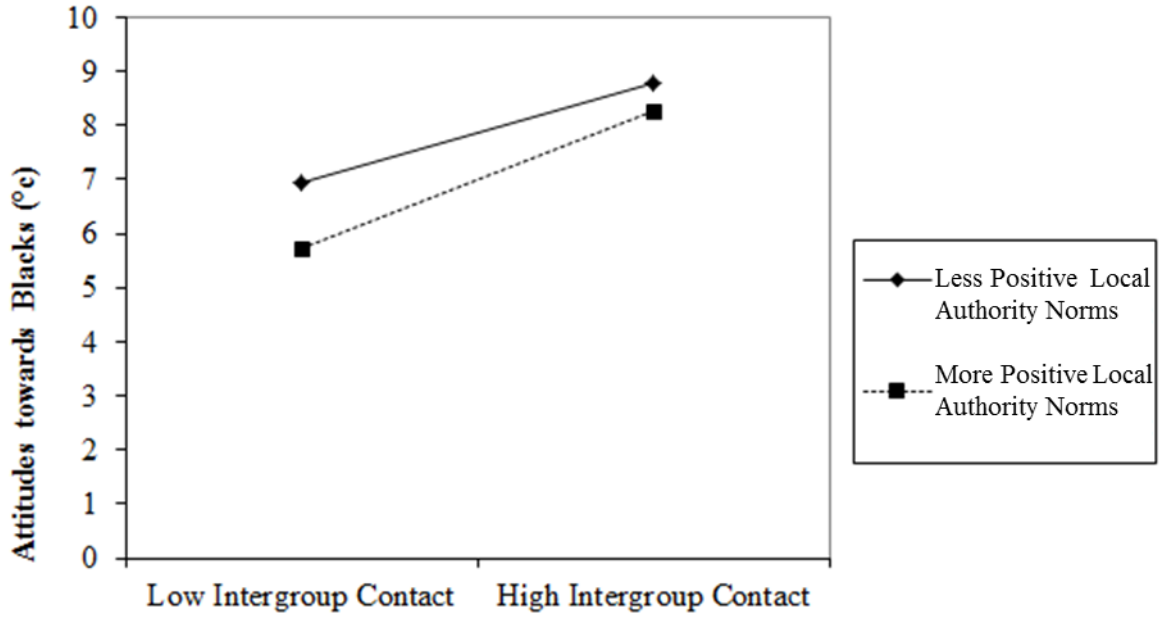

Figure 6.3. Effect of quality of intergroup contact on attitudes towards Blacks, for participants perceiving less positive (-1SD) and more positive (+1SD) local authority norms.

Law norms. Regarding the model including law norms, the model explained 24% of attitudes towards Blacks, $F(3, 591) = 61.62$, $p < .001$. Higher quality of contact significantly predicted warmer attitudes towards Blacks, $b = 1.16$, $p < .001$, $sr^2 = .49$, 95%CI [.99, 1.33]. Further, more positive law norms predicted cooler attitudes towards Blacks, $b = -.35$, $p < .001$, $sr^2 = -.17$, 95%CI [-.52, -.19]. Contrary to hypothesis 9a, the interaction was not significant, $b = .08$, $p = .316$, $sr^2 = .04$, 95%CI [-.08, .23]. Therefore, the relation between quality of contact and attitudes towards Blacks was not moderated by perceptions of law norms.

Sociohistoric norms

Enduring antipathy. Regarding the model including enduring antipathy, this model explained 26% of attitudes towards Blacks, $F(3, 591) = 69.53$, $p < .001$. Higher quality of

contact significantly predicted warmer attitudes towards Blacks, $b = .82$, $p < .001$, $sr^2 = .34$, 95%CI [.63, 1.00]. Further, enduring antipathy significantly predicted warmer attitudes towards Blacks, $b = -.48$, $p = .001$, $sr^2 = -.21$, 95%CI [-.66, -.31]. Further, consistent with hypothesis 9a, the interaction was significant such that, among individuals perceiving higher (*vs.* lower) enduring antipathy, the relation between higher quality contact and warmer attitudes towards Blacks was stronger, $b = .18$, $p = .008$, $sr^2 = .11$, 95%CI [.05, .32]. Simple slopes analyses revealed that the relation between higher quality contact and warmer attitudes towards Blacks was significant for participants perceiving lower enduring antipathy (-1SD), $b = .63$, $p < .001$, 95%CI [.38, .88], and higher enduring antipathy (+1SD), $b = 1.00$, $p < .001$, 95%CI [.80, 1.20]. Figure 6.4 illustrates this interaction. An inverted Johnson-Neyman analysis revealed that the difference in attitudes towards Blacks between participants perceiving lower enduring antipathy and higher enduring antipathy was significant when quality of contact was < 6.85. With respect to the 7-point response scale for quality of contact items, this suggests that the difference was significant for all participants but those scoring 7 on each item (i.e., reporting the very highest quality of contact). Therefore, the relation between quality of contact and attitudes towards Blacks was moderated by enduring antipathy.

Deep conflict. Regarding the model including deep conflict, this model explained 22% of attitudes towards Blacks, $F(3, 591) = 55.49$, $p < .001$. Higher quality of contact was significantly associated with warmer attitudes towards Blacks, $b = 1.07$, $p < .001$, $sr^2 = .46$, 95%CI [.90, 1.23]. Further, higher deep conflict was marginally associated with cooler attitudes towards Blacks, $b = -.15$, $p = .069$, $sr^2 = -.08$, 95%CI [-.32, .01]. However, contrary to hypothesis 9a, there was no significant interaction, $b = .05$, $p = .541$, $sr^2 = .03$, 95%CI [-.11, .21]. Therefore, the effect of quality of contact on attitudes towards Blacks was not moderated by deep conflict.

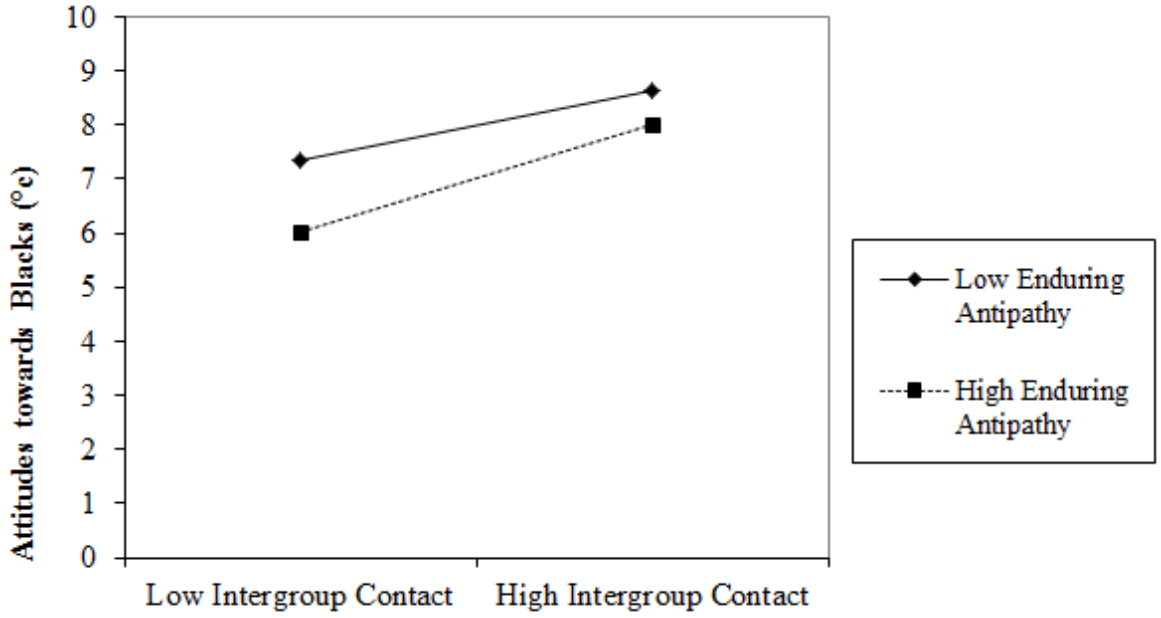

Figure 6.4. Effect of quality of intergroup contact on attitudes towards Blacks, for participants perceiving lower (-1SD) and higher (+1SD) enduring antipathy.

Conditional Process Analyses: Moderated Mediation

To test for an indirect (i.e. mediated) effect of higher quality of contact on warmer attitudes towards Blacks, via lower intergroup anxiety, and whether such an indirect effect might be moderated by intergroup climate, a series of conditional process tests were carried out using the PROCESS macro (Hayes, 2013), executed in SPSS software version 22. In each test, quality of contact was modelled as the predictor variable, intergroup anxiety as the mediator, and attitudes towards Blacks as the criterion variable, with one index of intergroup climate (e.g., norms of equal status) modelled as moderating all three pathways. Figure 6.5 illustrates this conceptual model of moderated mediation, which corresponds to PROCESS model 59. Within such a model, three possible patterns of moderated mediation might be uncovered: *a*-path moderated mediation, whereby the path from quality of contact to intergroup anxiety is moderated by intergroup climate; *b*-path moderated mediation, whereby the path from intergroup anxiety to attitudes towards Blacks is moderated by intergroup

climate; and *ab*-path moderated mediation, whereby both indirect paths are moderated by intergroup climate. In each case, the strength of the total indirect effect of higher quality contact on warmer attitudes, via lower intergroup anxiety, should be conditional upon the value of the index of intergroup climate. Therefore, PROCESS employed bias-corrected bootstrap methods to make inferences about the indirect effects at various levels of the moderator. Next, the difference between conditional indirect effects at various levels of the moderator *within the 10,000 bootstrap samples* was calculated, and a 95% confidence interval of this difference was constructed. Whereas such a procedure is not a null-hypothesis significance test of moderated mediation effects, it leads to the same substantive interpretation (see Hayes, 2013, for a full explanation of this technique). For brevity, only evidence relating to moderated mediation hypotheses is reported; full output is included in Appendices D-J.

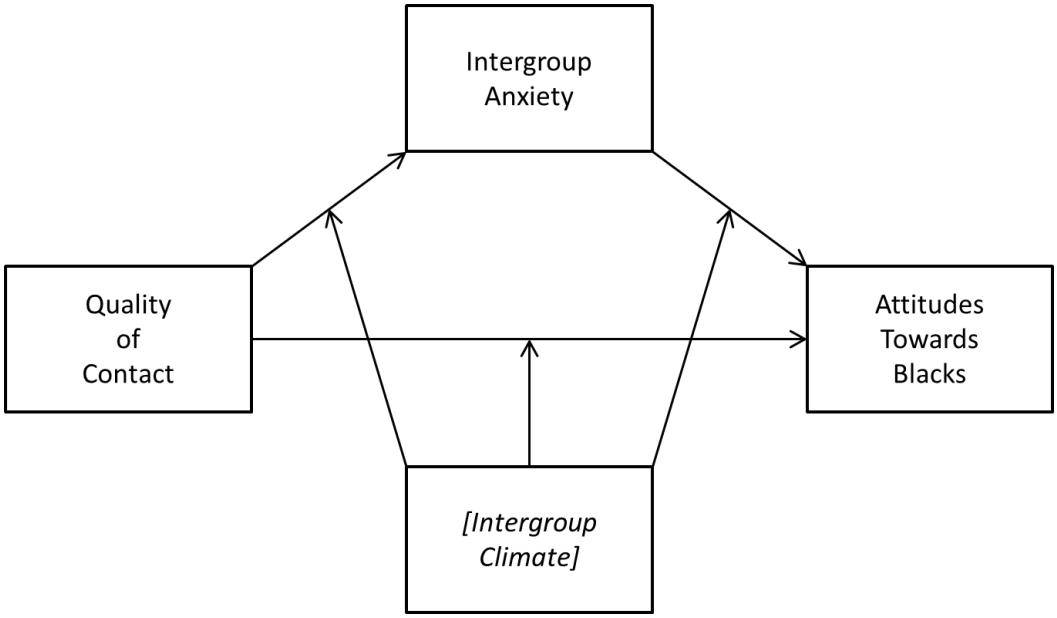

Figure 6.5. Conceptual model of moderated mediation.

Consistent with hypothesis 10, there was evidence of *a*-path moderated mediation, such that the indirect effect of higher quality contact on warmer attitudes towards Blacks, via less intergroup anxiety was stronger among participants perceiving more (*vs.* less) positive local authority norms, 95%CI [.01, .10]. Figure 6.6 illustrates this model. Also consistent with hypothesis 10, there was evidence of *b*-path moderated mediation, such that the indirect effect of higher quality contact on warmer attitudes towards Blacks, via less intergroup anxiety was weaker among participants perceiving lower (*vs.* higher) deep conflict (Figure 6.7), 95%CI [.06, .29], and lower (*vs.* higher) enduring antipathy (Figure, 6.8), 95%CI [.06, .19]. Also consistent with hypothesis 10, there was evidence of *ab*-path moderated mediation in the model including cooperative interdependence (Figure 6.9), such that the indirect effect of higher quality contact on warmer attitudes towards Blacks, via less intergroup anxiety, was stronger among participants perceiving lower (*vs.* higher) cooperative interdependence, 95%CI [-.03, -.001]. Finally, contrary to hypothesis 10, the *ab* path of the model (i.e., quality of contact to intergroup anxiety, and intergroup anxiety to attitudes towards Blacks) were significantly moderated by law norms, the confidence interval of the

conditional indirect effect contained zero, 95%CI [-.02, .001]. Also, whereas the *b* path of the model (i.e., intergroup anxiety to attitude towards Blacks) was moderated by cooperative coexistence and friends norms, respectively, the confidence intervals of these conditional indirect effects contained zero, 95%CIs [-.11, .004], and [-.11, .05]. Further, and contrary to hypothesis 10, there was no evidence of moderated mediation by intergroup norms of equality, or family norms, as neither step of the pathway from quality of contact to attitudes towards Blacks, via intergroup anxiety, was significantly moderated.

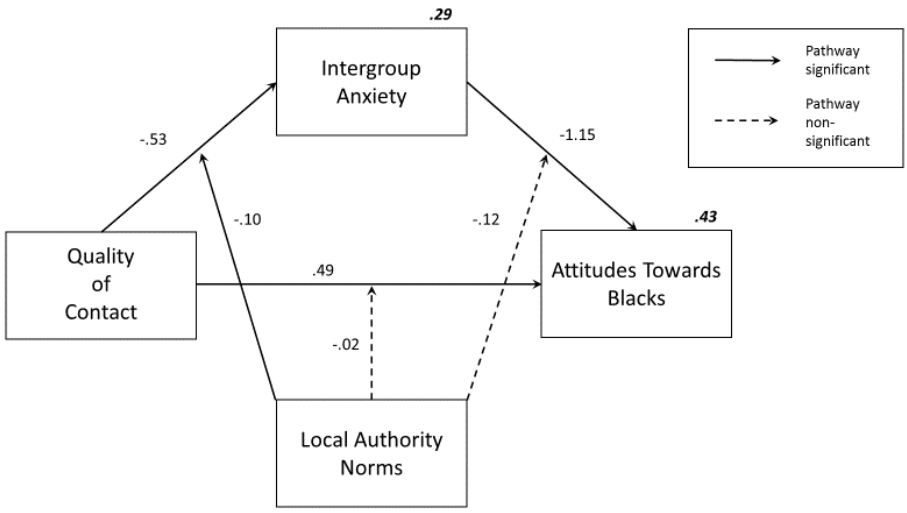

Figure 6.6. Effect of quality of contact on attitudes towards Blacks, via intergroup anxiety, moderated by local authority norms.

Exploratory Post-Hoc Analyses: Global Intergroup Climate

Due to the high correlations between intergroup climate variables, and to test the overall effect of intergroup climate on intergroup relations, I later supplemented the planned analyses by exploring the effects of a global intergroup climate measure. This variable was calculated as the mean of all intergroup climate measures ($\alpha = .94$); for clarity, the measure did not include items measuring macro authority norms. Warmer intergroup climate was strongly associated with warmer attitudes towards Blacks, $r = .51$, $p < .001$. I also conducted a hierarchical regression with attitudes towards Blacks regressed onto: (Step 1) the composite

measure of quality of contact (standardised), (Step 2) the measure of global intergroup climate (standardised), and (Step 3) the two-way product term. The Step 1 model significantly predicted 21% of the variance in attitudes towards Blacks, $F(1, 593) = 162.43$, $p < .001$. Higher quality contact significantly predicted warmer attitudes towards Blacks, $b = 1.08$, $p < .001$, 95%CI [.91, 1.24]. The Step 2 model was a significant improvement, R^2 change = .07, $F_{change}(1, 592) = 60.62$, $p < .001$, with warmer attitudes towards Blacks being significantly predicted by higher quality contact, $b = .53$, $sr^2 = .20$, $p < .001$, 95%CI[.32, .74], and warmer global intergroup climate, $b = .83$, $sr^2 = .31$, $p < .001$, 95%CI[.62, 1.04]. Further, the Step 3 model was a significant improvement, R^2 change = .01, $F_{change}(1, 591) = 6.72$, $p = .010$, with the interaction of contact and climate significantly predicting attitudes towards Blacks, $b = -.15$, $sr^2 = -.11$, $p = .010$, 95%CI [-.26, -.04], such that, among participants perceiving cooler (*vs.* warmer) intergroup climate, the effect of higher quality contact on warmer attitudes towards Blacks was stronger. Figure 6.10 illustrates this interaction. Simple slopes analysis revealed that the effect of quality of contact on attitudes towards Blacks was significant among participants perceiving cooler intergroup climate (-1SD), $b = .61$, $p < .001$, 95%CI [.39, .83], and warmer intergroup climate (1SD), $b = .32$, $p = .015$, 95%CI [.06, .58]. An inverted Johnson-Neyman analysis revealed a significance transition point of 6.15. Interpreting this with respect to the 7-point response scale on intergroup climate measures, for participants perceiving less than very warm intergroup climate (i.e., scoring below 6.15 averaged across items), the effect of higher quality contact on warmer attitudes towards Blacks was significant. Therefore, global intergroup climate moderated the relation between quality of contact and attitudes towards Blacks.

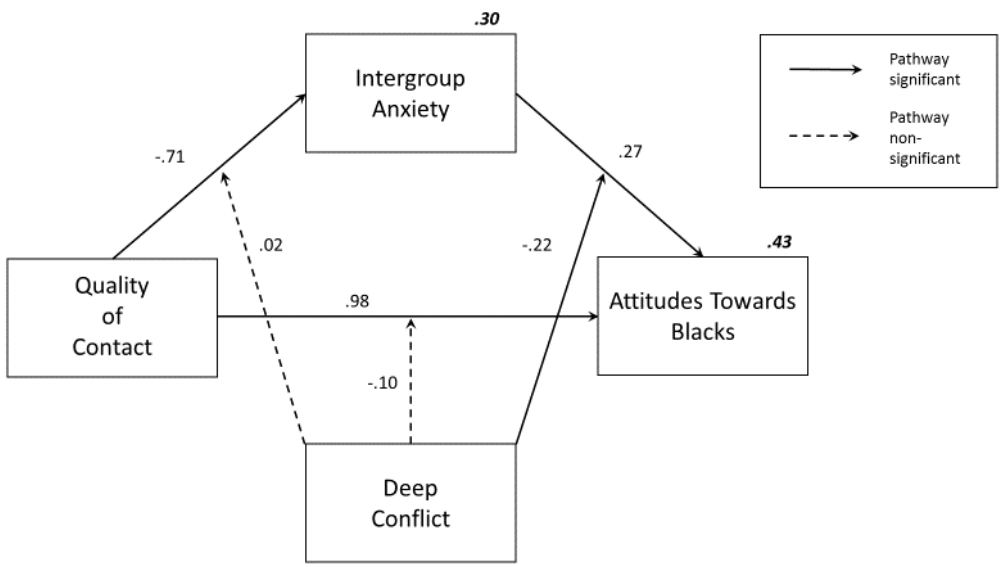

Figure 6.7. Effect of quality of contact on attitudes towards Blacks, via intergroup anxiety, moderated by deep conflict.

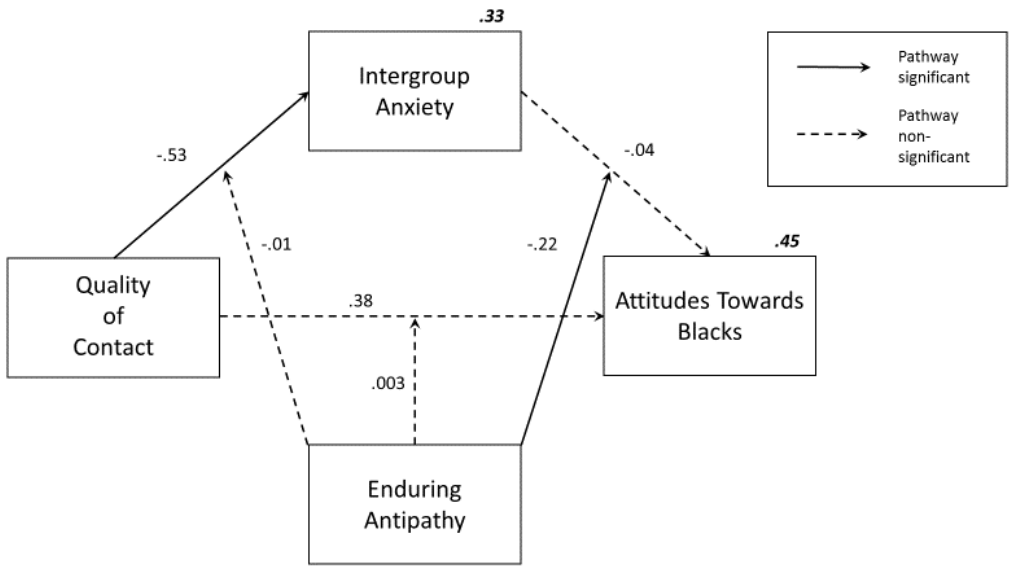

Figure 6.8. Effect of quality of contact on attitudes towards Blacks, via intergroup anxiety, moderated by enduring antipathy.

Finally, I conducted a test of moderated mediation, with the composite measure of intergroup climate as the moderator variable. Intergroup climate did not significantly moderate the relation between quality of contact and intergroup anxiety, b = -.04, p = .078,

95%CI [-.09, .005]. However, intergroup climate moderated the relation between lower intergroup anxiety and warmer attitudes towards Blacks, b = -1.07, p < .001, 95%CI [-1.24, -.89], such that among participants perceiving warmer (*vs.* cooler) intergroup climate, the effect of higher intergroup anxiety on cooler attitudes towards Blacks was weaker. Conditional process analysis results were consistent with a conditional indirect effect, as the confidence interval did not include zero, 95%CI [-.13, -.03]. Figure 6.11 illustrates this conditional process effect. Therefore, the effect of higher quality contact on warmer attitudes towards Blacks via lower intergroup anxiety was stronger among participants perceiving a cooler (*vs.* warmer) intergroup climate. Full output for this supplementary conditional process analysis is included as Appendix K.

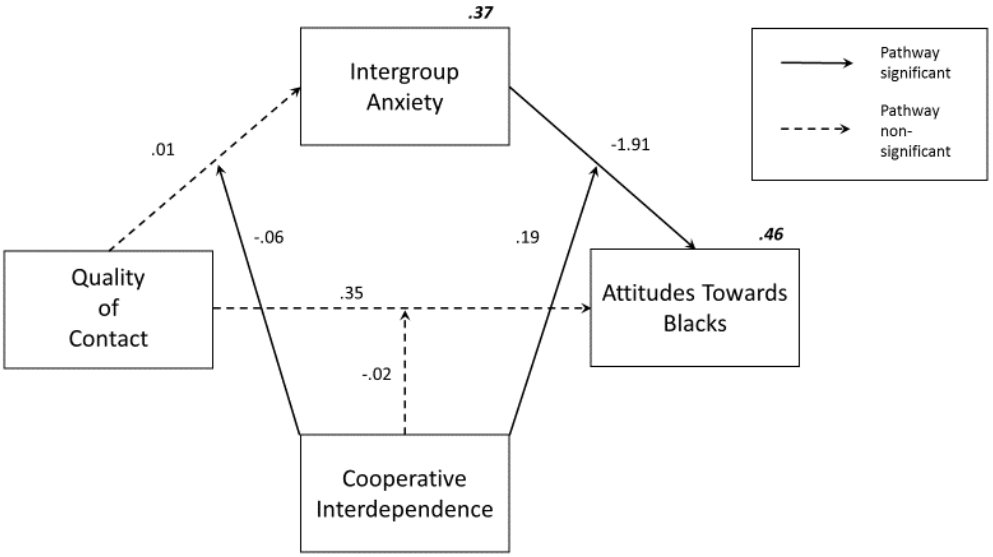

Figure 6.9. Effect of quality of contact on attitudes towards Blacks, via intergroup anxiety, moderated by cooperative interdependence.

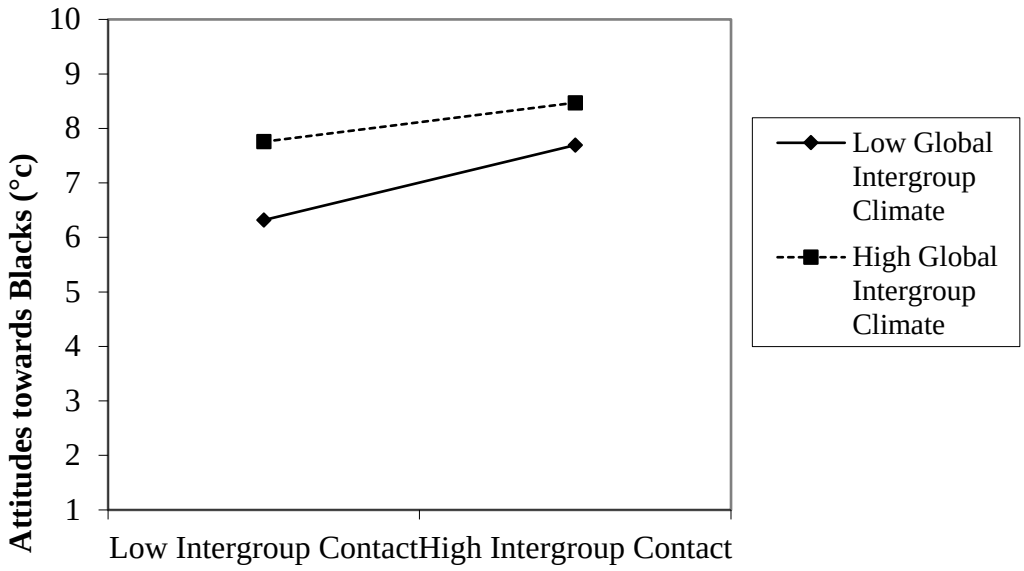

Figure 6.10. Effect of quality of intergroup contact on attitudes towards Blacks, for participants perceiving lower (-1SD) and higher (+1SD) global intergroup climate.

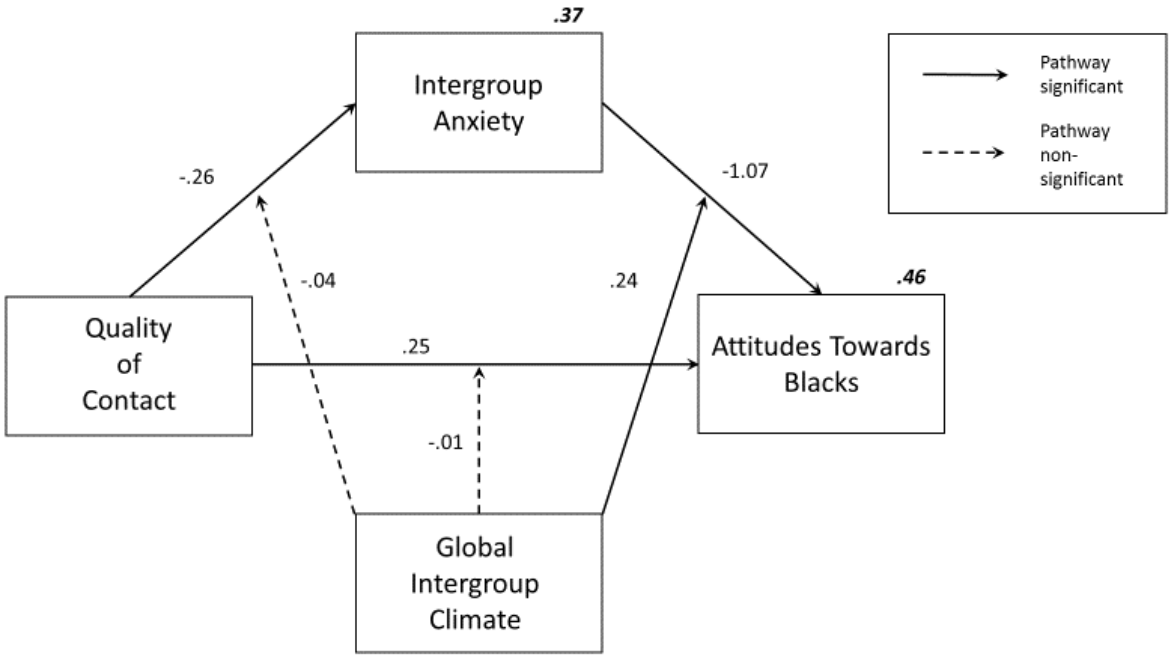

Figure 6.11. Effect of quality of contact on attitudes towards Blacks, via intergroup anxiety, moderated by global intergroup climate.

Discussion

In the present study, the effects of intergroup contact and intergroup climate on intergroup attitudes were explored. Whereas the relation between more (and better) contact and less prejudice has been robustly demonstrated in the literature (Pettigrew & Tropp, 2006), less is known about the structure of contact conditions, the unique effects of contact conditions, and the relations between contact conditions. Thus, one goal of the present study was to explore the nature of contact conditions. Further, a fledgling body of literature is beginning to test the effect of intergroup climate – society-level situational variables regarding the relations between groups – on intergroup relations; thus the present study tested the composition and effects of intergroup climate. A third aim of the present research was to test whether the effects of contact on intergroup attitudes were moderated by intergroup climate variables.

Consistent with predictions that goal interdependence and cooperation were distinct elements of contact, and also consistent with traditional contact theory (e.g., Pettigrew, 1998), these contact conditions emerged as separate but related constructs. Further, consistent with predictions that macro authority norms were composed of support for positive intergroup relations by the law and local authorities (e.g., Blader & Tyler, 2003) respectively, macro authority norms emerged from exploratory factor analyses in terms of these two distinct elements. However, contrary to predictions that equal status would emerge as a two-factor construct, exploratory factor analyses indicated a single-factor construct, subsuming equal reputation and equal power. Crucially, as expected, Allport's (1954) contact conditions related to prejudice, with higher equal status, higher goal interdependence, more cooperation and less positive macro authority norms (local authority norms, specifically) related to warmer attitudes towards Blacks. The present study thus broadly confirms Allport's original conceptualisation of 'good' contact as being characterised by levels of equal status, goal

interdependence, cooperation, and perceptions regarding authority sanction (macro authority norms herein), thereby adding to contemporary understanding of contact. Further, this present research extends upon previous research by adding nuance to the theoretical structure of perceptions regarding authority sanction (e.g., Landis, Hope & Day, 1984; Parker, 1968; Pettigrew & Tropp, 2006).

The present study also adds to a small number of studies that have simultaneously tested multiple contact conditions, and their *unique* relations to prejudice (e.g., Desforges et al., 1991; Gaertner et al., 1999; Koschate & van Dick, 2011; Molina & Wittig, 2006). Consistent with predictions, higher equal status, higher goal interdependence, and more cooperation related to warmer attitudes towards Blacks – each was related to attitudes even controlling for the effects of the other contact conditions. Also consistent with previous research (Molina & Wittig, 2006), the indices of macro authority norms (i.e., law norms and local authority norms) did not uniquely predict attitudes towards Blacks. In other words, although less positive perceptions regarding authority sanction related to warmer attitudes towards Blacks at the zero-order level, they added no further explanatory power of Whites' attitudes towards Blacks than did Allport's (1954) remaining contact conditions. Relatedly, and consistent with predictions, perceptions regarding authority sanction (i.e., macro authority norms: law norms and local authority norms) loaded onto one factor, whereas equal status, goal interdependence, and cooperation loading onto another. Taken in sum, these findings might suggest that Allport's (1954) contact condition regarding perceptions of authority sanction might be categorically different to equal status, goal interdependence, and cooperation. Therefore, whereas the present study confirms that within contact equal status, goal interdependence and cooperation are each uniquely associated with more beneficial intergroup outcomes, the specific role of social authorities is further brought into question.

Continuing in this scrutiny of the role of authority sanction in contact, within the present research, unexpectedly, local authority norms were *negatively* related to prejudice, such that the perception that agents of local authority sanctioned good White-Black relations was associated with *more* prejudice. At least three interpretations of this phenomenon are possible. First, given the cross-sectional design of the present study, the direction of causation between macro authority norms and attitudes towards Blacks might be such that individuals with warmer (*vs.* cooler) attitudes towards Blacks are more sensitive to negative authority-level phenomena such as institutional racism. Conversely, individuals with cooler (*vs.* warmer) attitudes towards Blacks might perceive that the authorities are expending excessive time and resources in protecting this minority group. As such, individuals lower (*vs.* higher) in prejudice might believe that the authorities are more prejudiced, and individuals higher (*vs.* lower) in prejudice might believe that the authorities are less prejudiced. Future research with experimental or longitudinal designs is required to explore such causal relations. Second, to some individuals, an authority message that attempts to reduce racial inequality might be seen as threatening: such messages might represent realistic threat to the extent that the reduction of inequality is believed to take place at the expense of the privileged group (e.g., positive action recruitment initiatives), or symbolic threat in the form of changes to the sociocultural status quo (Stephan & Stephan, 1985). Relatedly, persons higher in ideological beliefs such as social dominance orientation (SDO; i.e., preferences for hierarchical *vs.* egalitarian social structures) react aggressively to ‘attacks’ on the hierarchical systems that maintain their elevated position (Pratto et al., 1994). As such, attempts by authorities to reduce the relative privilege of White people (*vs.* Black people) might result in cooler attitudes towards the target group among certain individuals. This possibility should be explored in future research by testing whether right-wing ideologies moderate the relation between perceptions of authority sanction and intergroup attitudes. Finally, Allport’s (1954) original definition of

authority support can be applied to several different types of authority, but previous research has focused predominantly on religious and professional authorities (see Chapter 1 for a full review). The present research focused instead on civic authorities (i.e., law and government), perhaps explaining the different directions of relation witnessed in the present and previous research. Therefore, future research is needed to fully explore the scope of authority sanction and the extent to which different types of authority have different effects on intergroup relations. Taken in sum, these possible interpretations of the relation between higher perceived authority sanction and more prejudice highlight the importance of further study into the effects of authority on intergroup relations. At present, the relation between a specific form of authority sanction – macro authority norms – and intergroup outcomes has been established, but the nature of the relation and its place within the wider construct of authority sanction remains unclear.

Amid questions in the literature regarding the process of contact (e.g., Pettigrew, 1998; Koschate & van Dick, 2011), three models were evaluated in the present study (Figures 1.1, 1.3, and 1.4). Whereas classic contact theory (Pettigrew, 1998) has considered contact conditions as simultaneous direct predictors of intergroup attitudes, contemporary researchers (Koschate & van Dick, 2011) have proposed alternative models of contact. Consistent with classic contact theory, but contrary to contemporary theories, path modelling analysis suggested that the classic model of contact (Figure 1.1) best fit the data. It is noteworthy, however, that the two- and three-step models of contact (Figures 1.3 and 1.4, respectively) were also viable. Therefore, further research employing experimental or longitudinal designs is needed to disambiguate the causal sequence of contact conditions and mediators, thereby providing further clarity on the processes of contact.

Another core aim of the present study was to explore the structure and effects of intergroup climate in the context of contact theory. Consistent with predictions, analyses

supported the construct validity of intergroup norms, that is, individual-level beliefs about general (*vs.* personal) patterns of intergroup behaviour. Specifically, as predicted, participants perceived intergroup norms regarding equality between groups. Contrary to expectations, however, participants perceived intergroup cooperative interdependence and cooperative coexistence between groups, rather than perceiving norms regarding goal interdependence and cooperation separately. Future research should confirm the construct validity of these indices of intergroup norms, and ascertain their generalisability to different intergroup relationships. Also consistent with predictions, ingroup norms relating to perceptions of whether friends and family members, respectively, would sanction good intergroup relations, were confirmed as psychologically meaningful constructs. Finally, sociohistoric norms regarding the social history of the intergroup relationship and perceptions of the intergroup conflict as intransient were also explored, with analyses revealing two interrelated constructs respectively relating to perceptions of a deep conflict and of enduring antipathy. Crucially, regarding the effects of intergroup climate, the present study revealed that perceptions of higher cooperative interdependence, higher cooperative coexistence, warmer family norms, and warmer friends norms were all related to warmer attitudes towards Blacks at the zero-order level. Further, perceived norms of higher deep conflict and higher enduring antipathy were related to cooler attitudes towards Blacks. Contrary to predictions, however, perceived intergroup norms of equal status did not relate to attitudes towards Blacks. Therefore, consistent with previous research (e.g., Christ et al., 2013, 2014) most of the intergroup climate factors that emerged in the present study are germane to intergroup relations, thereby supporting the principle that the wider societal context that exists beyond immediate intergroup contact is psychologically meaningful and is implicated in prejudice.

I also explored whether intergroup climate predicted intergroup attitudes beyond the variance in attitudes explained by personal contact. To reiterate, it could be argued that

individuals simply infer that the way they interact with an outgroup is typical of the intergroup relationship more generally – if this were the case then intergroup climate would explain little of the variance in prejudice beyond that explained by measures of intergroup contact. Consistent with predictions and previous research (Christ et al., 2014), a key finding of the present study was that most indices of intergroup climate remained as significant predictors of attitudes towards Blacks even controlling for the effects of intergroup contact variables – the exceptions to this were deep antipathy and enduring conflict, the indices of sociohistoric norms. This finding supports previous research showing that intergroup climate is distinct from the effects of personal-level contact (Christ et al., 2014), thus emphasising the importance of continuing to explore the relation between intergroup climate and intergroup relations.

Contemporary contact researchers are also exploring the nuances and boundary conditions of contact effects (e.g., Hodson & Hewstone, 2013), thus I tested the relation between intergroup contact and intergroup climate. Consistent with predictions that contact might operate differently within different intergroup climates, the effect of contact on intergroup attitudes was moderated by various indices of intergroup climate, namely: family norms, and enduring antipathy, with moderation effects by cooperative interdependence and cooperative coexistence approaching significance. Local authority norms – a component of macro authority norms – was also tested as part of the intergroup climate, with results also revealing a moderation effect of local authority norms on contact effects. Interestingly, these moderation effects each followed a similar pattern, such that the effect of higher quality contact on warmer intergroup attitudes was *stronger* when the intergroup climate was *cooler*. In other words, contact was more effective when the intergroup climate was perceived as being less (*vs.* more) conducive to good relations; an effect also observed when a measure of global intergroup climate was calculated. Contrary to predictions, however, there was no

moderation of contact effects by intergroup norms of equal status, friends norms, law norms, or deep conflict. The observed pattern of moderation by some indices of climate echoes research which has previously found that highly-prejudiced individuals (*vs.* individuals lower in prejudice) benefit more from intergroup contact (Hodson, 2008), in that the present research suggests that, within a more (*vs.* less) hostile climate, individuals might benefit more from intergroup contact. Such findings might be encouraging to prejudice-reduction practitioners as they suggest that contact interventions might be most effective in the very situations within which individuals most require such intervention.

Finally, the present study pursued hypotheses of moderated mediation, predicting that the process by which higher quality contact relates to warmer intergroup attitudes, via lower intergroup anxiety (e.g., Turner et al., 2013), might operate differently within different (perceived) intergroup climates. Results revealed evidence of moderated mediation by various indices of intergroup climate, namely: deep conflict, enduring antipathy, and cooperative interdependence. Similarly, the relation between contact and attitudes, via intergroup anxiety, was also moderated by perceptions of local authority norms, again suggesting that perceived authority sanction might be a moderator as well as a predictor of contact effects. In each case, the pattern of moderated mediation was consistent with the claim that the reason that cooler (*vs.* warmer) intergroup climate facilitates contact effects is because, within such climate, positive contact has an even stronger effect on less intergroup anxiety. Insofar as such a mechanism survives the light of further – and more rigid – scientific scrutiny, it might further attest to the critical role of intergroup anxiety as a mediator of contact effects (e.g., Riek et al., 2006; Stephan, 2014; Stephan & Stephan, 1985; Stephan et al., 1998; Tropp & Pettigrew, 2005) – even moreso when contact is employed within more hostile intergroup relationships. Such results as these point towards the complexities of the relations between intergroup contact, intergroup climate, and intergroup

relations, emphasising the importance of the progressive study of these variables and of researchers aspiring to ever more nuanced understanding of their underlying mechanisms.

As previously noted, one limitation of the present research is that its cross-sectional design precludes causal statements. Previous experimental and longitudinal research provides evidence that positive contact causes warmer attitudes (Sherif, 1961) and warmer climate causes warmer attitudes (Christ et al., 2014), however the robustness of the very small body of climate literature must be tested through further research. It should also be noted that the scope of the present research is small in that it has specifically explored intergroup relations between individuals identifying as White and individuals identified as Black. However, this study provides a framework for future exploration of the relations between intergroup contact, intergroup climate, and intergroup attitudes. Further, the research outlined in this chapter provides an empirical and theoretical framework that can now be tested against different intergroup relationships. Pursuant to this goal, the next chapter of this thesis reports a study in which the relations between intergroup contact, intergroup climate, and intergroup relations are tested again within this framework, but with regards the relationship between Muslims and non-Muslims.

CHAPTER 7: CONTACT, INTERGROUP CLIMATE, AND NON-MUSLIMS' PERCEPTIONS OF MUSLIMS

In Chapter 6, the relations between intergroup contact, intergroup climate, and intergroup attitudes were explored through a large-scale survey study (Study 7). Results were broadly consistent with three predictions: First, that higher quality contact with an outgroup was associated with warmer attitudes (i.e., less prejudice) towards that group (Allport, 1954; Pettigrew, 1998; Pettigrew & Tropp, 2006); second, that a warmer (i.e., more favourable) intergroup climate was associated with less prejudice (Christ et al., 2013, 2014); and third, that the relation between contact and prejudice was moderated by some indices of intergroup climate (i.e., cooperative interdependence, cooperative coexistence, family norms, local authority norms, and enduring antipathy). Further, and consistent with the framework proposed in Chapter 1, intergroup climate was successfully modelled as participants' perceptions of: intergroup norms regarding how ingroups and outgroups typically interact; ingroup norms relating to how important others would judge participants' contact with the outgroup; and sociohistoric norms regarding the temporal length (previous, and projected) and psychological depth of intergroup conflict. Relatedly, results indicated that authority sanction, which has been classically considered as part of intergroup contact (Allport, 1954; Pettigrew, 1998), might also have aspects that are categorically distinct from the contact conditions – that is, macro authority norms – which might moderate contact effects. One key goal of this thesis is to propose and test generalisable models of intergroup contact and intergroup climate, therefore, this chapter reports a second large-scale survey study that attempts to replicate the results of Chapter 6, presently exploring non-Muslims' perceptions of intergroup contact with, and the intergroup climate regarding, Muslims.

Study 8

The purpose of Study 8, therefore, was to test whether the respective structures of contact conditions and indices of intergroup contact that emerged in Chapter 6 could be generalised to non-Muslims' attitudes towards Muslims. A second goal was to test whether the relations between contact conditions regarding Whites' attitudes towards Blacks, as tested in Chapter 6, were similar in non-Muslims' attitudes towards Muslims. Finally, I aimed to test whether the relations between intergroup contact, intergroup climate, and intergroup relations that were observed in Chapter 6 could be generalised to non-Muslims' attitudes towards Muslims.

Hypotheses

Intergroup contact

Hypothesis 1. Consistent with Chapter 6, and amid various operationalisations of equal status in the contact literature (see Chapter 1 for a discussion), I predicted that this contact condition might be modelled as a single-factor construct comprising equal reputation and equal power.

Hypothesis 2. Consistent with Chapter 6, and research evidencing separate effects of goal interdependence and cooperation (Gaertner et al., 1999), I predicted that these contact conditions would be modelled as two (*vs.* one) separate but related constructs.

Hypothesis 3. Consistent with Chapter 6, I predicted that macro authority norms would be modelled as a two-factor construct, that is, 'formal' (e.g., rules) and 'informal' (e.g., behaviour) norms (see Blader & Tyler, 2003).

Hypothesis 4. Regarding the relation between contact conditions, I tested competing hypotheses that: a) a three-step model of contact (Figure 1.4) would better fit the data than would a more traditional, unmediated model (Figure 1.1); and b) that the more traditional model would better fit the data.

Hypothesis 5. Consistent with Chapter 6, and research showing that authority sanction relates to intergroup relations differently than do the other contact conditions (e.g., Koschate & van Dick, 2011; Molina & Wittig, 2006), I predicted that macro authority norms would load onto a separate factor than equal status, goal interdependence, and cooperation.

Intergroup climate

Hypothesis 6. Consistent with Chapter 6, I predicted that the previously revealed factors of intergroup climate would be viable in non-Muslims' perceptions of Muslims, specifically: a) intergroup norms of equal status; b) cooperative interdependence; c) cooperative coexistence; d) family norms; e) friends norms; f) deep conflict; and g) enduring antipathy.

Hypothesis 7. Consistent with Chapter 6, I predicted that the contents of specific intergroup norms would be empirically distinct from, but related to, contact conditions. For instance, equal status *sensu* Allport (1954) would be a distinct construct from intergroup norms of equal status.

Hypothesis 8. I predicted that warmer intergroup climate (i.e., higher norms of equal status, cooperative interdependence, and cooperative coexistence; warmer friends norms and family norms; lower deep conflict and enduring antipathy) would be significantly related to warmer attitudes towards Muslims.

Moderation

Hypothesis 9. In line with the results of Chapter 6, I predicted that all intergroup climate variables would moderate the relations between intergroup contact and attitudes towards Muslims such that in cooler climates (i.e., lower norms of equal status, cooperative interdependence, and cooperative coexistence; cooler friends norms and family norms; higher deep conflict and enduring antipathy) the relation between higher quality of contact and warmer intergroup attitudes would be stronger.

Moderated mediation

Hypothesis 10. I predicted that the indirect effect of higher quality contact on warmer attitudes towards Muslims, via lower intergroup anxiety, would be moderated by each intergroup climate variable, such that amid cooler (*vs.* warmer) perceived climate, the indirect effect would be stronger.

Method

Participants and Procedure

Consistent with Chapter 6, participants (n = 753) were recruited from the United States using Amazon Mechanical Turk ('MTurk') for a study called 'Perceptions of Social Groups'. This large sample was required to allow sufficient sensitivity to test the present hypotheses via structural equation modelling, mediation, and moderated mediation techniques; a sample of *at least* 500 is required to achieve the conventional power of .8 for a small effect (see Fritz & MacKinnon, 2007; Kline, 2005; Preacher, Rucker & Hayes, 2007, for detailed discussions of sample size in these test families). Due to the focus on non-Muslims' perceptions of Muslims, seven participants identifying their religion as 'Islam' were excluded from analyses[19]. One participant was excluded for selecting the midpoint of every scale item. Therefore, analyses were based on a final sample of n = 745 (60% female; M_{age} = 36.46, age range 18-78, SD_{age} = 12.24, 77% identifying as White/Caucasian; 33% No religion/Atheist; 54% Christian; 2% Jewish). Participants received a $0.50US monetary incentive, a sum comparable to other MTurk studies of similar length, at the time. After providing consent, participants completed measures of intergroup anxiety, quality of contact,

[19] As in Chapter 6, the decision to exclude 'outgroup' participants after data collection was made *a priori* to address issues of social desirability, and to meet constraints of time and resources.

intergroup climate, and intergroup attitudes. Participants then read a debriefing form explaining the specific purpose of the study.

Measures

Measures were identical to those used in Study 7, however, all references to 'White people' and 'Black people' were replaced with 'non-Muslims' and 'Muslims,' respectively. Study variables were calculated identically to Study 7 (Tables 6.1, 6.4.1, and 6.4.2) to allow for ease of comparison. All measures showed acceptable reliability. Table 7.1 displays Cronbach's alpha (α) for all study variables.

Results

Relations Between Contact Variables

Zero-order correlations between all contact and climate variables are displayed in Table 7.1. Equality, goal interdependence, and cooperation were significantly and positively interrelated, *r*s > .64. However, whereas local authority norms and law norms were significantly and positively related to one another, neither of these factors correlated as strongly with equality, goal interdependence, or cooperation, *r*s < .32. To test whether authority support variables clustered separately from the remaining contact variables, I entered all mean contact variables into an exploratory factor analysis, following the procedure outlined in Chapter 6. EFA revealed two factors with an eigenvalue above 1, together accounting for 79% of the total variance. Factor loadings are displayed in Table 7.2. As expected, Factor 1, explaining 51% of the total variance, included equality, goal interdependence, and cooperation, and was named *Structure of Contact*, whereas Factor 2, explaining 28% of the total variance, included local authority norms and law norms, and was named *Macro Authority Norms.* Therefore, consistent with hypothesis 5, and the results of Chapter 6, macro authority norms (i.e., local authority norms and law norms) represented a separate cluster of variables, distinct from the contact conditions.

Table 7.1.

Cronbach's alpha (α), means, standard deviations, and zero-order correlations for study variables.

	α	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
Intergroup Contact																
1. Equality	.88	4.99	1.32	-												
2. Goal Interdependence	.81	4.91	1.41	.68*	-											
3. Cooperation	.91	5.85	1.35	.65*	.70*	-										
4. Local Authority Norms	.94	4.29	1.78	.11*	.05	-.05	-									
5. Law Norms	.81	5.54	1.34	.31*	.28*	.25*	.51*	-								
Intergroup Climate																
6. Norms of Equal Status	.90	3.48	1.45	.40*	.34*	.22*	.37*	.27*	-							
7. Cooperative Interdependence	.90	4.47	1.45	.53*	.59*	.54*	.17*	.31*	.50*	-						
8. Cooperative Coexistence	.87	4.94	1.39	.59*	.68*	.65*	.03*	.27*	.34*	.74*	-					
9. Family Norms	.93	5.04	1.67	.45*	.45*	.49*	.13*	.23*	.30*	.51*	.58*	-				
10. Friends Norms	.93	5.55	1.44	.52*	.56*	.66*	-.03	.19*	.22*	.54*	.67*	.68*	-			
11. Deep Conflict	.83	5.21	1.47	-.33*	-.34*	-.20*	-.04	-.05	-.35*	-.44*	-.49*	-.35*	-.30*	-		
12. Enduring Antipathy	.85	4.29	1.47	-.42*	-.44*	-.37*	.02	-.09*	-.31*	-.54*	-.66*	-.42*	-.46*	.74*	-	
Intergroup Outcomes																
13. Attitudes towards Muslims	.88	6.05	2.77	.50*	.56*	.57*	-.12*	.08*	.23*	.51*	.68*	.51*	.60*	-.37*	-.47*	-
Mediator																
14. Intergroup Anxiety	.92	3.41	1.44	-.49*	-.54*	-.51*	.002	-.16*	-.25*	-.51*	-.67*	-.53*	-.58*	.39*	.47*	-.66*

*p<.05

Path Analyses

To explore the structure of non-Muslims' contact with Muslims, I tested competing models of contact, employing path analysis using AMOS software version 22. AMOS provided inferential statistics for indirect effects using bootstrapping (10,000 samples herein) to calculate *p*-values based on bias-corrected confidence intervals. Consistent with Chapter 6 and conventional practice (e.g., Byrne, 2016; Loehlin, 2004), poor-fitting models were improved following post-hoc consultation of the modification indices – an estimate of the change in χ^2 that would be effected by removing the constraint on a given parameter – with this process repeated until good fit was achieved. Due to the focus on comparative fit, the Bayesian Information Criterion (BIC) is reported, with a BIC difference of ΔBIC = -2.00 signifying better fit; chi-square and RMSEA are also reported for reference (see Hooper, Coughlan & Mullen, 2007; Kass & Raftery, 1995, for discussions of fit indices). Standardised coefficients of unstandardised variables are reported.

Table 7.2.

Factor loadings for exploratory factor analysis of quality of contact variables

Factor	1	2
Equality	**.85**	.08
Goal interdependence	**.89**	.01
Cooperation	**.91**	-.10
Local authority norms	-.17	**.92**
Law norms	.20	**.81**

Note. Factors:*1* – Structure of contact; *2* – Macro authority norms

First, an Allportian model (e.g., Pettigrew, 1998) was estimated, in which equality, goal interdependence, cooperation, and macro authority norms (i.e., law norms and local authority norms) were each modelled as simultaneous direct predictors of attitudes towards Muslims. Given the previously discussed patterns of relations between constructs, equality, goal interdependence, and cooperation were allowed to covary, and law norms and local authority norms were also allowed to covary. Model fit was initially poor, $\chi^2(6) = 125.95$, $p < .001$, RMSEA = .16, BIC = 225.15. Following consultation of the modification indices, local authority norms were allowed to covary with equality and cooperation; law norms were allowed to covary with equality, goal interdependence, and cooperation. The fit of this revised model was good, $\chi^2(1) = 2.03$, $p = .155$, RMSEA = .04, BIC = 134.30. Table 7.3 displays all pathway coefficients for this model. Among direct effects, more positive local authority norms significantly and more positive law norms marginally ($p = .090$) predicted cooler attitudes towards Muslims. Further, higher equality, higher goal interdependence, and higher cooperation each significantly predicted warmer attitudes towards Muslims.

Next, a model of two-step mediation was estimated, in which the measures of macro authority norms (i.e., law norms and local authority norms) were modelled as covaried

predictors of equality, goal interdependence, and cooperation. Equality, goal interdependence, and cooperation were modelled as predicting attitudes towards Muslims. Finally, given the previously mentioned relations between contact conditions, the errors of equality, goal interdependence, and cooperation were allowed to covary. Model fit was poor, $\chi^2(2) = 25.50$, $p < .001$, RMSEA = .13, BIC = 151.15. Following consultation of the modification indices, a direct pathway was added from local authority norms to attitudes towards Muslims. This revised model had acceptable fit, $\chi^2(1) = 2.87$, $p = .090$, RMSEA = .05, BIC = 135.14. Standardised direct and indirect effects for each path are displayed in Table 7.3. Among direct effects, more positive law norms predicted higher equality, however, local authority norms did not significantly predict equality. Further, more positive law norms predicted higher goal interdependence and higher cooperation, and more positive local authority norms predicted lower goal interdependence and lower cooperation. Next, more positive local authority norms predicted cooler attitudes towards Muslims. Finally, higher equality, higher goal interdependence, and higher cooperation each predicted warmer attitudes towards Muslims. Among indirect effects, more positive law norms significantly predicted warmer attitudes towards Muslims via equality, goal interdependence and cooperation, 95%CI [.19, .30], $p < .001$, and more positive local authority norms significantly predicted cooler attitudes towards Muslims via equality, goal interdependence and cooperation, 95%CI [-.16, -.06], $p < .001$.

Finally, a three-step mediation model was estimated, in which law norms and local authority norms were modelled as covaried predictors of equality and goal interdependence. Equality and goal interdependence were modelled as predicting cooperation. Cooperation was modelled as predicting attitudes towards Muslims. The errors of equality and goal interdependence were allowed to covary. Model fit was poor, $\chi^2(6) = 129.51$, $p < .001$, RMSEA = .17, BIC = 228.71. Following consultation of the modification indices, direct

pathways were added: from local authority norms to cooperation and attitudes towards Muslims; from law norms to cooperation; and from equality and goal interdependence to attitudes towards Muslims. This revised model had good fit, $\chi^2(1) = 2.87$, $p = .090$, RMSEA = .05, BIC = 135.14. Standardised coefficients for each path are displayed in Table 7.3. Among direct effects, more positive law norms predicted higher cooperation. Conversely, more positive local authority norms predicted lower cooperation. Further, higher equality and higher goal interdependence each predicted higher cooperation. More positive local authority norms predicted cooler attitudes towards Muslims. Finally, higher equality and higher goal interdependence predicted warmer attitudes towards Muslims. Among indirect effects: more positive law norms predicted more cooperation, via equality and goal interdependence, 95%CI [.21, .32], $p < .001$; more positive authority norms predicted lower cooperation, via equality and goal interdependence, 95%CI [-.13, -.02], $p = .010$; more positive law norms predicted warmer attitudes towards Muslims, via equality, goal interdependence, and cooperation, 95%CI [.19, .30], $p < .001$; more positive local authority norms predicted cooler attitudes towards Muslims, via equality, goal interdependence, and cooperation , 95%CI [-.16, -.06], $p < .001$; higher goal interdependence predicted warmer attitudes towards Muslims, via cooperation, 95%CI [.08, .17], $p < .001$; higher equality predicted warmer attitudes towards Muslims, via cooperation, 95%CI [.06, .12], $p < .001$.

Crucially, comparison of the respective BICs of these three models revealed no evidence that the Allportian model fit the data better than did the model of two-step mediation, $\Delta BIC = 1.16$, or the model of three-step mediation, $\Delta BIC = 1.16$. Further, there was no evidence of difference in fit between the two-step mediation model, or the three-step mediation model, $\Delta BIC < .001$. Therefore, contrary to hypotheses 4a and 4b, and the results of Chapter 6, it was not possible to statistically select between models.

Table 7.3.

Standardised coefficients for Allportian, two-step mediation, and three-step mediation models of contact.

Model	Allportian		Two-step				Three-step	
	Criterion	ATT	ES	GI	COOP	ATT	COOP	ATT
Predictor	Effect							
LAW	Direct	-.06^{t}	.34*	. 34*	.38*		.12*	
	Indirect					.25*	.26*	.25*
AUTH	Direct	-.11*	-.06	-.12*	-.25*	-.14*	-.17*	-.14*
	Indirect					-.11*	-.08*	-.11*
ES	Direct	.16*				.16*	.32*	.16*
	Indirect							.09*
GI	Direct	.27*				.27*	.46*	.27*
	Indirect							.13*
COOP	Direct	.29*				.28*		.28*
	R2	.41	.10	.09	.11	.40	.56	.40

Note. *LAW* law norms, *AUTH* local authority norms, *ES* equality, *GI* goal interdependence, *COOP* cooperation. *p<.05, ^{t}p<.1

Relations Between Climate and Attitudes

To test whether intergroup climate variables were related to attitudes towards Muslims, patterns of correlation were further considered (Table 7.1). Consistent with hypothesis 8, warmer attitudes towards Muslims were significantly related to higher norms of equal status, higher cooperative interdependence, higher cooperative coexistence, warmer family norms, warmer friends norms, lower deep conflict, and lower enduring antipathy. Therefore, all indices of intergroup climate were related to attitudes towards Muslims at the zero-order level.

Effect of Climate on Attitudes towards Muslims

To test whether intergroup climate predicted attitudes towards Muslims, controlling for the effect of quality of contact, a hierarchical regression was conducted. Table 7.4 displays the unstandardised coefficients for these standardised variables. In Step 1, attitudes towards Muslims were regressed onto the standardised measures of equality, cooperation, goal interdependence, and law norms and local authority norms (i.e., both macro authority norms variables). This Step 1 model predicted 41% of the variance in attitudes towards Muslims, $F(5, 734) = 100.79$, $p < .001$. Within this model, warmer attitudes towards Muslims were predicted by higher equality, $p < .001$, higher goal interdependence, $p < .001$, and more cooperation, $p < .001$. Conversely, warmer attitudes towards Muslims were predicted by less positive local authority norms, $p = .001$. However, attitudes towards Muslims were not significantly predicted by law norms, $p = .110$. In Step 2, norms of equal status, cooperative interdependence, cooperative coexistence, friend norms, family norms, deep conflict, and enduring antipathy were added. This Step 2 model predicted 54% of the variance in attitudes towards Muslims, $F(12, 727) = 73.79$, $p < .001$, representing a significant increase in R^2 of 14%, $F(7, 727) = 32.72$, $p < .001$. Within this model, warmer attitudes towards Muslims were predicted by higher equality (marginal), $p = .071$, higher goal interdependence, $p = .028$, higher cooperation, $p = .038$, higher cooperative coexistence, $p < .001$, warmer friends norms, $p = .001$, and warmer family norms, $p = .005$. Conversely, warmer attitudes towards Muslims were predicted by less positive law norms, $p = .006$, and less positive local authority norms, $p < .001$. However, attitudes towards Muslims were not significantly predicted by norms of equal status, $p = .455$, cooperative interdependence, $p = .678$, deep conflict, $p = .138$, or enduring antipathy, $p = .469$. Therefore, consistent with hypothesis 7, perceptions of some indices of intergroup climate significantly predicted attitudes towards Muslims even controlling for perceptions of personal intergroup contact.

Moderating Effect of Intergroup Climate on Contact Effects

To explore whether the effect of intergroup contact on attitudes towards Muslims was moderated by intergroup climate (hypothesis 10), a series of regression analyses was conducted. For each regression, attitudes towards Muslims were regressed onto a standardised composite variable of quality of contact – this variable included all items measuring equal status, equal power, goal interdependence, and cooperation ($\alpha = .90$) – as well as the respective standardised index of intergroup climate, and the interaction term[20]. Unstandardised coefficients of these standardised variables are reported throughout.

Intergroup norms

Norms of equal status. Regarding the model including intergroup norms of equal status, this model explained 24% of the variance in attitudes towards Muslims, $F(3, 741) = 150.47$, $p < .001$. Higher quality of contact significantly predicted warmer attitudes towards Muslims, $b = 1.70$, $p < .001$, 95%CI [1.52, 1.88]. Warmer norms of equal status did not predict attitudes towards Muslims, $b = .01$, $p = .875$, 95%CI [-.16, .19]. Further, contrary to hypothesis 9, the interaction was not significant, $b = .03$, $p = .712$, 95%CI [-.12, .18]. Therefore, contrary to hypothesis 9, intergroup norms of equal status did not moderate the relation between quality of contact and attitudes towards Muslims.

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[20] Similarly to Chapter 6, I later supplemented this planned analysis by conducting a hierarchical regression, with attitudes towards Muslims regressed onto: (Step 1) the composite measure of quality of contact (standardised), (Step 2) all intergroup climate indices (standardised); and (Step 3) all two-way interaction terms. The Step 2 model was a significant improvement on the Step 1 model, R^2 change = .14, $p < .001$. The step 3 model was not a significant improvement on the Step 2 model, R^2 change = .01, $p = .089$. Regarding moderation effects, the effect of quality of contact on attitudes towards Muslims was hindered by cooperative interdependence, $p = .030$, and was facilitated by cooperative coexistence, $p = .033$. Full results are included in Appendix L.

Table 7.4.

Hierarchical regression models of the effect of intergroup contact and intergroup climate variables on attitudes towards Muslims.

	Model 1		2	
	b	sr^2	b	sr^2
Intergroup Contact				
Equality	.16*	.14	.07	.07
Goal Interdependence	.27*	.22	.09*	.08
Cooperation	.29*	.24	.09*	.08
Law Norms	-.06	-.06	-.09*	-.10
Local Authority Norms	-.11*	-.12	-.11*	-.13
Intergroup Climate				
Norms of Equal Status			.02	.03
Cooperative Interdependence			-.02	-.02
Cooperative Coexistence			.40*	.28
Friends Norms			.14*	.12
Family Norms			.10*	.10
Deep Conflict			-.06	-.06
Enduring Antipathy			.03	.03

Note. *p<.05

Cooperative interdependence. Regarding the model including cooperative interdependence, this model explained 41% of the variance in attitudes towards Muslims, $F(3, 741) = 168.94$, $p < .001$. Higher quality of contact significantly predicted warmer attitudes towards Muslims, $b = 1.32$, $p = .001$, 95%CI [1.11, 1.52]. Further, higher cooperative interdependence significantly predicted warmer attitudes towards Muslims, $b = .59$, $p < .001$,

95%CI [.39, .79]. Contrary to hypothesis 9, the interaction was not significant, b = -.04, p = .539, 95%CI [-.17, .09]. Therefore, contrary to hypothesis 9, cooperative interdependence did not moderate the relation between quality of contact and attitudes towards Muslims.

Cooperative coexistence. Regarding the model including intergroup norms of cooperative coexistence, this model explained 50% of the variance in attitudes towards Muslims, $F(3, 741) = 243.45$, $p < .001$. Higher quality of contact predicted warmer attitudes towards Muslims, $b = .73$, $p < .001$, 95%CI [.52, .94]. Further, warmer intergroup norms of cooperative coexistence predicted warmer attitudes towards Muslims, $b = 1.37$, $p < .001$, 95%CI [1.17, 1.57]. The interaction was not significant, $b = .03$, $p = .629$, 95%CI [-.09, .15]. Therefore, contrary to hypothesis 9, cooperative coexistence did not moderate the relation between quality of contact and attitudes towards Muslims.

Ingroup norms

Friends norms. Regarding the model including friends norms, the model explained 45% of the variance in attitudes towards Muslims, $F(3, 741) = 202.29$, $p < .001$. Higher quality of contact significantly predicted warmer attitudes towards Muslims, $b = 1.14$, $p < .001$, 95%CI [.93, 1.33]. Further, warmer friends norms significantly predicted warmer attitudes towards Muslims, $b = 1.01$, $p < .001$, 95%CI [.81, 1.21]. Further, consistent with hypothesis 9, the interaction was significant, $b = .14$, $p = .023$, 95%CI [.01, .26]. Simple slopes analyses revealed that the effect of higher quality contact on warmer attitudes towards Muslims was significant for participants reporting cooler friends norms (-1SD), $b = .99$, $p < .001$, 95%CI [.78, 1.20], and warmer friends norms (+1SD), $b = 1.28$, $p < .001$, 95%CI [1.02, 1.53], with the relation stronger among individuals perceiving warmer friends norms. Figure 7.1 illustrates this interaction. An inverted Johnson-Neyman analysis (see Chapter 4) revealed no significance transition points, indicating that the difference in attitudes towards Muslims in participants perceiving cooler friends norms and warmer friends norms was

significant at all levels of quality of contact. Therefore, consistent with hypothesis 9, warmer (*vs.* cooler) friends norms predicted a stronger effect of higher quality contact on warmer attitudes towards Muslims.

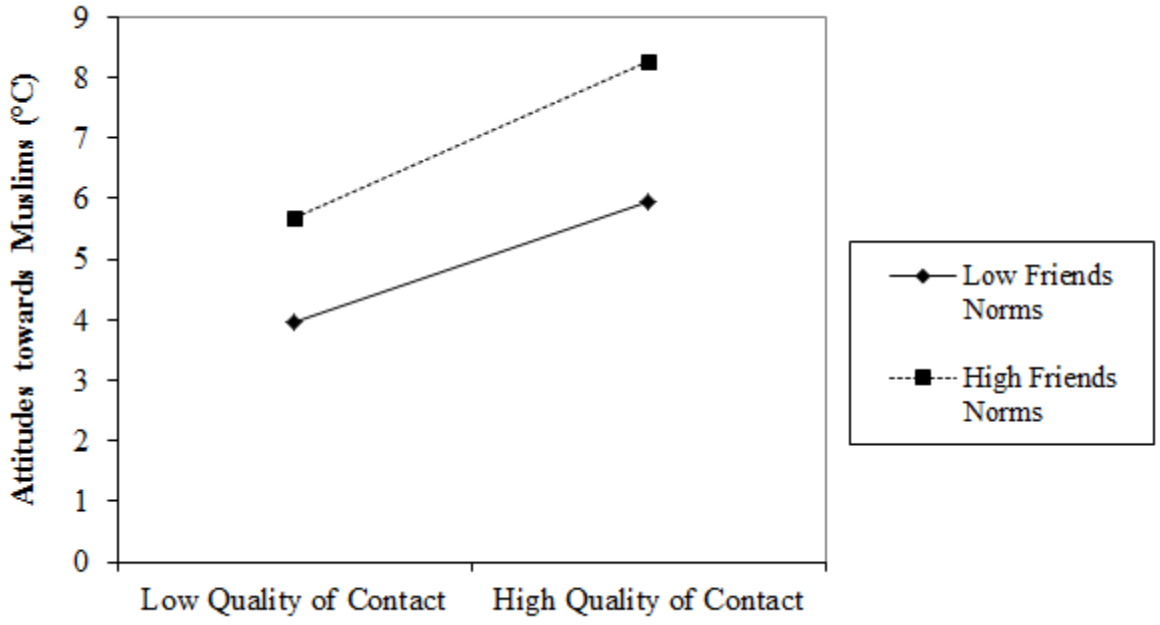

Figure 7.1. Effect of quality of contact on attitudes towards Muslims, for participants perceiving lower (-1SD) and higher (1SD) friends norms.

Family norms. Regarding the model including family norms, the model explained 43% of attitudes towards Muslims, $F(3, 741) = 183.30$, $p < .001$. Higher quality of contact significantly predicted warmer attitudes towards Muslims, $b = 1.32$, $p < .001$, 95%CI [1.13, 1.51]. Further, warmer family norms significantly predicted warmer attitudes towards Muslims, $b = .71$, $p < .001$, 95%CI [.53, .89]. The interaction was not significant, $b = -.02$, $p = .781$, 95%CI [-.16, .12]. Therefore, contrary to hypothesis 9, family norms did not moderate the relation between quality of contact and attitudes towards Muslims.

Macro authority norms

Local authority norms. Regarding the model including local authority norms, the model explained 25% of attitudes towards Muslims, $F(3, 741) = 165.76$, $p < .001$. Higher quality of contact significantly predicted warmer attitudes towards Muslims, $b = 1.71$, $p < .001$, 95%CI [1.56, 1.87]. Further, more positive local authority norms significantly predicted cooler attitudes towards Muslims, $b = -.42$, $p < .001$, 95%CI [-.57, -.26]. The interaction was not significant, $b = .11$, $p = .170$, 95%CI [-.05, .26]. Therefore, contrary to hypothesis 9, local authority norms did not moderate the relation between quality of contact and attitudes towards Muslims.

Law norms. Regarding the model including law norms, the model explained 39% of attitudes towards Muslims, $F(3,741) = 159.47$, $p < .001$. Higher quality of contact significantly predicted warmer attitudes towards Muslims, $b = 1.80$, $p < .001$, 95%CI [1.64, 1.97]. Further, more positive law norms predicted cooler attitudes towards Muslims, $b = -.35$, $p < .001$, 95%CI [-.51, -.18]. The interaction was not significant, $b = -.04$, $p < .595$, 95%CI [-.18, .10]. Therefore, contrary to hypothesis 9, law norms did not moderate the relation between quality of contact and attitudes towards Muslims.

Sociohistoric norms

Enduring antipathy. Regarding the model including enduring antipathy, this model explained 43% of attitudes towards Muslims, $F(3, 740) =183.59$, $p < .001$. Higher quality of contact significantly predicted warmer attitudes towards Muslims, $b = 1.39$, $p < .001$, 95%CI [1.21, 1.57]. Further, enduring antipathy significantly predicted cooler attitudes towards Muslims, $b = -.66$, $p = .001$, 95%CI [-.83, -.49]. However, the interaction was not significant, $b = .07$, $p = .329$, 95%CI [-.07, .20]. Therefore, contrary to hypothesis 9, enduring antipathy did not moderate the relation between quality of contact and attitudes towards Muslims.

Deep conflict. Regarding the model including enduring conflict, this model explained 22% of attitudes towards Muslims, $F(3,736) = 173.59$, $p < .001$. Higher quality of contact predicted warmer attitudes towards Muslims, $b = 1.51$, $p < .001$, 95%CI [1.35, 1.68]. Further, higher deep conflict predicted cooler attitudes towards Muslims, $b = -.55$, $p < .001$, 95%CI [-.72, -.38]. There was no interaction, $b = .11$, $p = .118$, 95%CI [-.03, .25]. Therefore, contrary to hypothesis 9, deep conflict did not moderate the relation between quality of contact and attitudes towards Muslims.

Moderated Mediation

To test whether the indirect effect of quality of contact on attitudes towards Muslims, via intergroup anxiety, was moderated by indices of intergroup climate, conditional process tests (described fully in Chapter 6) were conducted. For brevity, only evidence relating to moderated mediation hypotheses is reported; full results are included in Appendices M-S.

Consistent with hypothesis 10, there was *ab*-path moderated mediation by friends norms such that the indirect effect of higher quality contact on warmer attitudes towards Muslims, via less intergroup anxiety, was stronger among participants perceiving warmer (*vs.* cooler) friends norms, 95%CI [.00, .01] (Figure 7.2); for clarity, this result is equivalent to a finding of $p = .05$. Further, and also consistent with hypothesis 10, there was *a*-path moderated mediation by local authority norms (Figure 7.3) such that the indirect effect of higher quality contact on warmer attitudes towards Muslims, via less intergroup anxiety, was stronger among participants perceiving more (*vs.* less) positive local authority norms, 95%CI [.01, .11]. There was no evidence of moderated mediation by any other intergroup climate variable.

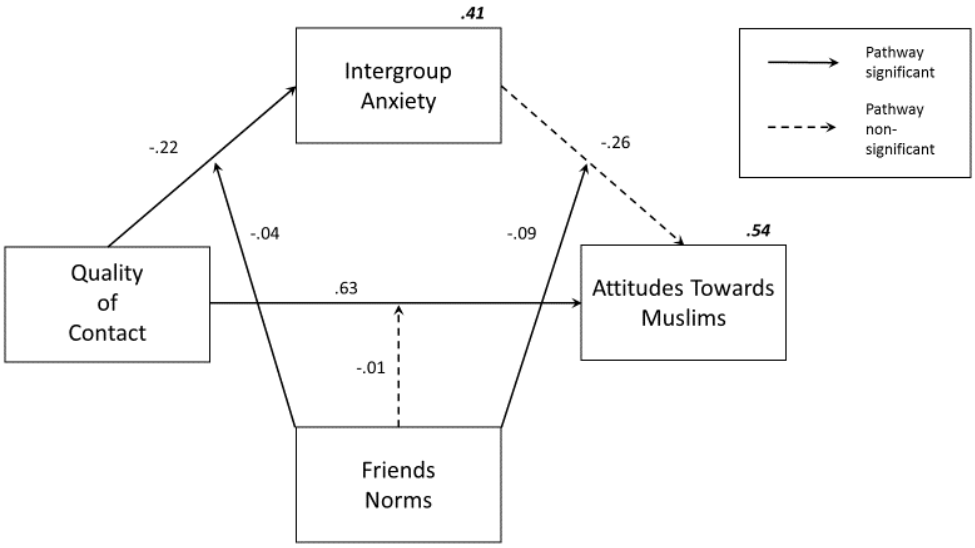

Figure 7.2. Effect of quality of contact on attitudes towards Muslims, via intergroup anxiety, moderated by friends norms.

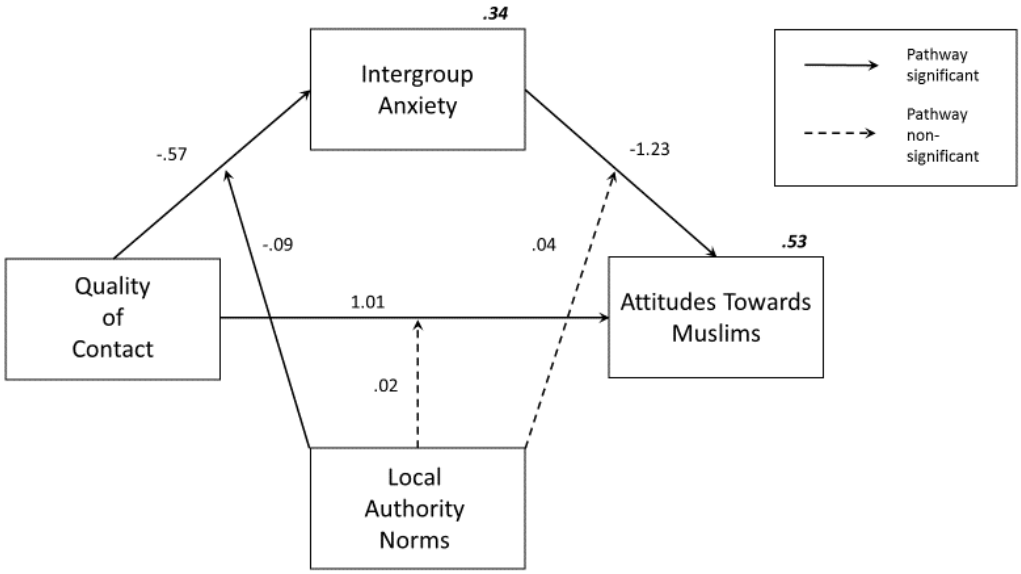

Figure 7.3. Effect of quality of contact on attitudes towards Muslims, via intergroup anxiety, moderated by local authority norms.

Exploratory Post-Hoc Analyses: Global Intergroup Climate

Global intergroup climate. Consistent with Chapter 6, and due to the high correlations between intergroup climate variables, and to test the overall effect of intergroup

climate on intergroup relations, I later supplemented the planned analyses by exploring the effects of a global intergroup climate measure. This variable was calculated as the mean of all intergroup climate measures ($\alpha = .96$). Higher intergroup climate was strongly associated with warmer attitudes towards Muslims, $r = .67$, $p < .001$. I also conducted a hierarchical regression with attitudes towards Muslims regressed onto: (Step 1) the composite measure of quality of contact (standardised), (Step 2) the composite measure of intergroup climate (standardised), and (Step 3) the two-way product term. The Step 1 model significantly predicted 38% of the variance in attitudes towards Muslims, $F(1, 743) = 452.28$, $p < .001$. Higher quality contact significantly predicting warmer attitudes towards Muslims, $b = 1.70$, $p < .001$. The Step 2 model was a significant improvement, R^2 change = .10, with warmer attitudes towards Muslims significantly predicted by higher quality contact, $b = .77$, $sr^2 = .25$, $p < .001$, and warmer climate, $b = 1.28$, $sr^2 = .32$, $p < .001$. The Step 3 model was not a significant improvement, R^2 change < .001, $p = .958$, and the interaction term did not significantly predict attitudes towards Muslims, $b = .003$, $p = .958$, $sr^2 = .002$. Therefore, global intergroup climate did not moderate the relation between quality of contact and attitudes towards Muslims. Finally, I conducted a test of moderated mediation, with the composite measure of intergroup climate as the moderator variable. There was no interaction of the *a*, *b*, or *c* pathways by this variable. Full output for these supplementary analyses are included as Appendix T.

Confirmatory path analyses. Next, also in supplementary analyses, I attempted to fit the same post-modification-index models that emerged from Chapter 6 to the present data. The Allportian model fit the data worse, $\Delta BIC = 173.33$, than did the two-step model, $\Delta BIC = 135.14$, or the three-step model, $\Delta BIC = 155.15$. However, it should be noted that the three-step model was initially unidentifiable. This was resolved by removing the covariance

between the errors of equal status and goal interdependence, and instead allowing goal interdependence and cooperation to vary. Raw data are available on request.

Discussion

In the present study, I tested the composition of, and relations between, intergroup contact and intergroup climate, and their relations to non-Muslims' attitudes towards Muslims. Regarding the composition of contact conditions, and in line with predictions and the Study 7, participants' survey responses indicated a single-factor construct of equal status, and that goal interdependence and cooperation were two distinct conditions for good contact – as such, results confirmed traditional conceptualisation of these three contact conditions (e.g., Allport, 1954; Pettigrew, 1998). Also as expected, and consistent with Study 7, macro authority norms were successfully modelled as the formal rules and 'informal' behaviour of civic authorities regarding intergroup relations (Blader & Tyler, 2003). Such consistent findings across two large samples, regarding different intergroup relationships, serve as further testament to the validity and generalisability of the contact hypothesis, and as such the present study adds to the large corpus of literature supporting Allport's (1954) conceptualisation of contact.

I also explored the relations between contact conditions. Consistent with hypotheses and the results of Study 7, macro authority norms (i.e., local authority norms and law norms) were related to equal status, goal interdependence and cooperation. However, also consistent with hypotheses and Study 7, macro authority norms (*vs.* equal status, goal interdependence, and cooperation) loaded onto a separate factor. As in Chapter 6, this pattern of relations suggests that authority sanction (see Figure 1.5.1), macro authority norms specifically, might be categorically distinct from the remaining contact conditions. Relatedly, but unexpectedly, I found that a classic model of contact (Figure 1.1) fit the data as well as did more contemporary models (e.g., Koschate & van Dick, 2011; see Chapter 1 for a full discussion of

the relations between contact conditions). This finding, consistent with the results of Study 7, supports traditional models of contact (e.g., Allport, 1954; Pettigrew, 1998) that place each of the contact conditions as independent predictors of prejudice. Such findings in the present research, however, are qualified by the cross-sectional design. With the present study considered in the light of Pettigrew and Tropp's (2006) meta-analytic suggestion that contact conditions might be highly interrelated, further research is needed in which the causal sequence of contact – the relations between contact conditions, specifically – is tested using experimental and longitudinal paradigms.

I also extended upon Study 7 by testing whether the indices of intergroup climate that emerged previously, regarding Whites' attitudes towards Blacks, could also be applied to non-Muslims' attitudes towards Muslims. Consistent with predictions, non-Muslim-to-Muslim intergroup climate was successfully modelled as intergroup norms (norms of equal status, cooperative interdependence, and cooperative coexistence), ingroup norms (family norms, and friends norms), and sociohistoric norms (deep conflict, and enduring antipathy); crucially, these indices of climate were distinct from quality of personally-experienced contact. Having successfully modelled two different intergroup climates, I propose that these chapters are suggestive of a framework for future research into intergroup climate across various relationships. Specifically, future studies might employ the models of climate presented and tested in this thesis given their generalisability across two studies. As such, I extend upon previous research that has studied intergroup climate using indices that were specific to the intergroup relationship under scrutiny (Barth, 1971a, 1971b, 1974; Barth & Ace, 1971; Brown & Zagefka, 2011; Hewett, Watson, Gall, Ward & Legget, 2009). Of course, myriad intergroup relationships remain to be tested (e.g., 'straight' people's attitudes towards LGBT groups; Police-Black relations) and so future research should specifically

continue to explore the extent to which the present indices of intergroup climate can be generalised.

Within this chapter I also tested whether the effect of higher quality contact on warmer attitudes towards Muslims was moderated by intergroup climate indices. Partially consistent with hypotheses, the relation was moderated by friends norms only, with warmer friends norms facilitating contact effects. This pattern of relations was not consistent with that observed in Study 7, in which various indices of warmer climate *inhibited* contact effects. However, the present result was consistent with Study 5, in which positive ingroup norms facilitated the effect of higher quality imagined contact on warmer attitudes towards the homeless suggesting, perhaps, that moderation of contact effects by intergroup climate are specific to intergroup relationships. Also, the various moderation models in the present chapter were highly predictive – moreso than the same models applied to Whites' attitudes towards Blacks – explaining up to 50% of non-Muslims' attitudes towards Muslims. Taken together, these findings suggest that intergroup contact and intergroup climate are germane to both of the relationships scrutinised within these chapters, but perhaps to different degrees and via different mechanisms. Given the high reactivity of prejudice research, one further possibility is that anti-Muslim (*vs.* anti-Black) sentiment is currently more socially acceptable (e.g., Acquisti & Fong, 2015; Kishi, 2017) thereby producing more accurate results. Indeed, Muslims (*vs.* Blacks) in the United States report a larger number of hate crimes *per capita* according to the latest statistics (FBI, 2015). Therefore, future research should attempt to replicate these phenomena to ascertain whether the differences between Studies 7 and 8 represent robust differences in these intergroup relationships. These inconsistencies are also further considered in Chapter 8.

Finally, I revisited the question of moderated mediation, testing whether the effect of higher quality contact on warmer attitudes towards Muslims, via less intergroup anxiety, was

conditional upon levels of intergroup climate indices. Results indicated that this indirect pathway was stronger among participants perceiving warmer friends norms and more positive local authority norms. Similar to the simple moderation findings, this conditional process was observed regarding fewer of the indices of intergroup climate than in Study 7, further suggesting that the mechanisms by which intergroup contact, intergroup climate, and intergroup attitudes are related might differ across intergroup relationships. More research is needed in which the complex processes of contact are explored, to test the robustness of the present findings.

As with Study 7, the present results are qualified by some limitations. As noted, research on intergroup relations is reactive and prone to social desirability bias; however, these issues are mitigated to some extent by the anonymous nature of online questionnaire participation. Further, whereas past research has implicated a causal path from contact to prejudice, the cross-sectional design of this study precludes the extension of such a model to include intergroup climate. Likely, the causal pathways between climate, contact, and attitudes are non-recursive, but future research is needed to support this claim. Finally, contact research is often criticised for failing to address the longevity of contact effects; similarly the temporal qualities of intergroup climate effects cannot be assessed with the present design. For instance, if intergroup climate causes intergroup attitudes, how quickly do changes in climate translate to attitudinal change? Such questions can receive only speculation within the present paradigm.

In two cross-sectional studies (Studies 7 and 8), I explored the relations between intergroup contact, intergroup climate, and intergroup relations. Results have added to a growing body of knowledge suggesting that perceptions of the wider societal backdrop against which contact takes place are at least as important to individuals' attitudes as is personally-experienced contact (Christ et al., 2013, 2014). Further, and importantly, results of

both studies suggest that individuals differentiate between the quality of their own personal contact with an outgroup and the valence of the more general intergroup relationship. Finally, in each study, the nature and role of authority sanction in intergroup contact was inconsistent with traditional contact theory (Allport, 1954; Pettigrew, 1998; cf. Walker & Crogan, 1998; cf. Koschate & van Dick, 2011), with more positive local authority norms associated with *cooler* outgroup attitudes. Such consistencies across two different intergroup relationships are encouraging for the future study of these phenomena. However, the inconsistencies between studies, such as the different patterns of moderation, might be equally informative. As such, in the next and closing thesis chapter, I discuss the results of each study in this programme of research, revisit the initial research questions, and consider future directions for the progressive study of intergroup contact and intergroup climate.

CHAPTER 8: GENERAL DISCUSSION

Through the programme of research reported in this thesis, I aimed to explore whether the prejudice-reducing effects of 'good' intergroup contact on outgroup attitudes (Allport, 1954; Pettigrew & Tropp, 2006) was moderated by the wider relationship between groups – a phenomenon known as intergroup climate (Christ et al., 2013, 2014). Employing cross-sectional and experimental methodology across eight studies, I tested the composition, process and effects of intergroup contact, the composition and effects of intergroup climate, and the interaction of intergroup contact and intergroup climate on intergroup outcomes. Key results are now summarised.

Summary of Key Results

In Chapter 2 (Study 1), I tested the effects of intergroup contact and intergroup climate (intergroup norms, specifically) on the perceptions of people identifying as Black of the police in the United Kingdom. Consistent with predictions, higher quality contact and warmer intergroup norms were associated with warmer attitudes towards Police. Further, an Allportian model of contact (Figure 1.1) was supported over a parallel (Figure 1.3) or serial mediation model (Figure 1.4). However, contrary to predictions, specific intergroup norms of equal status and goal interdependence did not moderate the relation between quality of contact and attitudes towards police. Therefore, within this very specific intergroup relationship – and perhaps within authority-marginalised relationships generally – contact conditions appeared to exert independent effects on intergroup outcomes, and there was no support for the claim that these relations were affected by intergroup norms. Results were qualified by low statistical power, and the cross-sectional nature of the data.

In Chapter 3, I revisited the effects of intergroup norms within the context of Police-Black relations in three experimental studies (Studies 2, 3, and 4). I also extended on Study 1 by considering the effect of sociohistoric norms. Amid non-salient sociohistoric norms (Study

2), perceptions of the contact were driven largely by independent (*vs.* interdependent) effects of the contact conditions. However, amid high-salience sociohistoric norms (Study 3), perceptions of goal interdependence were driven partially by an interaction of equal status and goal interdependence. Crucially, exploratory analyses revealed significant effects and interactions of the salience of sociohistoric norms on the relation between objective quality of contact and perceived quality of contact: sociohistoric norms drove perceptions of equal status, goal interdependence, and intergroup norms (of service delivery and enforcement). Further, a series of significant interactions suggested that sociohistoric norms might moderate the relations between contact conditions, such that perceptions of goal interdependence were affected by the manipulation of equal status. In Study 4 I attempted – unsuccessfully – to replicate these interaction effects with a more appropriate sample size, and within an imagined contact interaction. Overall, results were not consistent with the claim that the relations between contact conditions, and the relation between objective and subjective (i.e., perceived) intergroup contact, were moderated by intergroup norms or sociohistoric norms. As such, findings were not consistent with previous research emphasising the importance of the positions from which groups enter contact (*vs.* the structure of contact itself; Brewer, 1996; Brewer & Kramer, 1985; Tropp & Pettigrew, 2005; Wang, Leu & Shoda, 2011). However, intergroup norms and sociohistoric norms might be germane to contact effects in other ways, such as by affecting initial levels of intergroup anxiety (Stephan & Stephan, 1985; Stephan et al., 1998), or the likelihood of contact taking place at all (Plant & Devine, 2003; see also Trawalter et al., 2009).

In Chapter 4 (Study 5), I explored a further index of intergroup climate: ingroup norms. Participants' imagined contact with a homeless woman resulted in warmer attitudes towards the homeless and more positive behavioural intentions. Further, higher quality imagined contact was associated with more positive behavioural intentions. However, the

attempt to manipulate ingroup norms was not successful, possibly because the ideological precursors to ingroup membership also affected intergroup attitudes – this explanation was not tested. Whereas exposure to positive messages of ingroup norms did not directly affect intergroup outcomes, participants' perceived ingroup norms (i.e., unmanipulated) did relate to warmer outgroup attitudes and more positive behavioural intentions, consistent with much research suggesting that ingroup members may play an important role in outgroup attitudes (Christ et al., 2013; Wright et al., 1997; Turner et al., 2007; Pettigrew, Christ, Wagner, & Stellmacher, 2007). Further, in exploratory analyses, I found an indirect effect of ingroup norms condition on intergroup outcome variables, via higher quality imagined contact, perhaps suggesting that exposure to positive ingroup norms can improve intergroup relations by making perceptions of intergroup contact more positive. As such, this study provided some empirical and experimental evidence that ingroup norms are germane to intergroup climate, thus supporting previous research (Christ et al., 2013, 2014), albeit in exploratory (*vs.* planned) analyses.

In Chapter 5 (Study 6) I tested whether authority sanction – traditionally considered a predictor of contact effects – might also moderate the effects of good contact on warmer intergroup attitudes. Results indicated that more positive macro authority norms resulted in more positive behavioural intentions, but not higher quality imagined contact, nor intergroup or interpersonal attitudes. Therefore, macro authority norms might improve intergroup relations by making individuals more willing to engage in contact, thereby allowing the prejudice-reducing effects of contact to take place. Similar to later findings in this programme of research, this finding suggests that authority sanction (*vs.* equal status, goal interdependence, and cooperation) might play a distinct role in contact. To the extent that such an effect is supported by future exploration of authority sanction, this contact condition might thus be an important tool in efforts to reduce prejudice, because individuals may be

otherwise predisposed to avoid intergroup contact (McKeown & Dixon, 2017; Plant & Devine, 2003).

In Chapters 6 and 7, I presented two large-sample studies that comprehensively explored the structures of intergroup contact and intergroup climate, and the relations between contact, climate, and intergroup relations (Studies 7 and 8). These studies employed cross-sectional data relating to White people's perceptions of Black people, and non-Muslims' perceptions of Muslims, respectively. Across these two studies, data generally supported Allport's (1954) classic conceptualisation of intergroup contact as equal status, goal interdependence, cooperation, and authority sanction – however, macro authority norms loaded onto a separate factor than did the other three contact conditions. Further, across both studies, the classic contact theory model of contact as four distinct but interdependent predictors of less prejudice (Allport, 1954; Pettigrew, 1998; Pettigrew & Tropp, 2006) was supported. I also tested whether a four-factor model of intergroup climate (Figure 1.5) was viable. In each of these studies I successfully modelled intergroup climate as intergroup norms (norms of equality, cooperative interdependence, and cooperative coexistence), ingroup norms (friends norms, and family norms), and sociohistoric norms (enduring antipathy, and deep conflict). Further, these indices of intergroup climate were significantly associated with warmer outgroup attitudes, even controlling for the effects of intergroup contact – indeed, intergroup climate accounted for more of the variance in attitudes towards Blacks and Muslims than did intergroup contact. As such, this research adds to the growing body of literature (e.g., Christ et al., 2013, 2014) illustrating that the wider societal context of intergroup relations is psychologically meaningful in perceptions of, and attitudes towards, outgroups.

Some important differences in the results of Studies 7 and 8 bear consideration. First, intergroup climate moderated the effect of higher quality contact on warmer attitudes towards

Blacks, such that a cooler intergroup climate facilitated contact effects. However there was far less evidence of moderation of contact effects in non-Muslims' perceptions of Muslims. Further, whereas most intergroup climate indices did not moderate the relation between contact and attitudes towards Muslims, perceptions of climate accounted for far more of the variance in attitudes towards Muslims than in attitudes towards Blacks. These discrepancies between studies might be due to differences in the outgroups under scrutiny; for instance, anti-Black prejudice is generally accepted to be unacceptable, or at least is not socially desirable. However anti-Islamic prejudice is currently more widespread, with anti-Muslim (*vs.* anti-Black) assaults in the US currently at the highest levels since the year of the 9/11 attacks (Kishi, 2017; see also FBI, 2015). Further, anti-Islamic (*vs.* anti-Black) sentiment might be more acceptable, with Islamaphobic sentiment endorsed by some prominent world leaders (e.g., Trump, 2016). Indeed, the present studies (i.e., Studies 7 and 8) were consistent with such claims, with individuals reporting warmer intergroup attitudes and lower intergroup anxiety towards Blacks (*vs.* Muslims). Relatedly, characteristics of the different intergroup relationships might account for differences in results. The Black-White and Muslim-non-Muslim group boundaries were not symmetrical; more similar results might have been found in a Muslim-Christian relationship study. Further, cross-study comparisons might be explained by the difference in the nature of the outgroups; Blacks are often perceived as a racial outgroup, whereas Muslims are often perceived as a religious/ethnic outgroup. Given the exploratory nature of this thesis, and the fledgling state of research into intergroup climate generally, it is difficult to draw strong conclusions about the meaning – or the robustness – of the discrepancies between studies, and as such, future research should continue to test the content, effects, and boundary conditions of intergroup climate effects.

Conclusions

RQ1: What is the structure of contact? In Studies 7 and 8 (Chapters 6 and 7, respectively), results were consistent with a classic conceptualisation of contact as equal status (subsuming equal reputation and equal power), goal interdependence, cooperation, and authority sanction (Allport, 1954; Pettigrew, 1998), regarding outgroup attitudes towards Blacks and Muslims, respectively. However, results of the same studies also suggested that authority sanction – macro authority norms, specifically – was a distinct construct that might operate differently than do the contact conditions (Desforges, 199; Koschate & van Dick, 2011; Molina & Wittig; Pettigrew & Tropp, 2006). In Study 7 (Chapter 6), authority sanction was also successfully modelled as a moderator of contact effects, further supporting the position that this construct might be categorically different from other components of contact theory. Finally, in Study 6 (Chapter 5), participants who read about positive macro authority norms regarding Muslims reported more positive behavioural intentions to interact with Muslims *in future*, suggesting that authority support might actually precede contact (i.e., equal status, goal interdependence and cooperation). As such, whereas Allport's (1954) four contact conditions are implicated in optimal contact, whether authority sanction should be considered as part of the structure of contact or a precedent facilitator of contact remains a question for future research.

RQ2: What are the relations between contact conditions? In Study 1 (Chapter 2), data concerning Blacks' attitudes towards police in the UK were most consistent with either serial mediation (Figure 1.3), or a more classic 'Allportian' model of contact (Figure 1.1). Similarly, in Studies 7 and 8 (Chapters 6 and 7), data on outgroup attitudes towards Blacks and Muslims were more consistent with an Allportian model of contact. In Study 2 (Chapter 3), I found preliminary evidence that, within a minimal groups situation – that is, in a scenario stripped of salient sociohistoric norms – equal status and goal interdependence had

separate effects on perceptions of contact. Conversely, when sociohistoric norms of Police-Black relations were restored to the situation (Study 3), contact effects had an interdependent effect on perceptions of contact, thereby providing apparent support for Pettigrew and Tropp's (2006) conceptualisation of contact conditions as an "interrelated bundle" (p.2). However, under the scrutiny of a follow-up study with higher power (Study 4), and employing elaborated imagined contact methodology, these interactions were not evident. Therefore, overall the results of this thesis support an Allportian model of contact; as such, more contemporary models in which cooperation mediates contact effects (e.g., Koschate & van Dick, 2011) were not supported. However, issues of low statistical power might explain such null findings, as might the range of different relationships across which I studied these phenomena. Whereas the small number of studies within this thesis must qualify the interpretation of its results, these studies yet contribute to a large body of literature supporting Allport's (1954) conceptualisation of optimal contact as four conditions exerting independent influences on prejudice (Pettigrew, 1998; Pettigrew & Tropp, 2006). As such, traditional contact theory continues to weather the test of time.

RQ3: What is the structure of intergroup climate? In Studies 7 and 8 (Chapters 6 and 7, respectively), I employed factor analysis techniques and reliability analyses, respectively, to ascertain the structure of intergroup climate regarding Whites and Blacks, and non-Muslims and Muslims. Results were broadly consistent with my proposed four-factor model (Figure 1.5). Indicator items converged into: intergroup norms of equal status, cooperative interdependence, and cooperative coexistence; ingroup norms, comprising family norms and friends norms; and sociohistoric norms of enduring antipathy and deep conflict. Further, within these studies and Study 6 (Chapter 5), there was evidence that macro authority norms might form part of the intergroup climate. Whereas previous research specifically exploring intergroup climate has not done so within an explicit, generalisable,

multi-factor construct (Barth, 1971a, 1971b, 1974; Barth & Ace, 1971; Brown & Zagefka, 2011; Christ et al., 2013; Hewett, Watson, Gallois, Ward & Legget, 2009; see also Christ et al., 2014; Dhont & Van Hiel, 2012; Sibley et al., 2013), the present results suggest that the four-factor model of intergroup climate might be a useful starting point for future research into intergroup climate across various intergroup relationships. As such, this thesis has been successful in its goal of proposing an empirically-tested model of intergroup climate.

RQ4: Do intergroup contact and intergroup climate interact? In Study 7 (Chapter 6), there was evidence that contact effects in White-Black relations were facilitated by a *cooler* climate, across various indices. Such a finding, if supported by future research, would suggest an interesting effect of intergroup climate, and would also be an encouraging finding regarding contact. Arguably, Pettigrew's (1998) most striking contribution to contact theory was to reduce contact to its necessary (*vs.* facilitating) conditions, and as such provide a model of contact that was practical for reducing prejudice in real-world interventions. In other words, one of contact theory's most appealing qualities – perhaps the reason for the plethora of contact research (Pettigrew & Tropp, 2006) – might be its practicality. As such, and considering that contact can be particularly effective among the highly-prejudiced (Hodson, 2008), the finding of Study 7 that contact might also be most effective in cooler (*vs.* warmer) climates might be a particularly important phenomenon. Contact reduces prejudice (Pettigrew & Tropp, 2006), and perhaps moreso for the individuals, and within the relationships, that most require it.

The results of Study 8 (Chapter 7) also gave some evidence of interaction effects in non-Muslims' attitudes towards Muslims, albeit with only a single index of climate (i.e., family norms), and such that *warmer* climate facilitated contact effects. Although inconsistent with Study 7 (Chapter 6), this result is consistent with much research demonstrating the important role that other ingroup members play in intergroup relations (e.g.,

Turner et al., 2007; Pettigrew, Christ, Wagner, & Stellmacher, 2007; Wright et al., 1997). The result was also consistent with a correlational finding of a facilitating moderation effect in Study 5 (Chapter 4). However, further scientific enquiry into the role that ingroup members play across different intergroup relations might be fruitful; for instance, whereas some outgroup antipathy is driven by ingroup-outgroup boundaries (Tajfel, 1970), ideologically-based antipathy (Duckitt & Sibley, 2009) might be less amenable to improvement via changing ingroup norms. Therefore, future research is needed to explore the effects of the influence of ingroup members on prejudice, and the relations between ingroup norms (i.e., the belief that ingroup members would approve of intergroup contact) and extended contact (i.e., the knowledge that an ingroup member has engaged in intergroup contact).

In Studies 5 and 6 (Chapters 4 and 5, respectively), in which experimental methodology was employed, there was no evidence of moderation of contact effects as a function of the manipulation of ingroup norms or macro authority norms, respectively. However, intergroup climate, by its pervasive nature, might be difficult to manipulate within the lab – a claim supported by the difficulties in manipulating such constructs in Studies 2 through 6) (Chapters 3, 4, and 5). Further, even given an apparently successful manipulation, caution would be prudent when generalising such results to naturally-occurring intergroup climates. As such, longitudinal research might be a particularly useful tool in studying intergroup climate effects.

Limitations

Limitations of sample size, the constraints of cross-sectional (*vs.* experimental and longitudinal) data, and of imagined (*vs.* direct) contact have been discussed, where relevant, in specific thesis chapters. However, more general limitations of this programme of research bear consideration. First, regarding my exploration of intergroup climate, as is the case with

much contact research (see Pettigrew & Tropp, 2006) I focused on antipathetic intergroup relationships. Therefore, the extent to which the four-factor model of intergroup climate might be applied to relationships characterised by 'warm' prejudice (e.g., some forms of sexism and disablism) is unclear. It should also be noted that this thesis has conceptualised and tested intergroup climate in terms of participants' perceptions of generalised patterns of intergroup relations. However, previous research has also considered more objective measures of climate (e.g., Christ et al., 2014; Sibley et al., 2013). As such, it is unclear whether and how these phenomena (i.e., subjective and objective intergroup climate indices), might be related. For instance, macro authority norms for positive Black-White relations in the United States might be measured objectively in terms of the number of hate crime prosecutions or the allocation of resources to the prevention, detection, and punishment of such crimes. However, individuals' *perceptions* of macro authority norms might vary widely across individuals and groups (Morin & Stepler, 2016). If the 'objective' structure of intergroup climate drives behaviour, then intergroup relations can be improved through social and political change, yet if the 'subjective' (i.e., personally-perceived) climate drives behaviour, and if perceptions of intergroup climate are not closely related to objective climate, then more complex psychological interventions – targeting the precursors to climate *perception* – are required. As such, further research is needed to ascertain how intergroup climate is formed at the level of the individual. The relevant processes are likely to involve local demography, given that location is a large predictor of prejudice (Christ et al., 2013, 2014; Sibley et al., 2013). Further, exposure to mass media is likely to be implicated in perceptions of intergroup climate (Nelson, Clawson & Oxley, 1997; Paluck, 2009), with the consumption of, or attention to, different media outlets (e.g., specific newspapers or news channels) creating – and perpetuating – the perception of different intergroup climates. Further, online social media might be a powerful precursor and perpetuator of perceptions of

intergroup climate, as individuals seek out opinions and ‘facts’ that support their existing beliefs regarding the wider intergroup relationship (i.e,. confirmation bias; Nickerson, 1998). Indeed, study of the role of ‘fake news’ in intergroup climate might be fruitful given its possible role in modern day politics (e.g., Allcott & Gentzkow, 2017; Gross, 2017). None of these potential precursors to climate have been explored within this thesis. Finally, whereas the results of this thesis provide preliminary insight into the composition and effects of intergroup climate, the programme is composed of relatively few studies, and as such is not sufficient to establish cause and effect with any high degree of confidence. As such, much further research will be needed to develop this field. I next consider future directions of this avenue of research.

Future Directions

Authority sanction. As previously alluded within this thesis, Allport (1954) stated that the positive sanction of a relevant authority was crucial to maximising contact effects, a position that has received empirical support (Pettigrew & Tropp, 2006). However, consensus on the precise definition of such sanction, which Allport theorised to encompass institutional, legal, and traditional (i.e., social custom) prescriptive norms for intergroup relations, has been fleeting in the contact literature (see Chapter 1 for discussion of these issues). As such, within this thesis, I conceptualise authority sanction in terms of contact-level *authority support* and climate-level *macro authority norms* (Figure 1.5.1), with results indicating that macro authority norms are germane to intergroup relations and may moderate the relation between higher quality contact and warmer intergroup attitudes. Whereas it is the position of this author that Allport’s (1954) concept of authority sanction was in fact more conceptually aligned with macro authority norms, contact literature has traditionally been concerned with authority support. The extent to which these two aspects of authority sanction are psychologically distinct, and that each are uniquely germane to contact, was not explored

within this thesis; rather, results have illustrated that macro authority norms specifically might be germane to intergroup relations, and might moderate the effects of contact. As such, future research is needed to further refine the concept of authority sanction.

A number of specific research questions emerge from this thesis regarding authority sanction, and each might represent a useful avenue for future enquiry. First, whereas I have illustrated that climate-level authority sanction (macro authority norms) is psychologically meaningful, research is needed to test whether such perceptions are distinct from contact-level authority sanction (authority support). Second, future research should consider the potentially differential effects on intergroup relations of positive authority sanction (i.e., messages emphasising beneficial results of good contact) and negative authority sanction (i.e., messages emphasising negative results of bad contact) (e.g., West & Greenland, 2016). Relatedly, a third avenue for future research into authority sanction is to explore the differential effects of authority *opposition* (*vs.* sanction) to good intergroup relations (e.g., laws against homosexuality, or legal persecution of certain religious groups) given that positive and negative contact (and, possibly, climate) may have separate effects (Barlow et al., 2012). Fourth, in many intergroup relationships, various authorities will be 'relevant' to the behaviour and attitudes of group members, and as such, the relative impact of different authorities should be considered; the use of advanced analysis techniques such as multi-level modelling are likely to be invaluable in this pursuit. Therefore, much future research is needed to progress the understanding of the structure, composition, and effects of authority sanction.

Mediation, moderation, and conditional processes. Social scientists are employing increasingly sophisticated analysis techniques as technology increases the scope of research. For instance, with the continual increase in the processing power of modern computers, and the proliferation of new platforms for recruitment and participation such as Facebook and

MTurk, researchers have the capability to collect large datasets faster than ever before, and to analyse such data with greater ease, with more robust techniques. As such, far greater statistical power can be achieved, and appropriate sample sizes for mediation, moderation, and conditional process analyses are ever more viable in exploratory research. The processes involved in intergroup relations generally, and intergroup contact and intergroup climate specifically – processes that are likely to be quite complex – can thus be interrogated in future research. Of course, there is a balance to be struck between computing models that are specific enough to be informative yet simple enough to be of practical value (see Pettigrew, 1998, for a similar argument on the structure of contact). To reiterate, exploring the processes of contact and climate will become easier over the coming decade, and as such prejudice researchers should continue to test ever more intricate models, with due regard to the previous caveat.

Exploring the relation between contact and climate: Mediated moderation. One specific avenue for further exploration might be uncovering *why* and *how* the interaction of intergroup contact and intergroup climate might relate to prejudice, insofar as future attempts to replicate moderation effects are fruitful. Whereas I employed moderated mediation analyses within this thesis, such a question might instead be answered by means of mediated moderation. In other words, a test might be made of whether certain constructs mediate the relation between the product of intergroup contact and intergroup climate, and outgroup attitudes. Figure 8.1 illustrates such a model. Several potential mediators of this effect present themselves. Within positive (*vs.* negative) intergroup climates, group membership might be less salient, making good and bad contact less likely to generalise (Brewer, 1996). Further, in such intergroup climates, there might be more likelihood that superordinate group memberships are salient ("You're White and I'm Black, and *we're* British"; e.g., Torelli et al., 2014), again reducing the perception of contact as intergroup (*vs.* interpersonal). There may

simply be lower intergroup anxiety in positive (*vs.* negative) intergroup climates, thus inhibiting one of the most powerful pathways by which contact reduces prejudice (Tropp & Pettigrew, 2005). The testing of such possibilities might be a productive avenue for future research into the relation between contact and intergroup climate.

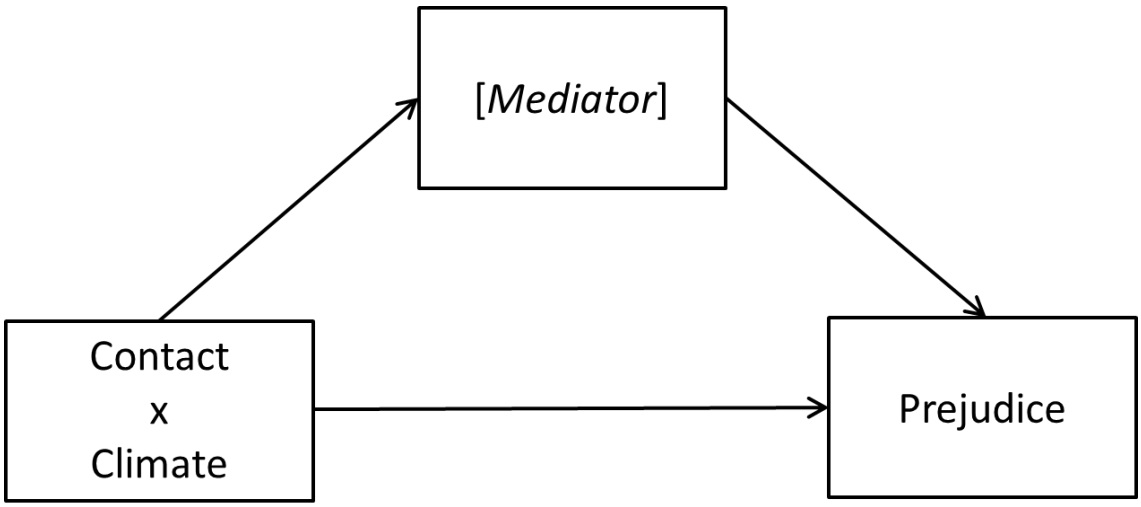

Figure 8.1. Conceptual model of the effects of contact and climate on prejudice, via mediated moderation.

Individual differences, and moderated moderation. The present thesis considered moderation effects: under what circumstances does higher quality contact reduce prejudice? Findings indicated that, at least regarding White-Black relations, higher quality contact was more strongly associated with less prejudice when the prevailing intergroup relationship was more negative, perhaps because good contact was more transformational. But *for whom* does good contact within a 'bad' intergroup environment reduce prejudice? The role of individual differences was left largely unexplored within the present thesis, and will be an interesting avenue for future research. For instance, individuals high (*vs.* low) in right-wing authoritarianism might benefit more from an intergroup climate in which more (*vs.* less) positive macro authority norms are salient, because such individuals are motivated to submit to legitimate authority (Altemeyer, 1998). However, individuals high in social dominance

orientation – who react negatively to perceived threats to their relative privilege (Pratto et al., 1994) – might instead have more negative reactions to such macro authority norms. Further, individuals high in intergroup-disgust sensitivity, who fear social contamination following contact with certain outgroups (Hodson et al., 2013) might respond particularly well to good contact within a climate of positive ingroup norms as such norms might reduce the threat of ostracism or stigma from intergroup contact. These considerations are currently purely speculative, but illustrate the possible complexities of the relation between intergroup climate, intergroup contact, and intergroup relations. As noted in the previous subsection, technological advances make the testing of such models increasingly viable.

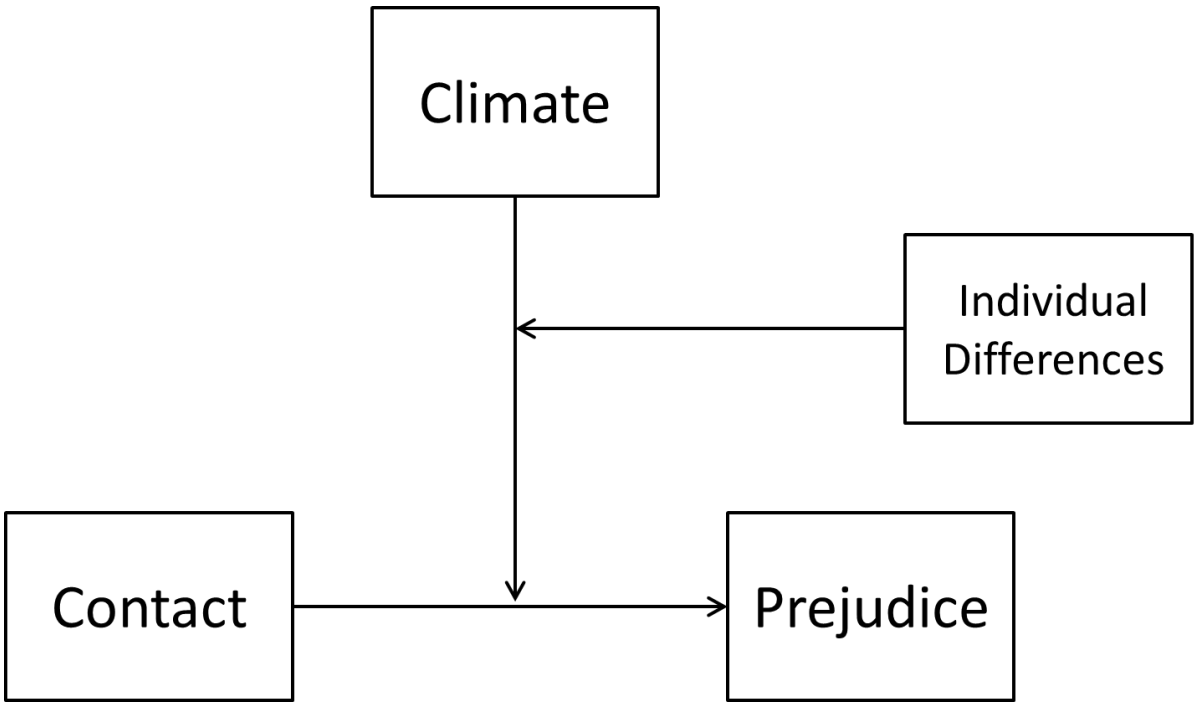

Figure 8.2. Conceptual model of the effect of contact on prejudice, with moderation effect of intergroup climate moderated by individual differences.

Taxonomies of intergroup relationships. The inconsistencies in the results of Studies 7 and 8 (Chapters 6 and 7, respectively) of this thesis raised questions as to whether different intergroup relationships are explained by different models of intergroup contact and

intergroup climate. As such, exploring the dimensions by which intergroup relationships differ might be useful to the future of contact research. Notwithstanding the similar scores across Studies 7 and 8 regarding perceptions of sociohistoric norms, do relatively 'new' intergroup antipathies (e.g., non-Muslims *vs.* Muslims) operate differently to 'established' intergroup antipathies (e.g., Black *vs.* White)? Do racial antipathies (e.g., Black/White *vs.* Asian/White) follow similar processes to one another? What of ethnic antipathies (e.g., Hutu/Tutsi *vs.* Anglophile/Francophile Canadians), or religious antipathies (e.g., Atheists/Christians *vs.* Muslims/Hindus)? Exploring models of contact and intergroup climate across a range of relationships might reveal generalisable patterns that serve to clarify the processes involved in perpetuating – or ameliorating – such antipathies.

Intergroup contact: Predictor or moderator? Within the present thesis, I considered intergroup climate as a moderator of contact, finding some evidence for the possibility that the effect of higher quality contact on warmer intergroup attitudes was stronger when perceptions of the intergroup climate were less (*vs.* more) positive. However, these findings in Studies 7 and 8 (Chapters 6 and 7, respectively) were cross-sectional, and predictor and moderator variables are statistically – and often conceptually – interchangeable. Thus, it might equally be stated that results indicated that the effect of warmer intergroup climate on warmer intergroup attitudes was stronger when personal intergroup contact was less (*vs.* more) positive. As such, just as good contact might be most effective at reducing prejudice among individuals perceiving a negative state of general intergroup relations, so might a warm intergroup climate be most effective at reducing prejudice among individuals who experience poor contact with outgroup members. For instance, Dhont and Hiel (2012) found that the relation between parents' higher authoritarianism and adolescents' higher racial prejudice was buffered by higher levels of intergroup contact among the adolescents. In other words, the intergenerational transmission of prejudice – arguably an effect of intergroup

climate (i.e., ingroup norms) – might have been weaker among adolescents who personally experienced contact. This finding is consistent with the claim that intergroup contact moderates the effects of intergroup climate on intergroup attitudes. Such possibilities of exploring contact as a moderator of intergroup climate effects is potentially encouraging to prejudice-reduction practitioners, and informative to prejudice researchers. Further, the consideration of contact as a moderator of climate might lead to new perspectives and insights into these important phenomena. Therefore, even as contact researchers might consider the moderating effect of intergroup climate on contact effects, so might climate researchers consider the moderating effect of intergroup contact on climate effects.

Relations between intergroup climate indices. Within this thesis I explored the content of intergroup climate. However, just as intergroup contact researchers are testing the relations between contact conditions (e.g., Koschate & van Dick, 2011; Molina & Wittig, 2006), so might future research consider the relations between indices of intergroup climate. At this preliminary step in intergroup climate research, I conceptualised indices of climate as independent facets of a single structure, but more complex models of climate are possible. For instance, by definition, sociohistoric norms, concerned as they are with perceptions of the historical relationship between groups, are likely to lead to intergroup norms and ingroup norms. The testing of such models will be challenging, requiring experimental or longitudinal research and large sample sizes. Further, attempts to accurately model climate constructs must account for shared variance between different levels of intergroup climate, such as micro (e.g., individual beliefs) and macro-climates (e.g., geographical aggregates of intergroup relation constructs); as such the use of multi-level modelling is likely to be beneficial. However, with a small, but growing, number of studies suggesting that intergroup climate might be a powerful cause of prejudice, the effort required to better understand its structure and processes will be a worthy focus for future research.

Conclusion

In this thesis, I have tested various models of intergroup contact, finding that, whereas more complex models might explain the effects of higher quality contact on warmer intergroup attitudes, a more traditional model based on classic contact theory explained the data equally well. Further, I demonstrated that intergroup climate might be conceptualised as a four-factor construct, consisting of intergroup norms, ingroup norms, macro authority norms, and sociohistoric norms. Whereas this model will undoubtedly require modification as a result of future research, it nonetheless provides a framework within which intergroup climate might be studied across different intergroup relationships. As such, it is my hope that the model of intergroup climate presented in this thesis will form the basis of future exploration of intergroup relations. Relatedly, I presented results that suggest that intergroup climate is at least as important to intergroup relations as is personally-experienced intergroup contact. Finally, I have presented preliminary evidence that the effect of contact on intergroup attitudes might, in some cases, depend upon perceptions of the intergroup climate. Contact theory has framed much of the research into prejudice reduction over the last six decades, and its boundary and facilitating conditions are currently under scrutiny by many social scientists. As such, the results of this thesis highlight another avenue that may be of interest to prejudice researchers, exploring as it has the moderating effect of intergroup climate on the prejudice-reducing effects of intergroup contact.

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APPENDIX A: MEASURES FOR ALL THESIS STUDIES

All response scales are from 1-*Strongly Disagree* to 7-*Strongly Agree*, unless otherwise stated. Items in italics are reverse-coded, such that higher scores on a scale indicate higher levels of the construct. Variable names follow each variable, in parentheses. Items have shown reliable when employed to test relations between: Black people and White people; Straight people and Gay Men/Lesbians; Muslims and non-Muslims.

Intergroup Contact Items

Equal reputation

Thinking about times I have met with BLACK PEOPLE…

… we have had the same social status (stat1)

… neither of us was viewed as more important than the other (stat2)

... there were differences in our social status (stat3)

Equal power

Thinking about times I have met with BLACK PEOPLE…

… neither of us had more influence than the other (pow1)

… an observer would not be able to tell which of us was in charge (pow2)

...it has been clear that there is unequal power between us (pow3)

Goal interdependence

Thinking about times I have met with BLACK PEOPLE…

… we have been trying to achieve the same things (gi1)

… we've both been able to get what we wanted (gi2)

... we wanted totally different things out of the situation (gi3)

Cooperation

Thinking about times I have met with BLACK PEOPLE…

… we've been able to work together just fine (coop1)

… I did not have any problems working with them (coop2)

... we just weren't able to cooperate (coop3)

Macro authority norms

The law dictates that Black people and White people should be treated fairly and without bias (law1)

The law does not favour either Black people or White people (law2)

The law ensures that decisions that affect both White people and Black people are based on facts, not personal biases and opinions (law3)

The law is equally fair to Black people and White people (law4)

Whether dealing with Black people or White people, the decisions of local authorities are fair and unbiased (auth1)

Local authorities apply the law consistently when dealing with Black people and White people (auth2)

Local authorities' decisions affecting White people and Black people are made based on facts, not personal biases and opinions (auth3)

Local authorities are equally fair to Black people and White people (auth4)

Intergroup Climate Items

Intergroup norms

Intergroup norms of equal status

Please use the scale below to rate your agreement with the following statements regarding the relationship between BLACK PEOPLE AND WHITE PEOPLE IN GENERAL:

Black people and White people have the same social standing (igstat1)

Black people and White people are seen as equals in society (igstat2)

Black people and White people are generally seen as having a different social status (igstat3)

Intergroup norms of equal power

Please use the scale below to rate your agreement with the following statements regarding the relationship between BLACK PEOPLE AND WHITE PEOPLE IN GENERAL:

Overall, Black people and White people have the same power in society (igpow1)

There are clear differences in the amount of power that White people and Black people have (igpow2)

There are differences between White people and Black people in terms of the power they ave in society (igpow3)

Intergroup norms of goal interdependence

Please use the scale below to rate your agreement with the following statements regarding the relationship between BLACK PEOPLE AND WHITE PEOPLE IN GENERAL:

The bottom line is that Black people and White people want fundamentally different things (iggi1)

Black people can only achieve their goals if White people do not achieve their goals (iggi2)

Black people want the same things in life as White people (iggi3)

The goals of Black people and White people are complimentary (iggi4)

Intergroup norms of cooperation

Please use the scale below to rate your agreement with the following statements regarding the relationship between [BLACK PEOPLE AND WHITE PEOPLE IN GENERAL]:

There is generally cooperation between White people and Black people in society (igcoop1)

Black people and White people would refuse to work together (igcoop2)

Black people and White people do not make an effective team (igcoop3)

Global intergroup norms

Please use the scale below to rate your agreement with the following statements regarding the relationship between [BLACK PEOPLE AND WHITE PEOPLE IN GENERAL]:

Contact between White people and Black people tends to be good rather than bad (igglob1)

When Black people and White people come together, things are fine (igglob2)

The evidence is clear that Black people and White people don't get along well (igglob3)

Black people and White people seem to end up fighting all the time (igglob4)

Ingroup norms

Friends norms

My friends would approve of me being good friends with Black people (friends1)

My friends would expect me to treat Black people with respect (friends2)

My friends would get along well with Black people (friends3)

My friends would be angry if they learned that I was getting close to Black people (friends4)

My friends are not too keen on Black people (friends5)

My friends would be disappointed if I had sexual relations with a Black person (friends6)

Family norms

My family would approve of me being good friends with Black people (family1)

My family would expect me to treat Black people with respect (family2)

My family would get along well with Black people (family3)

My family would be angry if they learned I was getting close to Black people (family4)

My family are not too keen on Black people (family5)

My family would be disappointed if I had sexual relations with a Black person (family6)

Sociohistoric norms

There is a history of intense conflict between Black people and White people (sochis1)

White people and Black people have never gotten along well (sochis2)

The conflict between Black people and White people is deep-seated (sochis3)

The fundamental issues between Black people and White people have not changed in a long time (sochis4)

The issues between Black people and White people go around in circles (sochis5)

Nobody can remember a time when Black people and White (sochis6)

RIGHT-WING AUTHORITARIANISM (RWA) SCALE
(ALTEMEYER, 1996)

Please circle your response, using the scale below.

1	2	3	4	5	6	7
Strongly Disagree	**Moderately Disagree**	**Slightly Disagree**	**Neither Disagree Nor Agree**	**Slightly Agree**	**Moderately Agree**	**Strongly Agree**

1. Gays and lesbians are just as healthy and moral as anybody else.
1 2 3 4 5 6 7

2. Atheists and others who have rebelled against the established religions are no doubt every bit as good and virtuous as those who attend church regularly.
1 2 3 4 5 6 7

3. There are many radical, immoral people in our country today who are trying to ruin it for their godless purposes, whom the authorities should put out of action.
1 2 3 4 5 6 7

4. Our country will be destroyed someday if we do not smash the perversions eating away at our moral and traditional beliefs.
1 2 3 4 5 6 7

5. The situation in our country is getting so serious, the strongest methods would be justified if they eliminated the troublemakers and got us back to our true path.
1 2 3 4 5 6 7

6. Everyone should have their own lifestyle, religious beliefs, and sexual preferences, even if it makes them different from everyone else.
1 2 3 4 5 6 7

7. People should pay less attention to the Bible and the other old traditional forms of religious guidance, and instead develop their own personal standards of what is moral and immoral.
1 2 3 4 5 6 7

8. The only way our country can get through the crisis ahead is to get back to our traditional values, put some tough leaders in power, and silence the troublemakers spreading bad ideas.
1 2 3 4 5 6 7

9. There is nothing wrong with premarital sexual intercourse.
1 2 3 4 5 6 7

10. What our country *really* needs, instead of more "civil rights" is a good, stiff dose of law and order.
1 2 3 4 5 6 7

11. Some of the best people in our country are those who are challenging our government, criticizing religion, and ignoring the "normal way" things are supposed to be done.
1 2 3 4 5 6 7

12. The facts on crime, sexual immorality, and the recent public disorders all show that we have to crack down harder on deviant groups and trouble-makers if we are going to save our moral standards and preserve law and order.
1 2 3 4 5 6 7

SOCIAL DOMINANCE ORIENTATION (SDO) SCALE
(PRATTO ET AL., 1994)

Below are a series of statements with which you may either agree or disagree. For each statement, please indicate the degree of your agreement or disagreement by writing in a number from 1 to 7 on the line next to it. Please remember that there are no right or wrong answers, and that your first responses are usually the most accurate.

Do not agree at all	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Strongly Agree**

	(1 to 7)
Some groups of people are just more worthy than others.	____
We should do what we can to equalize conditions for different groups.	____
In getting what your group wants, it is sometimes necessary to use force against other groups.	____
If certain groups of people stayed in their place, we would have fewer problems.	____
We would have fewer problems if we treated different groups more equally.	____
To get ahead in life, it is sometimes necessary to step on other groups.	____
No one group should dominate in society.	____
Group equality should be our ideal.	____
All groups should be given an equal chance in life.	____
We must increase social equality.	____
Superior groups should dominate inferior groups.	____
It's probably a good thing that certain groups are at the top and other groups are at the bottom.	____
We must strive to make incomes more equal.	____
Sometimes other groups must be kept in their place.	____
It would be good if all groups could be equal.	____
Inferior groups should stay in their place.	____

Intergroup Anxiety (Stephan & Stephan, 1985)

If I were in a group of [OG], I would feel:

	Not at all						**Extremely**
	-3	**-2**	**-1**	**0**	**+1**	**+2**	**+3**
… awkward	-3	-2	-1	0	+1	+2	+3
… self-conscious	-3	-2	-1	0	+1	+2	+3
… happy	-3	-2	-1	0	+1	+2	+3
… accepted	-3	-2	-1	0	+1	+2	+3
… confident	-3	-2	-1	0	+1	+2	+3
… irritated	-3	-2	-1	0	+1	+2	+3
… impatient	-3	-2	-1	0	+1	+2	+3
… defensive	-3	-2	-1	0	+1	+2	+3
… suspicious	-3	-2	-1	0	+1	+2	+3
… careful	-3	-2	-1	0	+1	+2	+3

Intergroup Attitudes

Please indicate your attitude toward the following groups by placing an "X" in the appropriate box. The rating scale resembles values on a **thermometer**. Lower values are used to indicate unfavourable attitudes (i.e., dislike of the group), and higher numbers are used to indicate favourable attitudes (i.e., liking of the group).

	extremely unfavourable									extremely favourable
	0-10º	11-20º	21-30º	31-40º	41-50º	51-60º	61-70º	71-80º	81-90º	91-100º
Aristocrats	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Black people	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Muslims	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Gay men	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Lesbians	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Muslims	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Straight men	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Straight women	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
White people	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

APPENDIX B: CROSS-STUDY ANALYSIS OUTPUT FOR STUDIES 2 & 3 OF CHAPTER 3

Tests of Between-Subjects Effects

Dependent Variable: Rule Enforcement Work

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	217.505[a]	15	14.500	4.596	.000
Intercept	4222.418	1	4222.418	1338.362	.000
Study	137.655	1	137.655	43.632	.000
eqsce	38.753	1	38.753	12.283	.001
goalsce	.550	1	.550	.174	.677
rolesce	1.568	1	1.568	.497	.482
Study * eqsce	11.211	1	11.211	3.553	.061
Study * goalsce	1.101	1	1.101	.349	.556
Study * rolesce	.268	1	.268	.085	.771
eqsce * goalsce	9.384	1	9.384	2.974	.086
eqsce * rolesce	1.743	1	1.743	.552	.458
goalsce * rolesce	.100	1	.100	.032	.859
Study * eqsce * goalsce	.438	1	.438	.139	.710
Study * eqsce * rolesce	9.764	1	9.764	3.095	.080
Study * goalsce * rolesce	.877	1	.877	.278	.599
eqsce * goalsce * rolesce	2.337	1	2.337	.741	.391
Study * eqsce * goalsce * rolesce	3.606	1	3.606	1.143	.287
Error	517.406	164	3.155		
Total	5376.000	180			
Corrected Total	734.911	179			

a. R Squared = .296 (Adjusted R Squared = .232)

Tests of Between-Subjects Effects

Dependent Variable: Service Delivery Work

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	121.603[a]	15	8.107	2.226	.007
Intercept	2555.914	1	2555.914	701.767	.000
Study	59.236	1	59.236	16.264	.000
rolesce	28.199	1	28.199	7.742	.006
eqsce	2.307	1	2.307	.633	.427
goalsce	3.582	1	3.582	.983	.323
Study * rolesce	.505	1	.505	.139	.710
Study * eqsce	3.402	1	3.402	.934	.335
Study * goalsce	1.144	1	1.144	.314	.576
rolesce * eqsce	7.187	1	7.187	1.973	.162
rolesce * goalsce	4.184	1	4.184	1.149	.285
eqsce * goalsce	.017	1	.017	.005	.946
Study * rolesce * eqsce	.598	1	.598	.164	.686
Study * rolesce * goalsce	1.029	1	1.029	.282	.596
Study * eqsce * goalsce	.277	1	.277	.076	.783
rolesce * eqsce * goalsce	1.634	1	1.634	.449	.504
Study * rolesce * eqsce * goalsce	.695	1	.695	.191	.663
Error	611.875	168	3.642		
Total	3306.000	184			
Corrected Total	733.478	183			

a. R Squared = .166 (Adjusted R Squared = .091)

Tests of Between-Subjects Effects

Dependent Variable: eqstat

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	89.558[a]	15	5.971	2.781	.001
Intercept	544.030	1	544.030	253.382	.000
Study	12.481	1	12.481	5.813	.017
rolesce	.271	1	.271	.126	.723
eqsce	47.290	1	47.290	22.025	.000
goalsce	2.450	1	2.450	1.141	.287
Study * rolesce	.849	1	.849	.395	.530
Study * eqsce	.611	1	.611	.285	.594
Study * goalsce	5.892	1	5.892	2.744	.099
rolesce * eqsce	2.434	1	2.434	1.133	.289
rolesce * goalsce	8.613	1	8.613	4.011	.047
eqsce * goalsce	.367	1	.367	.171	.680
Study * rolesce * eqsce	1.348	1	1.348	.628	.429
Study * rolesce * goalsce	.993	1	.993	.463	.497
Study * eqsce * goalsce	3.215	1	3.215	1.498	.223
rolesce * eqsce * goalsce	.403	1	.403	.188	.665
Study * rolesce * eqsce * goalsce	.271	1	.271	.126	.723
Error	362.856	169	2.147		
Total	1000.750	185			
Corrected Total	452.414	184			

a. R Squared = .198 (Adjusted R Squared = .127)

Tests of Between-Subjects Effects

Dependent Variable: goalint

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	88.133[a]	15	5.876	4.984	.000
Intercept	2550.843	1	2550.843	2163.736	.000
Study	4.535	1	4.535	3.847	.052
rolesce	.273	1	.273	.231	.631
eqsce	.240	1	.240	.203	.653
goalsce	36.638	1	36.638	31.078	.000
Study * rolesce	.004	1	.004	.004	.951
Study * eqsce	.658	1	.658	.558	.456
Study * goalsce	6.491	1	6.491	5.506	.020
rolesce * eqsce	.894	1	.894	.759	.385
rolesce * goalsce	.195	1	.195	.165	.685
eqsce * goalsce	8.353	1	8.353	7.086	.009
Study * rolesce * eqsce	1.388	1	1.388	1.177	.279
Study * rolesce * goalsce	.011	1	.011	.010	.922
Study * eqsce * goalsce	23.945	1	23.945	20.311	.000
rolesce * eqsce * goalsce	.004	1	.004	.004	.951
Study * rolesce * eqsce * goalsce	.228	1	.228	.194	.660
Error	193.341	164	1.179		
Total	2876.875	180			
Corrected Total	281.474	179			

a. R Squared = .313 (Adjusted R Squared = .250)

APPENDIX C: SUPPLEMENTARY HIERARCHICIAL REGRESSION ANALYSIS OF THE EFFECT OF CONTACT, CLIMATE INDICES, AND INTERACTIONS, ON ATTITUDES TOWARDS BLACKS

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.464[a]	.215	.214	2.05731	.215	162.431	1	593	.000
2	.617[b]	.380	.372	1.83886	.165	22.322	7	586	.000
3	.619[c]	.383	.367	1.84519	.003	.427	7	579	.886

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	687.491	1	687.491	162.431	.000[b]
	Residual	2509.883	593	4.233		
	Total	3197.374	594			
2	Regression	1215.863	8	151.983	44.946	.000[c]
	Residual	1981.511	586	3.381		
	Total	3197.374	594			
3	Regression	1226.038	15	81.736	24.007	.000[d]
	Residual	1971.336	579	3.405		
	Total	3197.374	594			

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Correlations Zero-order	Correlations Partial	Correlations Part
1	(Constant)	7.428	.084		88.071	.000			
	Zscore(qualcontact) all quality of contact items	1.076	.084	.464	12.745	.000	.464	.464	.464
2	(Constant)	7.428	.075		98.533	.000			
	Zscore(qualcontact) all quality of contact items	.426	.109	.183	3.902	.000	.464	.159	.127
	Zscore: family	.328	.096	.141	3.423	.001	.430	.140	.111
	Zscore: friends	.296	.117	.128	2.532	.012	.503	.104	.082
	Zscore: coop int.	.377	.133	.163	2.844	.005	.533	.117	.093
	Zscore: enduring apathy	-.110	.109	-.047	-1.003	.316	-.368	-.041	-.033
	Zscore: coop coex	.351	.110	.151	3.204	.001	.407	.131	.104
	Zscore: norms of eq.	-.463	.093	-.200	-5.005	.000	-.001	-.202	-.163
	Zscore: deep conflict	-.126	.092	-.054	-1.374	.170	-.085	-.057	-.045
3	(Constant)	7.438	.086		86.352	.000			
	Zscore(qualcontact) all quality of contact items	.400	.113	.172	3.531	.000	.464	.145	.115
	Zscore: family	.324	.098	.140	3.320	.001	.430	.137	.108
	Zscore: friends	.335	.129	.145	2.607	.009	.503	.108	.085
	Zscore: coop int.	.377	.138	.162	2.723	.007	.533	.112	.089
	Zscore: enduring apathy	-.111	.111	-.048	-.999	.318	-.368	-.041	-.033
	Zscore: coop coex	.345	.112	.149	3.072	.002	.407	.127	.100
	Zscore: norms of eq.	-.453	.102	-.195	-4.426	.000	-.001	-.181	-.144
	Zscore: deep conflict	-.125	.093	-.054	-1.338	.182	-.085	-.056	-.044
	conXfam	-.091	.092	-.054	-.994	.321	-.296	-.041	-.032
	conXfriends	.121	.094	.088	1.281	.201	-.309	.053	.042
	conXcoopint	-.017	.127	-.011	-.134	.894	-.320	-.006	-.004
	conXendapa	.029	.105	.015	.276	.783	.216	.011	.009
	conXcoopex	-.024	.112	-.015	-.211	.833	-.243	-.009	-.007
	conXequal	-.019	.104	-.009	-.185	.853	-.171	-.008	-.006
	conXdeep	.034	.087	.015	.386	.700	.042	.016	.013

a. Dependent Variable: warmblack

APPENDIX D: CONDITIONAL PROCESS OUTPUT FOR CHAPTER 6, WITH MODERATION BY NORMS OF EQUALITY

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Release 2.11 ****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 59
    Y = warmblac
    X = qualcont
    M = itganx
    W = C2F1

Sample size
        595

**************************************************************************
Outcome: itganx

Model Summary
          R       R-sq          F        df1        df2          p
      .5198      .2702    72.9307     3.0000   591.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     6.1286      .5219    11.7419      .0000     5.1035     7.1537
qualcont     -.5386      .0915    -5.8897      .0000     -.7183     -.3590
C2F1          .2015      .1639     1.2297      .2193     -.1203      .5234
int_1        -.0322      .0274    -1.1752      .2404     -.0859      .0216

Interactions:

 int_1    qualcont    X     C2F1

**************************************************************************
Outcome: warmblac

Model Summary
          R       R-sq          F        df1        df2          p
      .6584      .4335    90.1440     5.0000   589.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     6.9519     1.2961     5.3637      .0000     4.4063     9.4975
itganx       -.9556      .1481    -6.4538      .0000    -1.2464     -.6648
qualcont      .7594      .1743     4.3563      .0000      .4170     1.1017
int_2         .0014      .0390      .0361      .9712     -.0751      .0779
C2F1          .2669      .3782      .7059      .4805     -.4758     1.0097
int_3        -.0822      .0514    -1.5993      .1103     -.1830      .0187

Interactions:

 int_2    itganx      X     C2F1
 int_3    qualcont    X     C2F1

******************* DIRECT AND INDIRECT EFFECTS ************************

Conditional direct effect(s) of X on Y at values of the moderator(s):
       C2F1     Effect         SE          t          p       LLCI       ULCI
     1.8887      .6042      .1006     6.0067      .0000      .4066      .8017
     3.4112      .4791      .0865     5.5386      .0000      .3092      .6490
     4.9337      .3540      .1307     2.7089      .0069      .0974      .6107
```

```
Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator
             C2F1     Effect    Boot SE   BootLLCI   BootULCI
itganx     1.8887      .5712      .0776      .4276      .7323
itganx     3.4112      .6164      .0614      .5048      .7467
itganx     4.9337      .6615      .0971      .4821      .8642

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

******************** ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
    10000

Level of confidence for all confidence intervals in output:
    95.00
```

APPENDIX E: CONDITIONAL PROCESS OUTPUT FOR CHAPTER 6, WITH MODERATION BY COOPERATIVE INTERDEPENDENCE

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Release 2.11 ****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 59
    Y = warmblac
    X = qualcont
    M = itganx
    W = C1F3

Sample size
        595

**************************************************************************
Outcome: itganx

Model Summary
          R       R-sq          F        df1        df2          p
      .6060      .3672   114.3234     3.0000   591.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     6.0135      .7341     8.1921      .0000     4.5718     7.4552
qualcont      .0052      .1525      .0341      .9728     -.2944      .3048
C1F3         -.1704      .1429    -1.1923      .2336     -.4511      .1103
int_1        -.0574      .0267    -2.1490      .0320     -.1099     -.0049

Interactions:

 int_1    qualcont    X     C1F3

**************************************************************************
Outcome: warmblac

Model Summary
          R       R-sq          F        df1        df2          p
      .6767      .4580    99.5242     5.0000   589.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant    10.3003     2.2483     4.5815      .0000     5.8848    14.7159
itganx      -1.9056      .2789    -6.8328      .0000    -2.4534    -1.3579
qualcont      .3485      .2944     1.1838      .2370     -.2297      .9267
int_2         .1884      .0478     3.9391      .0001      .0945      .2823
C1F3         -.2153      .4151     -.5188      .6041    -1.0306      .5999
int_3        -.0233      .0534     -.4371      .6622     -.1282      .0815

Interactions:

 int_2    itganx      X     C1F3
 int_3    qualcont    X     C1F3

******************** DIRECT AND INDIRECT EFFECTS ************************

Conditional direct effect(s) of X on Y at values of the moderator(s):
       C1F3     Effect         SE          t          p       LLCI       ULCI
     4.5815      .2416      .0984     2.4547      .0144      .0483      .4349
```

```
     5.7078      .2153      .0954     2.2577      .0243      .0280      .4026
     6.8341      .1890      .1254     1.5067      .1324     -.0574      .4354

Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator
             C1F3     Effect    Boot SE   BootLLCI   BootULCI
itganx     4.5815      .2689      .0681      .1435      .4122
itganx     5.7078      .2678      .0545      .1677      .3844
itganx     6.8341      .2394      .0570      .1387      .3628

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

******************** ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
    10000

Level of confidence for all confidence intervals in output:
    95.00

------ END MATRIX -----
```

Statistics

diff

N	**Valid**	**10000**
	Missing	**0**
Percentiles	**2.5**	**-.0250**
	97.5	**-.0014**

APPENDIX F: CONDITIONAL PROCESS OUTPUT FOR CHAPTER 6, WITH MODERATION BY COOPERATIVE COEXISTENCE

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Release 2.11 ****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 59
    Y = warmblac
    X = qualcont
    M = itganx
    W = C1F5

Sample size
        595

**************************************************************************
Outcome: itganx

Model Summary
          R       R-sq          F        df1        df2          p
      .5647      .3189    92.2367     3.0000   591.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     6.0299      .6283     9.5969      .0000     4.7959     7.2640
qualcont     -.2589      .1206    -2.1460      .0323     -.4957     -.0220
C1F5         -.0115      .1409     -.0818      .9349     -.2883      .2653
int_1        -.0469      .0249    -1.8841      .0600     -.0957      .0020

Interactions:

 int_1    qualcont    X     C1F5

**************************************************************************
Outcome: warmblac

Model Summary
          R       R-sq          F        df1        df2          p
      .6700      .4489    95.9462     5.0000   589.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant    11.1425     1.8398     6.0564      .0000     7.5291    14.7559
itganx      -1.8765      .2198    -8.5390      .0000    -2.3081    -1.4449
qualcont      .3315      .2390     1.3873      .1659     -.1378      .8008
int_2         .2007      .0439     4.5748      .0000      .1145      .2869
C1F5         -.5393      .3941    -1.3686      .1717    -1.3132      .2346
int_3         .0031      .0509      .0600      .9522     -.0970      .1031

Interactions:

 int_2    itganx      X     C1F5
 int_3    qualcont    X     C1F5
```

```
******************** DIRECT AND INDIRECT EFFECTS *************************

Conditional direct effect(s) of X on Y at values of the moderator(s):
       C1F5     Effect         SE          t          p       LLCI
ULCI
     3.7871      .3431      .0907
     3.7826      .0002      .1649      .5212
     4.9980      .3468      .0911
     3.8055      .0002      .1678      .5258
     6.2088      .3505      .1265
     2.7716      .0058      .1021      .5988

Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator
             C1F5     Effect    Boot SE   BootLLCI   BootULCI
itganx     3.7871      .4872      .0705      .3572      .6345
itganx     4.9980      .4307      .0571      .3234      .5499
itganx     6.2088      .3466      .0683      .2286      .4989

Values for quantitative moderators are the mean and plus/minus one SD from
mean.
Values for dichotomous moderators are the two values of the moderator.

******************** ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence
intervals:
    10000

Level of confidence for all confidence intervals in output:
    95.00

------ END MATRIX -----
```

Statistics

diff

N	Valid	10000
	Missing	0
Percentiles	2.5	-.1093
	97.5	.0037

APPENDIX G – CONDITIONAL PROCESS OUTPUT FOR CHAPTER 6, WITH MODERATION BY FAMILY NORMS

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Release 2.11 ****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 59
    Y = warmblac
    X = qualcont
    M = itganx
    W = C1F1

Sample size
        595

**************************************************************************
Outcome: itganx

Model Summary
          R       R-sq          F        df1        df2          p
      .5696      .3245    94.6345     3.0000   591.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     7.0852      .6367    11.1280      .0000     5.8347     8.3356
qualcont     -.4638      .1229    -3.7739      .0002     -.7052     -.2224
C1F1         -.1862      .1227    -1.5173      .1297     -.4272      .0548
int_1        -.0074      .0224     -.3301      .7414     -.0514      .0366

Interactions:

 int_1    qualcont    X     C1F1

**************************************************************************
Outcome: warmblac

Model Summary
          R       R-sq          F        df1        df2          p
      .6676      .4456    94.7005     5.0000   589.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     7.2537     2.0470     3.5435      .0004     3.2334    11.2741
itganx      -1.3369      .2556    -5.2297      .0000    -1.8389     -.8348
qualcont      .5905      .2551     2.3148      .0210      .0895     1.0916
int_2         .0836      .0432     1.9335      .0536     -.0013      .1685
C1F1          .2629      .3576      .7351      .4626     -.4394      .9651
int_3        -.0552      .0457    -1.2078      .2276     -.1449      .0345

Interactions:

 int_2    itganx      X     C1F1
 int_3    qualcont    X     C1F1

******************** DIRECT AND INDIRECT EFFECTS ************************

Conditional direct effect(s) of X on Y at values of the moderator(s):
       C1F1     Effect         SE          t          p       LLCI       ULCI
     4.2727      .3548      .0946     3.7485      .0002      .1689      .5406
```

```
     5.7290      .2744      .0851     3.2247      .0013      .1073      .4415
     7.0000      .2043      .1139     1.7931      .0735     -.0195      .4280

Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator
             C1F1     Effect    Boot SE   BootLLCI   BootULCI
itganx     4.2727      .4854      .0681      .3607      .6320
itganx     5.7290      .4343      .0551      .3371      .5538
itganx     7.0000      .3875      .0691      .2708      .5474

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

NOTE: For at least one moderator in the conditional effects table above, one SD
      above the mean was replaced with the maximum because one SD above the mean
      is outside of the range of the data.

******************** ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
    10000

Level of confidence for all confidence intervals in output:
    95.00

------ END MATRIX -----
```

APPENDIX H: CONDITIONAL PROCESS OUTPUT FOR CHAPTER 6, WITH MODERATION BY FRIENDS NORMS

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Release 2.11 ****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 59
    Y = warmblac
    X = qualcont
    M = itganx
    W = C1F2

Sample size
        595

**************************************************************************
Outcome: itganx

Model Summary
          R       R-sq          F        df1        df2          p
      .5599      .3135    89.9620     3.0000   591.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     6.2740      .7940     7.9020      .0000     4.7146     7.8333
qualcont     -.1753      .1744    -1.0056      .3150     -.5178      .1671
C1F2         -.0757      .1361     -.5564      .5782     -.3429      .1915
int_1        -.0462      .0276    -1.6719      .0951     -.1005      .0081

Interactions:

 int_1    qualcont    X     C1F2

**************************************************************************
Outcome: warmblac

Model Summary
          R       R-sq          F        df1        df2          p
      .6767      .4579    99.4992     5.0000   589.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant    12.5071     2.7017     4.6293      .0000     7.2009    17.8134
itganx      -1.9503      .3494    -5.5818      .0000    -2.6366    -1.2641
qualcont     -.2392      .3484     -.6865      .4927     -.9235      .4451
int_2         .1784      .0558     3.1980      .0015      .0689      .2880
C1F2         -.5542      .4403    -1.2587      .2086    -1.4190      .3106
int_3         .0713      .0561     1.2715      .2040     -.0389      .1815

Interactions:

 int_2    itganx      X     C1F2
 int_3    qualcont    X     C1F2

******************* DIRECT AND INDIRECT EFFECTS ************************

Conditional direct effect(s) of X on Y at values of the moderator(s):
       C1F2     Effect         SE          t          p       LLCI       ULCI
     5.1213      .1262      .1006     1.2542      .2103     -.0714      .3238
```

```
     6.2192      .2045      .0881     2.3207      .0206      .0314      .3776
     7.0000      .2602      .1035     2.5147      .0122      .0570      .4635

Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator
              C1F2     Effect    Boot SE   BootLLCI   BootULCI
itganx      5.1213      .4270      .0767      .2869      .5898
itganx      6.2192      .3889      .0553      .2867      .5056
itganx      7.0000      .3498      .0576      .2486      .4770

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

NOTE: For at least one moderator in the conditional effects table above, one SD
      above the mean was replaced with the maximum because one SD above the mean
      is outside of the range of the data.

******************** ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
    10000

Level of confidence for all confidence intervals in output:
    95.00

------ END MATRIX -----
```

Statistics

diff

N	**Valid**	**10000**
	Missing	**0**
Percentiles	**2.5**	**-.1124**
	97.5	**.0482**

APPENDIX I: CONDITIONAL PROCESS OUTPUT FOR CHAPTER 6, WITH MODERATION BY DEEP CONFLICT

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Release 2.11 ****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 59
    Y = warmblac
    X = qualcont
    M = itganx
    W = C2F2

Sample size
        595

**************************************************************************
Outcome: itganx

Model Summary
          R       R-sq          F       df1        df2          p
      .5435      .2954    82.5882     3.0000   591.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     6.2215     1.0479     5.9372      .0000     4.1635     8.2795
qualcont     -.7100      .1835    -3.8691      .0001    -1.0704     -.3496
C2F2          .0793      .1887      .4205      .6743     -.2912      .4499
int_1         .0169      .0331      .5108      .6097     -.0481      .0820

Interactions:

 int_1    qualcont    X     C2F2

**************************************************************************
Outcome: warmblac

Model Summary
          R       R-sq          F        df1        df2          p
      .6550      .4290    88.4950     5.0000   589.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     1.2526     2.7535      .4549      .6493    -4.1552     6.6605
itganx        .2637      .3156      .8357      .4036     -.3561      .8836
qualcont      .9788      .3738     2.6185      .0091      .2447     1.7129
int_2        -.2185      .0551    -3.9683      .0001     -.3266     -.1103
C2F2         1.2257      .4885     2.5093      .0124      .2664     2.1851
int_3        -.0960      .0666    -1.4409      .1501     -.2268      .0348

Interactions:

 int_2    itganx      X     C2F2
 int_3    qualcont    X     C2F2

******************* DIRECT AND INDIRECT EFFECTS ************************

Conditional direct effect(s) of X on Y at values of the moderator(s):
       C2F2     Effect         SE          t          p       LLCI       ULCI
     4.1344      .5820      .1208     4.8190      .0000      .3448      .8192
```

```
     5.3302      .4672      .0816     5.7226      .0000      .3069      .6276
     6.5260      .3525      .1069     3.2964      .0010      .1425      .5625

Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator
              C2F2     Effect    Boot SE   BootLLCI   BootULCI
itganx      4.1344      .4094      .0814      .2551      .5756
itganx      5.3302      .5584      .0576      .4541      .6797
itganx      6.5260      .6968      .0839      .5451      .8753

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

******************** ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
    10000

Level of confidence for all confidence intervals in output:
    95.00

------ END MATRIX -----
```

Statistics

diff

N	**Valid**	**10000**
	Missing	**0**
Percentiles	**2.5**	**.0591**
	97.5	**.2887**

APPENDIX J: CONDITIONAL PROCESS OUTPUT FOR CHAPTER 6, WITH MODERATION BY ENDURING ANTIPATHY

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Release 2.11 ****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 59
    Y = warmblac
    X = qualcont
    M = itganx
    W = C1F4

Sample size
        595

**************************************************************************
Outcome: itganx

Model Summary
          R       R-sq          F        df1        df2          p
      .5757      .3314    97.6412     3.0000   591.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     5.2498      .6536     8.0322      .0000     3.9661     6.5334
qualcont     -.5341      .1099    -4.8575      .0000     -.7500     -.3181
C1F4          .1954      .1434     1.3627      .1735     -.0862      .4769
int_1         .0116      .0253      .4590      .6464     -.0380      .0612

Interactions:

 int_1    qualcont    X     C1F4

**************************************************************************
Outcome: warmblac

Model Summary
          R       R-sq          F        df1        df2          p
      .6724      .4521    97.2148     5.0000   589.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     6.0143     1.5975     3.7647      .0002     2.8767     9.1518
itganx       -.0375      .1814     -.2064      .8365     -.3938      .3189
qualcont      .3775      .2139     1.7648      .0781     -.0426      .7976
int_2        -.2236      .0430    -5.1985      .0000     -.3081     -.1391
C1F4          .5930      .3733     1.5884      .1127     -.1402     1.3262
int_3         .0029      .0496      .0589      .9531     -.0945      .1003

Interactions:

 int_2    itganx      X     C1F4
 int_3    qualcont    X     C1F4

******************* DIRECT AND INDIRECT EFFECTS ************************

Conditional direct effect(s) of X on Y at values of the moderator(s):
       C1F4     Effect         SE          t          p       LLCI       ULCI
     2.2132      .3839      .1199     3.2011      .0014      .1484      .6195
```

```
     3.5637      .3879      .0841     4.6107      .0000      .2227      .5531
     4.9143      .3918      .0935     4.1921      .0000      .2082      .5754

Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator
              C1F4     Effect    Boot SE   BootLLCI   BootULCI
itganx      2.2132      .2706      .0622      .1621      .4062
itganx      3.5637      .4111      .0515      .3171      .5200
itganx      4.9143      .5421      .0685      .4148      .6834

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

******************** ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
    10000

Level of confidence for all confidence intervals in output:
    95.00

------ END MATRIX -----
```

Statistics

diff

N	**Valid**	**10000**
	Missing	**0**
Percentiles	**2.5**	**.0570**
	97.5	**.1917**

APPENDIX K: POST-HOC CONDITIONAL PROCESS OUTPUT FOR CHAPTER 6, WITH MODERATION BY GLOBAL INTERGROUP CLIMATE

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Release 2.11 ****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 59
    Y = warmblac
    X = Zqualcon
    M = Zitganx
    W = Zclimate

Sample size
        595

**************************************************************************
Outcome: Zitganx

Model Summary
          R       R-sq          F        df1        df2          p
      .6088      .3706   116.0015     3.0000   591.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant      .0264      .0359      .7362      .4619     -.0441      .0969
Zqualcon     -.2596      .0444    -5.8512      .0000     -.3468     -.1725
Zclimate     -.4337      .0443    -9.8002      .0000     -.5206     -.3468
int_1        -.0402      .0228    -1.7633      .0784     -.0850      .0046

Interactions:

 int_1    Zqualcon    X     Zclimate

**************************************************************************
Outcome: warmblac

Model Summary
          R       R-sq          F        df1        df2          p
      .6748      .4554    98.5045     5.0000   589.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     7.6119      .0789    96.4982      .0000     7.4570     7.7668
Zitganx     -1.0650      .0895   -11.9033      .0000    -1.2407     -.8893
Zqualcon      .2470      .0999     2.4717      .0137      .0507      .4432
int_2         .3020      .0719     4.2031      .0000      .1609      .4431
Zclimate      .2413      .1040     2.3209      .0206      .0371      .4454
int_3        -.0147      .0646     -.2271      .8204     -.1416      .1122

Interactions:

 int_2    Zitganx     X     Zclimate
 int_3    Zqualcon    X     Zclimate

******************* DIRECT AND INDIRECT EFFECTS ************************

Conditional direct effect(s) of X on Y at values of the moderator(s):
   Zclimate     Effect         SE          t          p       LLCI       ULCI
    -1.0000      .2617      .1032     2.5352      .0115      .0590      .4644
```

```
      .0000      .2470      .0999     2.4717      .0137      .0507      .4432
     1.0000      .2323      .1329     1.7479      .0810     -.0287      .4934

Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator
          Zclimate     Effect    Boot SE   BootLLCI   BootULCI
Zitganx    -1.0000      .3000      .0699      .1732      .4444
Zitganx      .0000      .2765      .0550      .1770      .3928
Zitganx     1.0000      .2288      .0574      .1356      .3642

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

******************** ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
    10000

Level of confidence for all confidence intervals in output:
    95.00

------ END MATRIX -----
```

Statistics

diff

N	Valid	10000
	Missing	0
Percentiles	2.5	-.1344
	97.5	-.0319

APPENDIX L: SUPPLEMENTARY HIERARCHICAL REGRESSION ANALYSIS OF THE EFFECT OF CONTACT, CLIMATE INDICES, AND INTERACTIONS, ON ATTITUDES TOWARDS MUSLIMS

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.617[a]	.381	.380	2.177	.381	453.570	1	738	.000
2	.724[b]	.524	.519	1.917	.144	31.530	7	731	.000
3	.730[c]	.532	.523	1.910	.008	1.777	7	724	.089

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2149.656	1	2149.656	453.570	.000[b]
	Residual	3497.689	738	4.739		
	Total	5647.345	739			
2	Regression	2960.801	8	370.100	100.703	.000[c]
	Residual	2686.543	731	3.675		
	Total	5647.345	739			
3	Regression	3006.181	15	200.412	54.937	.000[d]
	Residual	2641.164	724	3.648		
	Total	5647.345	739			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	6.041	.080		75.487	.000			
	Zscore(qualcontact)	1.706	.080	.617	21.297	.000	.617	.617	.617
2	(Constant)	6.044	.070		85.764	.000			
	Zscore(qualcontact)	.574	.111	.208	5.176	.000	.617	.188	.132
	Zscore(igeqstat)	-.093	.085	-.034	-1.096	.273	.232	-.041	-.028
	Zscore(friends)	.460	.114	.167	4.037	.000	.600	.148	.103
	Zscore(family)	.194	.100	.070	1.941	.053	.508	.072	.050
	Zscore(coopcoex)	1.096	.140	.397	7.848	.000	.681	.279	.200
	Zscore(coopint)	-.128	.116	-.046	-1.105	.270	.511	-.041	-.028
	Zscore(conflict)	-.199	.107	-.072	-1.855	.064	-.368	-.068	-.047
	Zscore(antipathy)	.028	.121	.010	.234	.815	-.468	.009	.006
3	(Constant)	5.969	.084		71.481	.000			
	Zscore(qualcontact)	.603	.117	.218	5.177	.000	.617	.189	.132
	Zscore(igeqstat)	-.081	.092	-.029	-.887	.376	.232	-.033	-.023
	Zscore(friends)	.518	.117	.187	4.419	.000	.600	.162	.112
	Zscore(family)	.213	.102	.077	2.090	.037	.508	.077	.053
	Zscore(coopcoex)	1.086	.140	.393	7.750	.000	.681	.277	.197
	Zscore(coopint)	-.136	.116	-.049	-1.175	.240	.511	-.044	-.030
	Zscore(conflict)	-.232	.113	-.084	-2.053	.040	-.368	-.076	-.052
	Zscore(antipathy)	.027	.124	.010	.221	.826	-.468	.008	.006
	conxequality	.076	.094	.031	.814	.416	-.140	.030	.021
	conxfriends	.164	.101	.082	1.626	.104	-.279	.060	.041
	conxfamily	-.110	.111	-.048	-.985	.325	-.255	-.037	-.025
	conxcoopcoex	.294	.137	.140	2.137	.033	-.247	.079	.054
	conxcoopint	-.253	.116	-.116	-2.178	.030	-.233	-.081	-.055
	conxconflict	.135	.116	.055	1.170	.243	.082	.043	.030
	conxantipathy	.028	.130	.012	.219	.827	.177	.008	.006

a. Dependent Variable: Feelings Thermometer : Blacks (1) : warm_muslim

APPENDIX M – CONDITIONAL PROCESS OUTPUT FOR CHAPTER 7, WITH MODERATION BY NORMS OF EQUALITY

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Release 2.11 ****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 59
    Y = warmmusl
    X = qualcont
    M = itganx
    W = igeqstat

Sample size
        745

**************************************************************************
Outcome: itganx

Model Summary
          R       R-sq          F        df1        df2          p
      .5789      .3351   124.4898     3.0000   741.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     7.0291      .4292    16.3778      .0000     6.1865     7.8717
qualcont     -.6587      .0786    -8.3775      .0000     -.8130     -.5043
igeqstat     -.0295      .1392     -.2120      .8322     -.3027      .2437
int_1        -.0031      .0238     -.1305      .8962     -.0499      .0437

Interactions:

 int_1    qualcont    X     igeqstat

**************************************************************************
Outcome: warmmusl

Model Summary
          R       R-sq          F        df1        df2          p
      .7182      .5158   157.4558     5.0000   739.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     6.3534     1.2578     5.0511      .0000     3.8840     8.8227
itganx      -1.0597      .1449    -7.3113      .0000    -1.3443     -.7752
qualcont      .6464      .1666     3.8794      .0001      .3193      .9736
int_2         .0580      .0406     1.4291      .1534     -.0217      .1378
igeqstat     -.5204      .3719    -1.3992      .1622    -1.2505      .2097
int_3         .0565      .0494     1.1445      .2528     -.0405      .1536

Interactions:

 int_2    itganx      X     igeqstat
 int_3    qualcont    X     igeqstat

******************* DIRECT AND INDIRECT EFFECTS ************************

Conditional direct effect(s) of X on Y at values of the moderator(s):
   igeqstat     Effect         SE          t          p       LLCI       ULCI
     2.0277      .7611      .0896     8.4973      .0000      .5853      .9369
```

```
     3.4770      .8431      .0788    10.6948      .0000      .6883      .9978
     4.9262      .9250      .1211     7.6395      .0000      .6873     1.1627

Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator
         igeqstat     Effect    Boot SE   BootLLCI   BootULCI
itganx     2.0277      .6265      .0881      .4693      .8135
itganx     3.4770      .5744      .0581      .4673      .6957
itganx     4.9262      .5216      .0821      .3808      .7073

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

******************** ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
    10000

Level of confidence for all confidence intervals in output:
    95.00

------ END MATRIX -----
```

APPENDIX N – CONDITIONAL PROCESS OUTPUT FOR CHAPTER 7, WITH MODERATION BY COOPERATIVE COEXISTENCE

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Release 2.11 ****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 59
    Y = warmmusl
    X = qualcont
    M = itganx
    W = coopcoex

Sample size
        745

**************************************************************************
Outcome: itganx

Model Summary
          R       R-sq          F        df1        df2          p
      .6867      .4715   220.3910     3.0000   741.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     7.0836      .4341    16.3169      .0000     6.2314     7.9359
qualcont     -.1758      .0932    -1.8865      .0596     -.3587      .0071
coopcoex     -.4889      .1073    -4.5561      .0000     -.6996     -.2782
int_1        -.0124      .0192     -.6455      .5188     -.0500      .0252

Interactions:

 int_1    qualcont    X     coopcoex

**************************************************************************
Outcome: warmmusl

Model Summary
          R       R-sq          F        df1        df2          p
      .7439      .5534   183.1293     5.0000   739.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     2.1306     1.5688     1.3581      .1749     -.9493     5.2106
itganx       -.5250      .1903    -2.7580      .0060     -.8986     -.1513
qualcont      .4802      .2033     2.3621      .0184      .0811      .8792
int_2        -.0231      .0386     -.5976      .5503     -.0989      .0527
coopcoex      .7537      .3415     2.2074      .0276      .0834     1.4241
int_3        -.0065      .0434     -.1505      .8804     -.0918      .0788

Interactions:

 int_2    itganx      X     coopcoex
 int_3    qualcont    X     coopcoex

******************** DIRECT AND INDIRECT EFFECTS ************************

Conditional direct effect(s) of X on Y at values of the moderator(s):
   coopcoex     Effect         SE          t          p       LLCI       ULCI
     3.5500      .4569      .0886     5.1589      .0000      .2831      .6308
```

```
     4.9397      .4479      .0878     5.1037      .0000      .2756      .6201
     6.3294      .4388      .1218     3.6010      .0003      .1996      .6780

Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator
         coopcoex     Effect    Boot SE   BootLLCI   BootULCI
itganx     3.5500      .1333      .0429      .0619      .2295
itganx     4.9397      .1514      .0380      .0855      .2358
itganx     6.3294      .1705      .0511      .0862      .2895

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

******************** ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
    10000

Level of confidence for all confidence intervals in output:
    95.00

------ END MATRIX -----
```

APPENDIX O: CONDITIONAL PROCESS OUTPUT FOR CHAPTER 7, WITH MODERATION BY COOPERATIVE INTERDEPENDENCE

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Release 2.11 ****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 59
    Y = warmmusl
    X = qualcont
    M = itganx
    W = coopint

Sample size
        745

**************************************************************************
Outcome: itganx

Model Summary
          R       R-sq          F        df1        df2          p
      .6071      .3686   144.2104     3.0000   741.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     7.3365      .4308    17.0300      .0000     6.4908     8.1823
qualcont     -.5466      .0875    -6.2467      .0000     -.7183     -.3748
coopint      -.2910      .1170    -2.4862      .0131     -.5208     -.0612
int_1         .0099      .0206      .4807      .6309     -.0305      .0503

Interactions:

 int_1    qualcont    X     coopint

**************************************************************************
Outcome: warmmusl

Model Summary
          R       R-sq          F        df1        df2          p
      .7221      .5214   161.0337     5.0000   739.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     4.4987     1.4211     3.1656      .0016     1.7088     7.2886
itganx       -.8925      .1709    -5.2217      .0000    -1.2281     -.5570
qualcont      .6994      .1879     3.7215      .0002      .3305     1.0684
int_2         .0168      .0386      .4349      .6637     -.0590      .0925
coopint       .1741      .3355      .5189      .6040     -.4845      .8327
int_3        -.0038      .0438     -.0866      .9310     -.0898      .0822

Interactions:

 int_2    itganx      X     coopint
 int_3    qualcont    X     coopint

******************** DIRECT AND INDIRECT EFFECTS ************************

Conditional direct effect(s) of X on Y at values of the moderator(s):
    coopint     Effect         SE          t          p       LLCI       ULCI
     3.0175      .6880      .0897     7.6695      .0000      .5119      .8641
```

```
     4.4664      .6825      .0858     7.9518      .0000      .5140      .8510
     5.9153      .6770      .1214     5.5759      .0000      .4386      .9153

Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator
          coopint     Effect    Boot SE   BootLLCI   BootULCI
itganx     3.0175      .4350      .0697      .3113      .5799
itganx     4.4664      .4108      .0558      .3089      .5267
itganx     5.9153      .3872      .0734      .2609      .5486

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

******************** ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
    10000

Level of confidence for all confidence intervals in output:
    95.00

------ END MATRIX -----
```

APPENDIX P – CONDITIONAL PROCESS OUTPUT FOR CHAPTER 7, WITH MODERATION BY FRIENDS NORMS

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Release 2.11 ****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 59
    Y = warmmusl
    X = qualcont
    M = itganx
    W = friends

Sample size
        745

**************************************************************************
Outcome: itganx

Model Summary
          R       R-sq          F        df1        df2          p
      .6365      .4052   168.2513     3.0000   741.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     6.6113      .4773    13.8507      .0000     5.6743     7.5484
qualcont     -.2196      .1069    -2.0549      .0402     -.4294     -.0098
friends      -.1518      .1001    -1.5156      .1300     -.3483      .0448
int_1        -.0399      .0194    -2.0530      .0404     -.0780     -.0017

Interactions:

 int_1    qualcont    X     friends

**************************************************************************
Outcome: warmmusl

Model Summary
          R       R-sq          F        df1        df2          p
      .7360      .5417   174.7302     5.0000   739.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     1.0203     1.7335      .5886      .5563    -2.3829     4.4234
itganx       -.2601      .2182    -1.1922      .2336     -.6884      .1682
qualcont      .6333      .2245     2.8211      .0049      .1926     1.0740
int_2        -.0889      .0386    -2.3061      .0214     -.1646     -.0132
friends       .7918      .3235     2.4477      .0146      .1567     1.4269
int_3        -.0074      .0417     -.1778      .8589     -.0893      .0745

Interactions:

 int_2    itganx      X     friends
 int_3    qualcont    X     friends

******************** DIRECT AND INDIRECT EFFECTS ************************

Conditional direct effect(s) of X on Y at values of the moderator(s):
    friends     Effect         SE          t          p       LLCI       ULCI
     4.0983      .6029      .0889     6.7827      .0000      .4284      .7774
```

```
     5.5465      .5921      .0829     7.1425      .0000      .4294      .7549
     6.9947      .5814      .1147     5.0700      .0000      .3563      .8065

Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator
          friends     Effect    Boot SE   BootLLCI   BootULCI
itganx     4.0983      .2393      .0517      .1512      .3533
itganx     5.5465      .3321      .0487      .2417      .4322
itganx     6.9947      .4398      .0698      .3175      .5920

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

******************** ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
    10000

Level of confidence for all confidence intervals in output:
    95.00

------ END MATRIX -----
```

Statistics

diff

N	Valid	10000
	Missing	0
Percentiles	2.5	-.0001
	97.5	.0099

APPENDIX Q – CONDITIONAL PROCESS OUTPUT FOR CHAPTER 7, WITH MODERATION BY FAMILY NORMS

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Release 2.11 ****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 59
    Y = warmmusl
    X = qualcont
    M = itganx
    W = family

Sample size
        745

**************************************************************************
Outcome: itganx

Model Summary
          R       R-sq          F        df1        df2          p
      .6366      .4053   168.3046     3.0000   741.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     7.4557      .4312    17.2888      .0000     6.6091     8.3023
qualcont     -.5119      .0864    -5.9223      .0000     -.6816     -.3422
family       -.2954      .1020    -2.8960      .0039     -.4956     -.0951
int_1         .0048      .0184      .2585      .7961     -.0314      .0410

Interactions:

 int_1    qualcont    X     family

**************************************************************************
Outcome: warmmusl

Model Summary
          R       R-sq          F        df1        df2          p
      .7249      .5255   163.6685     5.0000   739.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     2.5047     1.5043     1.6650      .0963     -.4485     5.4578
itganx       -.6139      .1784    -3.4412      .0006     -.9642     -.2637
qualcont      .8648      .1918     4.5091      .0000      .4883     1.2413
int_2        -.0353      .0343    -1.0300      .3034     -.1025      .0320
family        .5010      .3073     1.6304      .1034     -.1023     1.1042
int_3        -.0315      .0403     -.7805      .4353     -.1106      .0477

Interactions:

 int_2    itganx      X     family
 int_3    qualcont    X     family

******************* DIRECT AND INDIRECT EFFECTS ************************

Conditional direct effect(s) of X on Y at values of the moderator(s):
     family     Effect         SE          t          p       LLCI       ULCI
     3.3700      .7587      .0858     8.8401      .0000      .5902      .9272
     5.0431      .7061      .0805     8.7768      .0000      .5482      .8640
     6.7162      .6535      .1211     5.3943      .0000      .4156      .8913
```

```
Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator
           family     Effect    Boot SE   BootLLCI   BootULCI
itganx     3.3700      .3634      .0628      .2541      .5014
itganx     5.0431      .3863      .0509      .2921      .4918
itganx     6.7162      .4083      .0689      .2876      .5592

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

******************** ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
    10000

Level of confidence for all confidence intervals in output:
    95.00

------ END MATRIX -----
```

APPENDIX R: CONDITIONAL PROCESS OUTPUT FOR CHAPTER 7, WITH MODERATION BY DEEP CONFLICT

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Release 2.11 ****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 59
    Y = warmmusl
    X = qualcont
    M = itganx
    W = conflict

Sample size
        740

**************************************************************************
Outcome: itganx

Model Summary
          R       R-sq          F        df1        df2          p
      .6154      .3788   149.5703     3.0000   736.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     5.3474      .7342     7.2835      .0000     3.9061     6.7888
qualcont     -.5838      .1253    -4.6606      .0000     -.8298     -.3379
conflict      .2363      .1239     1.9071      .0569     -.0069      .4796
int_1        -.0037      .0216     -.1720      .8635     -.0462      .0388

Interactions:

 int_1    qualcont    X     conflict

**************************************************************************
Outcome: warmmusl

Model Summary
          R       R-sq          F        df1        df2          p
      .7233      .5232   161.1005     5.0000   734.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     6.5484     1.9978     3.2778      .0011     2.6264    10.4705
itganx       -.6728      .2286    -2.9434      .0033    -1.1216     -.2241
qualcont      .5511      .2669     2.0649      .0393      .0271     1.0750
int_2        -.0242      .0399     -.6052      .5452     -.1026      .0542
conflict     -.3466      .3501     -.9901      .3224    -1.0339      .3406
int_3         .0431      .0465      .9258      .3549     -.0482      .1343

Interactions:

 int_2    itganx      X     conflict
 int_3    qualcont    X     conflict

******************** DIRECT AND INDIRECT EFFECTS ************************

Conditional direct effect(s) of X on Y at values of the moderator(s):
   conflict     Effect         SE          t          p       LLCI       ULCI
     3.7363      .7119      .1102     6.4580      .0000      .4955      .9283
```

```
     5.2061      .7752      .0739    10.4878      .0000      .6301      .9203
     6.6758      .8385      .0901     9.3068      .0000      .6616     1.0153

Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator
         conflict     Effect    Boot SE   BootLLCI   BootULCI
itganx     3.7363      .4562      .0722      .3266      .6136
itganx     5.2061      .4818      .0540      .3832      .5961
itganx     6.6758      .5078      .0739      .3750      .6642

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

******************** ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
    10000

Level of confidence for all confidence intervals in output:
    95.00

NOTE: Some cases were deleted due to missing data.  The number of such cases was:
  5

------ END MATRIX -----
```

APPENDIX S – CONDITIONAL PROCESS OUTPUT FOR CHAPTER 7, WITH MODERATION BY ENDURING ANTIPATHY

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Release 2.11 ****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 59
    Y = warmmusl
    X = qualcont
    M = itganx
    W = antipath

Sample size
        744

**************************************************************************
Outcome: itganx

Model Summary
          R       R-sq          F        df1        df2          p
      .6227      .3878   156.2384     3.0000   740.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     5.0360      .6255     8.0512      .0000     3.8081     6.2640
qualcont     -.5147      .1065    -4.8311      .0000     -.7238     -.3055
antipath      .2902      .1148     2.5274      .0117      .0648      .5157
int_1        -.0076      .0204     -.3732      .7091     -.0477      .0324

Interactions:

 int_1    qualcont    X     antipath

**************************************************************************
Outcome: warmmusl

Model Summary
          R       R-sq          F        df1        df2          p
      .7269      .5284   165.3787     5.0000   738.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     6.6898     1.6763     3.9908      .0001     3.3989     9.9807
itganx       -.7815      .1904    -4.1049      .0000    -1.1553     -.4077
qualcont      .5930      .2237     2.6512      .0082      .1539     1.0321
int_2        -.0008      .0389     -.0217      .9827     -.0772      .0755
antipath     -.4067      .3383    -1.2022      .2297    -1.0707      .2574
int_3         .0306      .0443      .6893      .4908     -.0565      .1176

Interactions:

 int_2    itganx      X     antipath
 int_3    qualcont    X     antipath

******************** DIRECT AND INDIRECT EFFECTS ************************

Conditional direct effect(s) of X on Y at values of the moderator(s):
   antipath     Effect         SE          t          p       LLCI       ULCI
     2.8125      .6790      .1138     5.9672      .0000      .4556      .9024
```

```
     4.2853      .7240      .0770     9.3971      .0000      .5727      .8753
     5.7581      .7690      .0863     8.9071      .0000      .5995      .9385

Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator
         antipath     Effect    Boot SE   BootLLCI   BootULCI
itganx     2.8125      .4202      .0687      .2975      .5709
itganx     4.2853      .4297      .0516      .3357      .5377
itganx     5.7581      .4392      .0700      .3175      .5909

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

******************** ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
    10000

Level of confidence for all confidence intervals in output:
    95.00

NOTE: Some cases were deleted due to missing data.  The number of such cases was:
  1

------ END MATRIX -----
```

APPENDIX T – POC-HOC CONDITIONAL PROCESS OUTPUT FOR CHAPTER 7, WITH MODERATION BY GLOBAL INTERGROUP CLIMATE

```
Run MATRIX procedure:


************* PROCESS Procedure for SPSS Release 2.16.3 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2013). www.guilford.com/p/hayes3

**************************************************************************
Model = 59
    Y = warmmusl
    X = qualcont
    M = itganx
    W = climatew

Sample size
        745

**************************************************************************
Outcome: itganx

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .6812      .4641     1.1083   213.9025     3.0000   741.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     7.5357      .4673    16.1253      .0000     6.6183     8.4531
qualcont     -.2004      .0982    -2.0420      .0415     -.3931     -.0077
climatew     -.6392      .1284    -4.9789      .0000     -.8912     -.3871
int_1        -.0078      .0225     -.3464      .7292     -.0519      .0363

Product terms key:

 int_1    qualcont    X     climatew

**************************************************************************
Outcome: warmmusl

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .7375      .5439     3.5142   176.2741     5.0000   739.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     1.7061     1.8354      .9295      .3529    -1.8972     5.3094
itganx       -.5496      .2201    -2.4971      .0127     -.9817     -.1175
qualcont      .5840      .2318     2.5194      .0120      .1289     1.0391
int_2        -.0282      .0492     -.5724      .5672     -.1248      .0685
climatew      .9209      .4365     2.1096      .0352      .0639     1.7779
int_3        -.0242      .0546     -.4440      .6572     -.1314      .0829

Product terms key:

 int_2    itganx      X     climatew
 int_3    qualcont    X     climatew

******************** DIRECT AND INDIRECT EFFECTS ************************

Conditional direct effect(s) of X on Y at values of the moderator(s):
   climatew     Effect         SE          t          p       LLCI       ULCI
```

```
     3.3948      .5018      .0902     5.5652      .0000      .3248      .6788
     4.5081      .4748      .0901     5.2674      .0000      .2978      .6517
     5.6215      .4478      .1245     3.5961      .0003      .2033      .6923

Conditional indirect effect(s) of X on Y at values of the moderator(s):

Mediator
         climatew     Effect    Boot SE   BootLLCI   BootULCI
itganx     3.3948      .1464      .0441      .0714      .2431
itganx     4.5081      .1594      .0397      .0891      .2452
itganx     5.6215      .1729      .0516      .0878      .2925

Values for quantitative moderators are the mean and plus/minus one SD from mean.
Values for dichotomous moderators are the two values of the moderator.

******************** ANALYSIS NOTES AND WARNINGS *************************

Number of bootstrap samples for bias corrected bootstrap confidence intervals:
    10000

Level of confidence for all confidence intervals in output:
    95.00

------ END MATRIX -----
```