


# Toward a Comprehensive Understanding of Intergroup Contact: Descriptions and Mediators of Positive and Negative Contact Among Majority and Minority Groups

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## Abstract

Positive contact predicts reduced prejudice, but negative contact may increase prejudice at a stronger rate. The current project builds on this work in four ways: establishing an understanding of contact that is grounded in subjective experience, examining the affective mediators involved in the negative contact–prejudice relationship, extending research on the effects of positive and negative contact to minority groups, and examining the contact asymmetry experimentally. Study 1 introduced anger as a mediator of the relationships between positive and negative contact and prejudice among White Americans ( $N = 371$ ), using a contact measure that reflected the frequency and intensity of a wide range of experiences. Study 2 found a contact asymmetry among Black and Hispanic Americans ( $N = 365$ ). Study 3 found initial experimental evidence of a contact asymmetry ( $N = 309$ ). We conclude by calling for a more nuanced understanding of intergroup contact that recognizes its multifaceted and subjective nature.

## Keywords

intergroup contact, prejudice, intergroup emotions, negative contact, minority groups

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Emerging research hints at the importance of looking more closely at negative intergroup contact, revealing that it may exert a stronger influence on prejudice than does positive contact (*positive–negative contact asymmetry*; Barlow et al., 2012). To date, however, little is known about what positive and negative contact look like in real-world settings (Dixon, Durrheim, & Tredoux, 2005), and how these forms of contact are experienced (Tropp, 2006). In addition, there has been limited exploration of the emotional processes that drive the contact–prejudice relationship when simultaneously considering positive and negative contact (cf. Techakesari et al., 2015). Contact research has also focused largely on the perspectives and experiences of majority group members (Pettigrew, 2008; Tropp & Pettigrew, 2005b), and there are no studies that examine both positive and negative contact as predictors of prejudice among members of minority groups. Finally, extant work on negative contact is correlational, and thus we cannot conclude that negative contact causally increases prejudice. The present article addresses these issues.

## Positive–Negative Contact Asymmetry

Paolini, Harwood, and Rubin (2010) provided initial evidence for differential intergroup contact effects, finding that negative contact made group membership more salient than did positive contact. This was followed by evidence that negative contact is often a stronger predictor of prejudice than positive contact. Analysis of White participants in Australia and the United States revealed that frequency of negative contact predicted greater prejudice and avoidance more strongly than frequency of positive contact predicted their reduction (Barlow et al., 2012; see also Alperin,

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Hornsey, Hayward, Diedrichs, & Barlow, 2014; Techakesari et al., 2015). Aberson (2015) replicated the positive-negative contact asymmetry in predicting cognitive dimensions of prejudice (beliefs and stereotypes) but found no asymmetry when predicting affective dimensions of prejudice. These findings are in line with previous research that has shown positive contact to be more strongly related to affective prejudice than to cognitive prejudice (Tropp & Pettigrew, 2005a).

### **A Comprehensive Examination of Positive and Negative Contact: Frequency and Intensity**

In past research, contact has been measured in terms of the frequency with which individuals interact with outgroup members, numbers of outgroup friends, or evaluations of contact quality using a limited set of criteria. Contact can, however, be experienced in a variety of ways, such as with outgroup friends, with strangers, or as a short conversation in passing. Recently, Dixon et al. (2005) called for enhanced recognition of this diversity of contact experiences within the field, stating,

... we [argue for] a *reorientation* of the field, a shift in emphasis that attempts to bridge the gulf between contact as it is represented in the social psychological literature and contact as it is practiced, experienced, and regulated in everyday life. (p.709)

Thus, a primary goal of Studies 1 and 2 is to provide descriptive data on both the *frequency* of a wide array of contact experiences and participants' subjective perceptions of the *emotional intensity* of these experiences.

### **Explaining the Emotional Links Between Contact and Prejudice**

A second goal of the present research concerns the mechanisms underlying relationships between prejudice and both positive and negative forms of contact. Positive contact reduces prejudice by decreasing anxiety about interacting with outgroup members (Islam & Hewstone, 1993; W. G. Stephan & Stephan, 1985) and by increasing empathy for the outgroup (Swart, Hewstone, Christ, & Voci, 2011). These affective mediators are more important for prejudice reduction than the cognitive mediator of outgroup knowledge (Pettigrew & Tropp, 2008). What is less clear is whether the same emotional processes explain the relationship between *negative* contact and prejudice. Recent evidence suggests that anxiety may indeed be involved (C. W. Stephan, Stephan, Demitrakis, Yamada, & Clason, 2000; W. G. Stephan et al., 2002; Techakesari et al., 2015). However, Barlow and colleagues (2012) suggested that additional emotion-based mediators such as intergroup anger may also be important in explaining the link between negative contact and prejudice.

Reduced anger has been found in response to positive contact (Tam, Hewstone, Cairns, & Tausch, 2007), and anger predicts offensive action tendencies such as the desire to confront or oppose the outgroup (Mackie, Devos, & Smith, 2000). Still, anger has not been examined as a mediator of the association between prejudice and contact. In the present research, intergroup anxiety, empathy, and anger were therefore tested as parallel mediators of positive and negative contact effects. In line with Pettigrew and Tropp (2008), it was predicted that reduced anxiety and heightened empathy would mediate the relationship between positive contact and prejudice. Furthermore, it was predicted that negative contact would lead to greater prejudice through heightened anger toward the outgroup in addition to greater anxiety.

### **Contact Effects Among Majority and Minority Status Groups**

A truly comprehensive account of intergroup contact must solicit both majority and minority perspectives. While there is a large body of literature investigating the prejudice-reducing effects of contact among majority group members, comparatively few studies have examined such effects among minority groups (Tropp & Pettigrew, 2005b). Interestingly, these suggest that the contact-prejudice relationship is weaker among members of historically disadvantaged, minority groups than among members of historically advantaged, majority groups (Barlow, Hornsey, Thai, Sengupta, & Sibley, 2013; Binder et al., 2009; Tropp & Pettigrew, 2005b).

This subsection of the field has also focused primarily on positive contact, with very little research examining the effects of negative contact on disadvantaged group members' attitudes toward advantaged groups. Studies that have examined minority group perspectives show that negative contact is experienced relatively frequently in the form of exposure to prejudice (Swim, Hyers, Cohen, Fitzgerald, & Bylsma, 2003), and that experiencing prejudice can lead disadvantaged group members to feel hostile and anxious about future intergroup interactions (Tropp, 2003). Extending this to outgroup attitudes, negative contact significantly predicts Blacks' attitudes toward Whites (W. G. Stephan et al., 2002) and women's attitudes toward men (C. W. Stephan et al., 2000). These studies provide initial insights into the unfavorable effects of negative contact among disadvantaged group members, but without a comparable positive contact measure it is unclear whether significant asymmetry effects exist. Study 2 addresses this question by examining positive and negative contact as simultaneous predictors of anti-outgroup attitudes among minority group members.

### **Establishing Causality From Negative Contact to Prejudice**

Past longitudinal work on positive contact has found that the relationship between positive contact and prejudice is

bi-directional (Binder et al., 2009; Levin, van Laar, & Sidanius, 2003; Swart et al., 2011), but positive contact does indeed lead to lower prejudice. Experimentally, a single positive contact experience has been found to reduce prejudice toward an outgroup (e.g., Thompson, 1993). While experimentally manipulated positive and negative contact have been found to influence category salience (Paolini et al., 2010), no research has examined the causal effect of positive and negative contact on prejudice. We provide this research in Study 3, where we present the first experimental test of the effects of positive and negative contact on prejudice using a vignette paradigm.

## Study 1

In Study 1, White Americans reported on their positive and negative contact with, as well as their attitudes and feelings toward, Black Americans. We built upon prior research by creating a new, comprehensive measure that captures the quantity *and* intensity of a wide range of positive and negative intergroup interactions. We then used this new measure to predict a range of intergroup outcomes.

In line with previous research (Barlow et al., 2012), we expected that negative contact would more strongly predict negative beliefs about (cognitive prejudice) and avoidance of the outgroup relative to positive contact, but no contact asymmetry would emerge for outgroup evaluations (affective prejudice; Aberson, 2015). In line with this affective prejudice hypothesis, we also predicted no contact asymmetry on the affective measures of anxiety, empathy, and anger. In addition, we expected that the relationship between positive contact and prejudice would be mediated by anxiety and empathy toward the outgroup (Pettigrew & Tropp, 2008), and that the relationship between negative contact and prejudice would be mediated by greater anxiety and anger toward the outgroup.

## Method

**Participants and procedure.** A community sample of 400 Americans completed an online survey via [www.socialsci.com](http://www.socialsci.com). Data from 28 participants were removed because they identified as mixed race or non-White, or because they did not report their ethnicity, and data from one participant were removed for completing less than 50% of the measures. The final sample comprised 371 participants (58.8% women;  $M_{age} = 31.86$  years). This sample size exceeded the estimated required  $N$  as specified by G\*Power software to detect a regression coefficient of 0.2 with 95% power. This effect size was determined from the literature as the average size of the relationship between positive contact and prejudice (Pettigrew & Tropp, 2006), with the estimated coefficient for negative contact being somewhat larger (Barlow et al., 2012).

**Measures.** Participants completed measures of intergroup contact (positive and negative), intergroup emotions (anxiety, empathy, and anger), and intergroup outcomes (anti-Black

attitudes, outgroup evaluations, and outgroup avoidance), with Black Americans as the target outgroup. The outcome measures were interspersed among the emotion measures, and these scales were distributed across the first few pages (randomized) of the survey. Participants were then presented with the positive and negative intergroup contact items (again, pages were randomized).<sup>1</sup> We placed the outcome measures first, so that they would not be artificially influenced by the memory of the contact experiences. Finally, participants provided demographic information before being debriefed.

**Demographics.** In addition to ethnicity, participants reported their age, sex, level of education, and socioeconomic status (SES).<sup>2</sup>

**Intergroup contact.** We generated 69 intergroup interactions (37 positive, see Table 1; 32 negative, see Table 2), ranging from mild to more intense forms of contact. A number of these items (e.g., being treated as inferior; forced to do something I didn't want to do) were adapted from C. W. Stephan et al. (2000), with the opposite of each item included in the positive contact questionnaire when appropriate. We then created additional items by identifying key themes in the contact literature (e.g., cooperative interactions; see Allport, 1954; Dixon et al., 2010).

For each form of contact, participants rated whether or not they had experienced the interaction at least once (0 = *no*, 1 = *yes*). If the participant answered yes, they answered two additional items: (a) how frequently they had experienced the interaction (1 = *extremely rarely*, 7 = *extremely frequently*), and either (b) how positively they would rate the experience (for all positive contact items; 1 = *not at all positive*, 7 = *very positive*) or how negatively they would rate the experience (for all negative contact items; 1 = *not at all negative*, 7 = *very negative*).

Mean frequency and mean intensity scores were created separately for positive contact and negative contact, calculated only from items for which participants had responded "yes." These mean scores were combined to create two composite scores (as per Voci & Hewstone, 2003): mean positive contact frequency multiplied by mean positive intensity, and mean negative contact frequency multiplied by mean negative intensity. Participants were therefore left with an overall positive contact score and an overall negative contact score, ranging from 1 to 49. Participants who reported experiencing no positive or negative contact with Black Americans were then given a mean frequency score of 0 to indicate *never*.

### Intergroup emotions

**Anxiety.** Intergroup anxiety was measured with five items adapted from W. G. Stephan et al. (2002) that examined feelings of anxiety about interacting with Black Americans (e.g., "When I interact with, or think about interacting with Black Americans, I feel anxious";  $\alpha = .89$ ), with a response scale from 1 = *strongly disagree* to 7 = *strongly agree*.

**Table 1.** Frequency and Intensity of White Americans' Positive Contact With Black Americans (Study 1), and Black and Hispanic Americans' Positive Contact With White Americans (Study 2).

Item	White Americans			Black Americans			Hispanic Americans		
	%n	Frequency M (SD)	Intensity M (SD)	%n	Frequency M (SD)	Intensity M (SD)	%n	Frequency M (SD)	Intensity M (SD)
Been friendly toward you	91.1	4.85 (2.1)	6.44 (0.8)	83.2	4.46 (2.5)	6.27 (1.1)	78.8	4.38 (2.6)	6.25 (1.1)
Been polite to you	91.1	4.85 (2.2)	6.23 (1.0)	81.6	4.55 (2.4)	6.07 (1.2)	75.3	4.15 (2.7)	6.32 (1.0)
Pleasant interaction	90.3	4.80 (2.1)	6.42 (0.8)	79.6	4.30 (2.5)	6.37 (1.0)	78.2	4.28 (2.6)	6.13 (1.3)
They treated you as equal	88.7	4.68 (2.3)	6.30 (0.9)	74.0	3.85 (2.6)	6.23 (1.2)	71.2	3.90 (2.8)	6.19 (1.2)
Felt safe	88.4	4.65 (2.3)	6.17 (1.0)	70.4	3.61 (2.7)	6.09 (1.3)	67.6	3.71 (2.9)	6.20 (1.2)
Felt they were genuine and sincere	87.4	4.53 (2.3)	6.43 (0.8)	71.4	3.75 (2.7)	6.28 (1.2)	68.8	3.73 (2.8)	6.39 (1.0)
Felt you could trust them	86.8	4.48 (2.3)	6.29 (0.9)	66.3	3.43 (2.8)	6.29 (1.1)	65.9	3.64 (2.9)	6.35 (1.1)
Enjoyable interaction	90.3	4.47 (2.2)	6.44 (0.8)	80.6	4.27 (2.5)	6.13 (1.3)	76.5	4.13 (2.7)	6.30 (1.2)
Been kind to you	86.8	4.40 (2.3)	6.51 (0.8)	83.7	4.60 (2.3)	6.23 (1.1)	70.6	3.84 (2.8)	6.35 (1.0)
Comfortable interaction	86.6	4.39 (2.3)	6.24 (1.0)	76.0	3.81 (2.6)	5.87 (1.6)	70.6	3.78 (2.8)	6.17 (1.2)
Laughed during the interaction	86.6	4.31 (2.3)	6.45 (0.8)	78.1	4.31 (2.6)	6.23 (1.2)	71.2	4.02 (2.8)	6.29 (1.1)
Easy, relaxed interaction	84.7	4.27 (2.4)	6.39 (0.8)	73.0	3.86 (2.7)	6.23 (1.1)	71.8	3.94 (2.8)	6.23 (1.2)
Informal interaction	86.6	4.27 (2.3)	6.01 (1.1)	65.8	3.39 (2.7)	5.84 (1.3)	67.1	3.58 (2.8)	5.98 (1.3)
Felt they weren't judging you	81.5	4.20 (2.5)	6.16 (1.0)	63.3	3.22 (2.8)	6.05 (1.3)	61.8	3.39 (2.9)	6.26 (1.1)
Been welcoming toward you	80.6	4.17 (2.5)	6.51 (0.7)	78.1	4.14 (2.5)	6.27 (1.1)	69.4	3.85 (2.8)	6.25 (1.2)
Felt they were approachable	81.7	4.14 (2.4)	6.33 (0.8)	73.0	4.05 (2.8)	6.23 (1.1)	59.4	3.37 (3.0)	6.44 (0.9)
Felt they respected you	82.5	3.99 (2.4)	6.35 (0.9)	71.4	3.78 (2.7)	6.21 (1.2)	72.4	4.03 (2.8)	6.43 (1.0)
Felt they were interested in what you had to say	82.3	3.93 (2.3)	6.25 (0.9)	74.5	3.74 (2.6)	6.07 (1.2)	64.1	3.61 (2.9)	6.21 (1.2)
Cooperative interaction	81.7	3.76 (2.3)	6.28 (0.9)	70.4	3.64 (2.6)	6.08 (1.2)	64.1	3.41 (2.9)	6.19 (1.1)
Felt free to express yourself	78.0	3.69 (2.5)	6.20 (1.0)	68.9	3.56 (2.7)	5.98 (1.2)	62.9	3.52 (2.9)	6.33 (1.1)
Felt they were happy sharing information about themselves with you	74.2	3.53 (2.6)	6.34 (0.9)	72.4	3.84 (2.8)	6.07 (1.3)	62.9	3.56 (2.9)	6.29 (1.2)
Made you feel valued	72.8	3.51 (2.6)	6.55 (0.7)	65.3	3.32 (2.8)	6.31 (1.1)	65.9	3.66 (2.9)	6.43 (1.0)
Felt they appreciated you	74.5	3.45 (2.5)	6.41 (0.8)	70.9	3.65 (2.7)	6.25 (1.1)	65.3	3.56 (2.9)	6.31 (1.1)
Friends	80.6	3.41 (2.4)	6.59 (0.7)	79.6	4.21 (2.5)	6.33 (1.1)	74.7	4.05 (2.8)	6.34 (1.2)
Made you feel accepted	70.2	3.39 (2.7)	6.49 (0.7)	76.0	4.05 (2.5)	6.12 (1.1)	67.6	3.88 (2.9)	6.34 (1.1)
Included you	71.5	3.37 (2.6)	6.40 (0.9)	73.5	3.85 (2.7)	6.16 (2.0)	63.5	3.57 (2.9)	6.39 (0.9)
Complimented you	78.0	3.22 (2.3)	6.30 (1.0)	79.6	3.92 (2.5)	6.30 (1.1)	74.8	3.96 (2.6)	6.24 (1.2)
Felt they wanted to become friends with you	73.1	3.14 (2.4)	6.48 (0.8)	68.4	3.53 (2.7)	6.26 (1.1)	65.3	3.63 (2.8)	6.36 (1.1)
Been encouraging to you	64.5	3.06 (2.6)	6.50 (0.8)	75.0	3.75 (2.6)	6.18 (1.1)	61.8	3.27 (2.8)	6.30 (1.1)
Been warm and affectionate toward you	65.9	3.04 (2.6)	6.46 (0.8)	76.0	3.85 (2.6)	6.20 (1.2)	67.1	3.59 (2.9)	6.34 (1.0)
Sought you out for an interaction	64.8	2.87 (2.6)	6.17 (1.0)	55.1	2.73 (2.7)	5.97 (1.4)	53.5	2.98 (3.0)	6.38 (1.1)
Made you feel wanted	59.4	2.86 (2.7)	6.51 (0.8)	62.2	3.19 (2.8)	6.22 (1.1)	55.9	3.23 (3.0)	6.53 (0.9)
Praised you	66.7	2.78 (2.4)	6.50 (0.7)	68.9	3.45 (2.7)	6.30 (1.1)	54.7	3.06 (3.0)	6.41 (0.9)
Hugged you	67.5	2.53 (2.4)	6.46 (0.8)	79.1	3.86 (2.5)	6.25 (1.2)	70.6	3.79 (2.8)	6.38 (1.0)
Been generous to you	55.6	2.45 (2.5)	6.48 (0.8)	68.9	3.48 (2.7)	6.25 (1.1)	62.9	3.28 (2.8)	6.40 (1.0)
Interaction felt intimate	31.5	1.15 (2.1)	6.37 (1.0)	40.8	1.81 (2.5)	5.97 (1.5)	45.3	2.45 (3.0)	6.18 (1.4)
Physically intimate	23.9	0.74 (1.7)	6.20 (1.3)	44.9	1.99 (2.6)	6.13 (1.3)	47.6	2.42 (2.9)	6.28 (1.3)

Note. Percentages indicate the proportion of respondents in each sample who experienced the interaction at least once. Participants who reported experiencing the interaction then indicated the frequency at which they experienced it (1 = *extremely rarely*, 7 = *extremely frequently*); all other participants were given a score of 0 indicating *never*. Participants who reported experiencing the interaction also indicated how positive they rate the interaction (1 = *not at all positive*, 7 = *very positive*), and mean intensity scores were calculated accordingly.

*Empathy/perspective taking.* We focused on perspective taking as an indicator of empathy in this study as it has been the focus in much of the contact literature (e.g., Aberson

& Haag, 2007). One item from the Perspective Taking subscale of the Ethnocultural Empathy scale (Wang et al., 2003) was used: "It is difficult for me to put myself in the

**Table 2.** Frequency and Intensity of White Americans' Negative Contact With Black Americans (Study 1), and Black and Hispanic Americans' Negative Contact With White Americans (Study 2).

Item	White Americans			Black Americans			Hispanic Americans		
	%n	Frequency M (SD)	Intensity M (SD)	%n	Frequency M (SD)	Intensity M (SD)	%n	Frequency M (SD)	Intensity M (SD)
Been unfriendly toward you	59.7	1.66 (1.9)	5.33 (1.4)	60.2	2.17 (2.2)	5.09 (1.6)	41.2	1.37 (2.0)	5.01 (1.6)
Unpleasant interaction	66.1	1.56 (1.6)	5.75 (1.3)	66.3	2.21 (2.0)	5.45 (1.6)	48.2	1.48 (1.9)	5.14 (1.6)
Been rude to you	58.1	1.50 (1.7)	5.53 (1.4)	59.2	1.92 (2.1)	5.56 (1.7)	44.1	1.30 (1.9)	5.71 (1.4)
Awkward interaction	48.9	1.30 (1.7)	4.08 (1.4)	49.5	1.75 (2.0)	4.68 (1.6)	33.5	1.20 (2.0)	4.54 (1.7)
Superficial interaction	37.1	1.23 (1.9)	3.98 (1.4)	34.2	1.29 (2.1)	4.94 (1.6)	30.6	1.25 (2.1)	4.88 (1.6)
Judged you	43.8	1.17 (1.7)	5.33 (1.2)	45.9	1.68 (2.1)	5.61 (1.5)	30.6	1.05 (1.9)	5.75 (1.5)
They were being arrogant	39.5	1.11 (1.7)	5.12 (1.3)	44.4	1.67 (2.2)	5.40 (1.8)	35.9	1.22 (1.9)	5.41 (1.4)
Felt intimidated by them	46.0	1.01 (1.4)	5.66 (1.3)	24.5	0.79 (1.7)	5.80 (1.6)	20.0	0.73 (1.7)	4.63 (1.9)
Been cold and distant toward you	39.2	0.99 (1.6)	5.19 (1.3)	34.2	1.14 (1.9)	5.60 (1.7)	32.4	0.98 (1.7)	5.48 (1.4)
Treated you as inferior	34.9	0.90 (1.6)	5.96 (1.3)	54.6	1.99 (2.1)	5.80 (1.6)	37.6	1.30 (2.0)	5.62 (1.6)
Wasn't interested in what you had to say	33.3	0.90 (1.5)	4.82 (1.4)	35.2	1.28 (2.0)	5.24 (1.8)	24.1	0.95 (1.9)	5.33 (1.4)
Competitive interaction	23.9	0.78 (1.6)	2.63 (1.3)	29.6	1.12 (1.9)	3.64 (1.8)	25.3	1.01 (1.9)	3.15 (2.0)
Insulted you	35.2	0.71 (1.2)	5.82 (1.3)	37.2	1.12 (1.8)	5.69 (1.9)	28.8	0.85 (1.6)	5.88 (1.6)
Tense, hostile interaction	34.9	0.63 (1.1)	6.33 (1.1)	32.1	0.95 (1.7)	5.57 (1.7)	22.9	0.72 (1.6)	5.87 (1.6)
Been condescending or patronizing to you	25.5	0.62 (1.4)	5.61 (1.4)	35.2	1.37 (2.1)	5.28 (1.8)	27.6	0.99 (1.9)	5.21 (2.0)
Verbally insulted you	30.6	0.62 (1.2)	6.26 (1.1)	33.7	0.94 (1.7)	6.19 (1.6)	26.5	0.78 (1.6)	5.88 (1.5)
Derogated you	26.1	0.55 (1.2)	6.09 (1.1)	27.6	0.81 (1.7)	6.14 (1.6)	21.8	0.73 (1.6)	5.53 (1.8)
Made you feel unwanted	23.7	0.53 (1.3)	6.01 (1.1)	30.1	1.05 (1.8)	5.46 (1.9)	21.2	0.77 (1.7)	5.69 (1.4)
Unfairly criticized you	24.2	0.53 (1.2)	5.64 (1.3)	31.1	0.88 (1.6)	5.69 (1.7)	23.5	0.85 (1.7)	5.46 (1.5)
Excluded you	20.2	0.52 (1.3)	5.37 (1.5)	27.6	0.98 (1.9)	5.67 (1.7)	21.8	0.87 (1.8)	5.35 (1.7)
Ridiculed you	24.7	0.52 (1.1)	5.80 (1.3)	24.5	0.67 (1.5)	5.98 (1.5)	18.2	0.66 (1.6)	5.53 (1.5)
Discriminated against you	19.9	0.50 (1.2)	6.10 (1.1)	48.5	1.69 (2.2)	6.16 (1.4)	25.3	0.91 (1.8)	5.49 (1.8)
Felt that they hated you	22.3	0.45 (1.1)	6.52 (0.9)	28.6	0.97 (1.8)	6.13 (1.4)	18.8	0.61 (1.5)	5.57 (1.7)
Been threatened	23.9	0.44 (1.0)	6.49 (1.1)	18.4	0.49 (1.3)	6.00 (1.6)	14.7	0.52 (1.5)	5.57 (1.5)
Rejected you	15.6	0.35 (1.0)	5.86 (1.2)	32.1	1.11 (1.9)	5.62 (1.6)	16.5	0.55 (1.4)	5.68 (1.4)
Tried to fight you	18.8	0.34 (0.9)	6.40 (1.1)	19.4	0.57 (1.5)	5.83 (1.5)	17.6	0.58 (1.5)	5.72 (1.7)
Exploited you	12.6	0.31 (1.1)	6.11 (1.2)	25.5	0.86 (1.7)	5.77 (1.5)	15.3	0.56 (1.5)	5.36 (1.7)
Made you feel worthless or unimportant	11.8	0.31 (1.1)	5.95 (1.5)	20.4	0.77 (1.8)	5.68 (2.0)	16.5	0.66 (1.7)	5.78 (1.3)
Felt they were your enemy	14.0	0.28 (0.9)	6.31 (1.4)	25.0	0.82 (1.7)	5.83 (1.7)	12.4	0.48 (1.4)	5.81 (1.2)
Actively avoided you	7.0	0.19 (0.9)	5.35 (1.5)	29.6	0.95 (1.8)	5.35 (1.6)	12.9	0.57 (1.6)	5.52 (1.2)
Physically harmed you	12.1	0.18 (0.6)	6.51 (1.2)	11.7	0.32 (1.1)	5.71 (1.7)	8.8	0.30 (1.2)	5.54 (1.3)
Forced you to do something you didn't want to do	7.0	0.15 (0.7)	6.23 (1.1)	11.7	0.43 (1.4)	5.59 (1.6)	12.4	0.78 (1.6)	5.53 (1.5)

Note. Percentages indicate the proportion of respondents in each sample who experienced the interaction at least once. Participants who reported experiencing the interaction then indicated the frequency at which they experienced it (1 = *extremely rarely*, 7 = *extremely frequently*); all other participants were given a score of 0 indicating *never*. Participants who reported experiencing the interaction also indicated how negative they rate the interaction (1 = *not at all negative*, 7 = *very negative*), and mean intensity scores were calculated accordingly.

shoes of a Black American person" (1 = *strongly disagree that it describes me*, 6 = *strongly agree that it describes me*; reverse coded such that higher scores indicate greater empathy).

**Anger.** Participants completed four items adapted from Mackie et al. (2000) measuring the extent to which Black Americans make them feel (a) angry, (b) irate, (c) incensed, and (d) furious (1 = *not at all* to 7 = *extremely*;  $\alpha = .96$ ).

#### Outcome measures

**Anti-Black attitudes.** Participants completed seven items from the Symbolic Racism 2000 scale (Henry & Sears, 2002; for example, "Over the past few years, Blacks have gotten more economically than they deserve," 1 = *strongly disagree* to 4 = *strongly agree*;  $\alpha = .87$ ).

**Outgroup evaluations.** Six semantic-differential items indicated participants' evaluations of Black Americans on

**Table 3.** Correlation Matrix for White Americans (Study 1) and Black and Hispanic Americans (Study 2).

Variables	1	2	3	4	5	6	7	8
1. Positive contact	—	-.17**	-.59***	.24***	-.34***	-.28***	.55***	-.33***
2. Negative contact	-.10	—	.46***	-.26***	.63***	.57***	-.21***	.47***
3. Anxiety	-.49***	.44***	—	-.39***	.66***	.50***	-.43***	.67***
4. Empathy	.23***	.05	-.27***	—	-.39***	-.34***	.11	-.47***
5. Anger	-.27***	.49***	.41***	.07	—	.67***	-.28***	.70***
6. Anti-outgroup attitudes	-.26***	.38***	.29***	-.03	.51***	—	-.22***	.53***
7. Positive evaluations	.58***	-.31***	-.51***	.22***	-.46***	-.44***	—	-.16**
8. Active avoidance	-.34***	.33***	.49***	-.13*	.46***	.31***	-.39***	—

Note. Correlations are reported above the diagonal for Black and Hispanic American participants (combined) and below the diagonal for White American participants. These correlations are reported only for people who experienced both positive and negative contact, as per the regression models.

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

a scale from 1 to 10 (1 = *extremely negative; cold; distant; disrespect; dislike; unfavorable* to 10 = *extremely positive; warm; close; respect; like; favorable*). Higher scores indicate more positive evaluations of the outgroup ( $\alpha = .95$ ).

*Outgroup avoidance* was measured with five items from Barlow, Louis, and Hewstone (2009). An example item is "If I were in conversation with a Black stranger it is likely that I would make an effort to cut the conversation short." (1 = *strongly disagree*, 7 = *strongly agree*;  $\alpha = .79$ ).

## Results and Discussion

**Positive and negative contact experiences.** Tables 1 and 2 summarize descriptive statistics of all measures of positive and negative contact, respectively. In general, more extreme types of positive and negative contact were less frequent than mild, everyday contact. Paired-samples  $t$  tests also revealed that positive contact was more frequent ( $M = 4.44$ ) overall than negative contact ( $M = 2.00$ );  $t(367) = 22.50$ ,  $p < .001$ .<sup>3</sup> This finding is consistent with those of previous research (Barlow et al., 2012; Graf, Paolini, & Rubin, 2014; Pettigrew, 2008).

With regard to perceived intensity, the majority of positive contact items were rated as highly positive (means above 6 on a 7-point scale), and almost all negative contact means were above the midpoint for negativity (i.e., above 4 on a 7-point scale). Overall, positive contact was more positive ( $M = 6.24$ ) than negative contact was negative ( $M = 5.21$ ), as rated by those who had experienced both (85% of participants),  $t(312) = 13.90$ ,  $p < .001$ .

**Asymmetry analyses.** To compare the influence of positive and negative contact on intergroup emotions and prejudice, we selected only participants who had experienced both positive and negative contact for the following analyses. Correlations among variables are reported in Table 3. Assessing contact asymmetry requires comparing the absolute magnitude of positive and negative contact effects; we therefore followed the analytic procedure of Barlow et al. (2012) and conducted a series of hierarchical linear regressions. Control

variables of age, sex, SES, and education were entered at Step 1, and the predictors of positive and negative contact (the combined frequency  $\times$  intensity scores) were entered at Step 2. The absolute values of the positive and negative contact coefficients and the correlation between predictors were then entered into a  $t$  test that examined the difference between two *related* coefficients, using the equation  $t = (b_1 - b_2) / SE_{(b_1 - b_2)}$ .

Positive and negative contact were regressed on anti-Black attitudes, outgroup evaluations, avoidance, anxiety, empathy, and anger. As seen in Table 4, negative contact was a stronger predictor of anti-Black attitudes and avoidance than positive contact.<sup>4</sup> This replicates the *positive-negative contact asymmetry* with a more comprehensive and multidimensional measure of contact.<sup>5</sup> No contact asymmetry emerged when predicting outgroup evaluations and outgroup empathy. By contrast, a positive-negative asymmetry was found when predicting intergroup anxiety and anger. Together, these findings suggest that positive contact predicts *positive* outcomes (positive evaluations of and empathy toward the outgroup) just as strongly as negative contact. On the contrary, negative contact is a stronger predictor of negative outcomes (anti-Black attitudes, avoidance, anxiety, and anger) than is positive contact.

We also examined whether high levels of positive contact might buffer against the impact of negative contact (Paolini et al., 2014). To do so, we conducted moderation analyses using *PROCESS* (Hayes, 2013). Of six outcome variables, significant interactions only emerged when predicting anger and empathy ( $F_s > 7.00$ ,  $p_s < .01$ ). Consistent with Paolini et al. (2014), the effect of negative contact on anger was weaker at high levels of positive contact. However, negative contact predicted *greater* empathy at low positive contact; see supplementary materials.

**Mediation.** In Table 3, the strong correlations between the mediator and outcome variables (relative to the correlations between contact and the outcomes) provide encouraging evidence for our mediational model. Thus, we tested anxiety, empathy, and anger as parallel mediators of positive and

**Table 4.** Study 1: Hierarchical Regression Coefficients and Tests of Asymmetry for Positive and Negative Contact as Predictors of Emotions and Attitudes Toward Black Americans.

Outcome	Positive contact		Negative contact		t value <sup>a</sup>	Model change statistics (Step 2)
	$\beta$	b (SE)	$\beta$	b (SE)		
Anti-Black attitudes –	–.20***	–.01 (0.003)	.37***	.04 (0.005)	t(309) = –4.12***	R <sup>2</sup> = .19, F(2, 303) = 36.68***
Positive evaluations	.54***	.09 (0.007)	–.27***	–.07 (0.012)	t(309) = 1.28	R <sup>2</sup> = .38, F(2, 303) = 96.99***
Avoidance –	–.30***	–.04 (0.006)	.31***	.06 (0.010)	t(309) = –2.33*	R <sup>2</sup> = .20, F(2, 303) = 39.41***
Anxiety –	–.45***	–.05 (0.005)	.39***	.08 (0.009)	t(309) = –2.23*	R <sup>2</sup> = .39, F(2, 303) = 96.45***
Empathy	.22***	.03 (0.008)	.06	.01 (0.013)	t(309) = 1.23	R <sup>2</sup> = .05, F(2, 303) = 7.95***
Anger –	–.19***	–.02 (0.005)	.49***	.08 (0.008)	t(309) = –6.99***	R <sup>2</sup> = .29, F(2, 303) = 64.02***

Note. A – sign next to the outcome variable name indicates an asymmetry in favor of negative contact (no sign = no significant asymmetry). In three asymmetry models (evaluations, anxiety, and empathy), the betas show what appear to be asymmetries in favor of positive contact, whereas the t tests reveal no asymmetry (or a negative asymmetry). The standardized coefficients in these models are somewhat misleading as the positive contact SD (11.0) is almost twice that of negative contact (6.7), and betas indicate the level of SD change in the outcome variable with 1 SD change in the predictor. The difference between bs (that reflect absolute change in the outcome variable as per 1 unit change in the predictor variable) is different, and it is these coefficients that determine asymmetry in the t test. The unstandardized coefficients are included to illustrate this. Control variables were entered at Step 1; positive and negative contact were entered at Step 2; only Step 2 statistics are reported.

<sup>a</sup>The t test refers to tests of asymmetry in the magnitude of positive and negative contact predictions, calculated using the equation  $t = (b_1 - b_2) / SE_{(b_1 - b_2)}$ . \*p < .05. \*\*p < .01. \*\*\*p < .001.

**Table 5.** Study 1: Point Estimates and Confidence Intervals for Mediated (Indirect) Effects.

	Anti-Black attitudes		Positive evaluations		Avoidance	
	b (SE)	95% CIs	b (SE)	95% CIs	b (SE)	95% CIs
Positive contact						
M = anxiety	.001 (0.002)	[–0.003, 0.004]	.009 (0.005) <sup>a</sup>	[0.0003, 0.019]	–.015 (0.005) <sup>a</sup>	[–0.026, –0.006]
M = empathy	–.001 (0.001)	[–0.002, 0.001]	.004 (0.002) <sup>a</sup>	[0.001, 0.010]	–.001 (0.001)	[–0.004, 0.001]
M = anger	–.004 (0.001) <sup>a</sup>	[–0.007, –0.012]	.008 (0.003) <sup>a</sup>	[0.003, 0.016]	–.007 (0.003) <sup>a</sup>	[–0.014, –0.003]
Negative contact						
M = anxiety	–.001 (0.003)	[–0.006, 0.004]	–.013 (0.007) <sup>a</sup>	[–0.029, –0.0002]	.021 (0.008) <sup>a</sup>	[0.008, 0.037]
M = empathy	–.0003 (.001)	[–0.002, 0.0003]	.002 (0.002)	[–0.002, 0.009]	–.001 (0.001)	[–0.004, 0.001]
M = anger	.017 (.004) <sup>a</sup>	[0.011, 0.025]	–.034 (0.009) <sup>a</sup>	[–0.056, –0.019]	.030 (0.010) <sup>a</sup>	[0.013, 0.052]

Note. M = mediator. All models control for age, sex, SES, education, and group. All bias-corrected percentile bootstrap confidence intervals are reported at the 95% confidence level, and all results are reported based on 5,000 bootstrapped samples.

<sup>a</sup>Estimates for which confidence intervals do not cross 0.

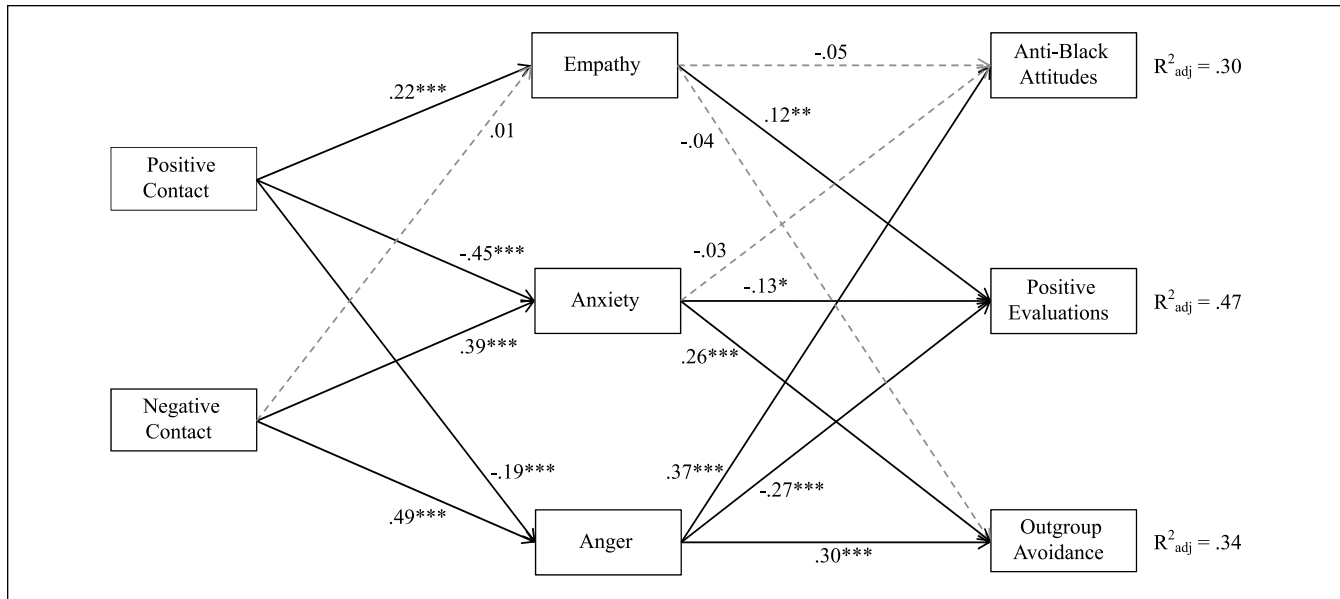
negative contact (simultaneously) predicting each of the three outcomes. The indirect effects were estimated and tested using bootstrapping procedures that allow for multiple parallel mediators and multiple predictors (using *PROCESS*; Hayes, 2013). Results are outlined in Table 5, and Figure 1 illustrates the significant model paths with all three outcomes placed in the same figure.

Anger consistently mediated the effects of both negative and positive contact on all outcome variables. Anxiety additionally mediated the effects of positive and negative contact on outgroup evaluations (in line with Pettigrew & Tropp, 2008). However, in contrast to previous work (Techakesari et al., 2015), anxiety did not significantly mediate relationships between positive or negative contact and more cognitively oriented prejudice measures. We found both anger and anxiety to significantly mediate the relationships between both types of contact and avoidance. Empathy significantly

mediated only one effect: the relationship between positive contact and more positive evaluations of Black Americans.

## Study 2

Study 2 extends Study 1 by examining intergroup contact from the perspective of racial and ethnic minority samples in the United States (specifically, Black Americans and Hispanic Americans). Further to establishing contact asymmetry, we examined how positive and negative contact predict prejudice among members of minority groups. Past research has focused largely on the role of anxiety, suggesting that it is an important mediator of both positive (e.g., Tausch, Hewstone, & Roy, 2009) and negative (C. W. Stephan et al., 2000; W. G. Stephan et al., 2002) contact effects for historically disadvantaged groups. But in light of Study 1, it seems likely that anger will also play an important role for minority group



**Figure 1.** Parallel mediation models of positive and negative contact on anti-Black attitudes, positive evaluations, and avoidance of Black Americans in Study 1.

Note. All models control for age, sex, SES, and education; standardized coefficients are reported. SES = socioeconomic status.

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

members in Study 2, particularly since anger is one of the most common emotional responses to disadvantaged group members' experiences of racism and discrimination (Broudy et al., 2007; Swim et al., 2003).

The role of empathy has not been studied to the same degree among minority samples, although W. G. Stephan and Finlay (1999) suggest that minority group members often feel empathy for majority group members. We generally expected empathy to be a significant mediator of the relationship between positive contact and reduced prejudice, although if the results mirror those of Study 1, empathy may only be an important predictor of affective prejudice (outgroup evaluations).

## Method

**Participants and procedure.** In all, 195 Black Americans (69.2% women,  $M_{age} = 41.60$  years) and 170 Hispanic Americans (65.9% women,  $M_{age} = 38.14$  years) completed surveys through socialsci.com.<sup>6</sup> Descriptive analyses were conducted separately for Black and Hispanic Americans. Regression models that examine contact asymmetry and mediation effects were conducted on the combined sample, and differences between groups investigated. The combined sample exceeded the estimated  $N$  needed to detect an effect size of 0.18 (the relationship between positive contact and prejudice for minority groups; Tropp & Pettigrew, 2005b) and far exceeded the  $N$  required to detect an effect size of 0.4 (the association between negative contact and prejudice for Black Americans; W. G. Stephan et al., 2002) with 95% power.

**Measures.** Participants completed the same measures used in Study 1 with the target outgroup changed to White Americans. Survey order and randomization procedures were the same as those used in Study 1. The measure of prejudiced attitudes toward the outgroup was changed from a measure of anti-Black attitudes to an Anti-White Attitudes scale. Specifically, Hispanic and Black American participants completed nine items from the Johnson-Lecci scale assessing anti-White attitudes (Johnson & Lecci, 2003). An example item is "I believe that most Whites would love to return to a time in which Blacks/Hispanics had no civil rights" (1 = *strongly disagree* to 7 = *strongly agree*;  $\alpha = .93$  for both samples).

## Results and Discussion

**Positive and negative contact experiences.** Mean frequency and intensity of contact experiences are summarized in Tables 1 and 2. The frequency of positive contact experiences was similar across the two samples; however, some negative interactions (e.g., being discriminated against) were experienced more frequently by Black Americans. Mixed ANOVAs revealed that minority participants reported experiencing positive contact more frequently ( $M = 4.74$ ) than negative contact ( $M = 2.61$ );  $F(1, 350) = 253.90$ ,  $p < .001$ . Ethnic group did not moderate this finding,  $F(1, 350) = 1.19$ ,  $p = .277$ . Minority participants reported the positive contact they experienced as being more positive ( $M = 6.03$ ) than the negative contact was negative ( $M = 5.05$ ; analyzing the 77% of minority participants who had experienced both types of contact),  $F(1, 280) = 108.78$ ,  $p < .001$ . The interaction



**Table 6.** Study 2: Hierarchical Regression Coefficients and Tests of Asymmetry for Positive and Negative Contact as Predictors of Emotions and Attitudes Toward White Americans.

Outcome	Positive contact		Negative contact		t value <sup>a</sup>	Model change statistics (Step 2)
	$\beta$	b (SE)	$\beta$	b (SE)		
Anti-White attitudes –	-.20***	-.03 (0.007)	.52***	.09 (0.008)	t(274) = -6.18***	R <sup>2</sup> = .35, F(3, 267) = 75.24***
Positive evaluations +	.53***	.09 (0.008)	-.13*	-.03 (0.010)	t(274) = 5.04***	R <sup>2</sup> = .33, F(3, 267) = 45.90***
Avoidance –	-.22***	-.03 (0.007)	.41***	.07 (0.009)	t(274) = -4.03***	R <sup>2</sup> = .23, F(3, 267) = 33.07***
Anxiety	-.50***	-.06 (0.005)	.37***	.05 (0.007)	t(274) = 0.63	R <sup>2</sup> = .42, F(3, 267) = 75.88***
Empathy	.18**	.03 (0.009)	-.22***	-.04 (0.011)	t(270) = -1.00	R <sup>2</sup> = .11, F(3, 263) = 11.56***
Anger –	-.23***	-.04 (0.007)	.59***	.11 (0.009)	t(274) = -7.29***	R <sup>2</sup> = .42, F(3, 267) = 71.55***

Note. Control variables were entered at Step 1; positive and negative contact and group (Black vs. Hispanic) were entered simultaneously at Step 2; only Step 2 statistics are reported here.

<sup>a</sup>The t test refers to tests of asymmetry in the magnitude of positive and negative contact predictions, calculated with unstandardized coefficients using the equation  $t = (b_1 - b_2) / SE_{(b_1 - b_2)}$ . The direction of asymmetry is denoted by + or – next to the outcome variable name (– = asymmetry in favor of negative contact; + = asymmetry in favor of positive contact; no sign = no significant asymmetry).

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

between contact intensity and ethnic group was also significant,  $F(1, 280) = 6.46, p = .012$ , such that the negative contact reported by Black Americans was rated as more intense ( $M = 5.23$ ) than the negative contact reported by Hispanic Americans ( $M = 4.81$ ),  $t(280) = -2.39, p = .018$ . There was no difference between Black and Hispanic Americans on the reported intensity of positive contact,  $t(280) = 0.41, p = .680$ .

**Asymmetry analyses.** Correlations are reported in Table 3. A series of hierarchical linear regressions were conducted, with age, sex, SES, and education entered as control variables at Step 1, and positive and negative contact entered as simultaneous predictors along with the grouping variable (Black Americans = 1, Hispanic Americans = -1) at Step 2. At Step 3, two interaction variables were entered: positive contact  $\times$  ethnic group and negative contact  $\times$  ethnic group. A regression was conducted for all variables, including the prejudice outcomes and the intergroup emotions. For all analyses, positive and negative contact predicted the outcomes to similar degrees, regardless of whether participants were Black or Hispanic (all interaction  $F$ s  $< 1.84, p$ s  $> .161$ ).

Table 6 summarizes the effects of positive and negative contact. As hypothesized, we found evidence of a contact asymmetry, such that negative contact was a stronger predictor of anti-White attitudes and avoidance than was positive contact. Consistent with Study 1, negative contact was a stronger predictor of anger toward White Americans, but no contact asymmetry was found with respect to anxiety. Study 2 revealed a significant association between negative contact and empathy, but positive contact was an equally strong predictor. Interestingly, positive contact was a stronger predictor than negative contact of outgroup evaluations, indicating a contact asymmetry in favor of positive contact. This finding is consistent with prior work demonstrating the strength of positive contact in predicting affective prejudice (Aberson, 2015; Tropp & Pettigrew, 2005a).

We again examined whether positive contact might moderate the effects of negative contact. Of six possible interactions, three were significant: on empathy, outgroup evaluations, and avoidance ( $F$ s  $> 4.44, p$ s  $< .037$ ; see supplementary materials). The moderation on outgroup evaluations was consistent with Paolini et al. (2014), with the effect of negative contact not significant at high levels of positive contact. For empathy and avoidance, however, negative contact had an even stronger impact at high positive contact. Overall, the evidence for a buffering effect of positive contact is not well supported in our data.

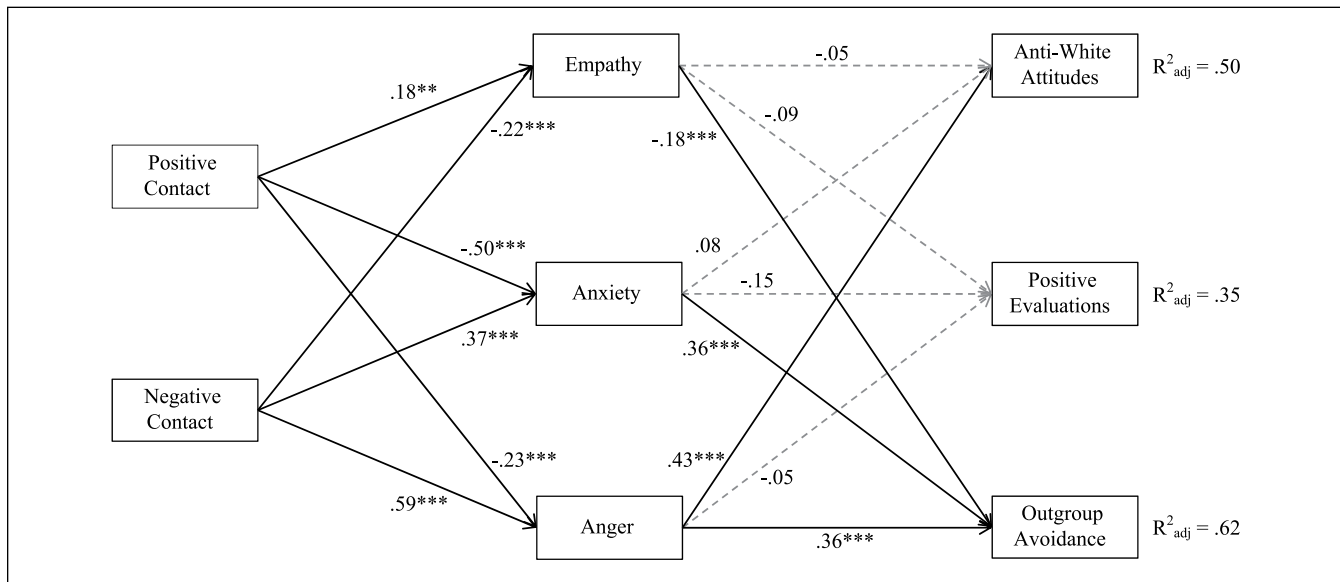
**Mediation.** We examined a range of potential affective mediators of positive and negative contact effects as per Study 1, including only those participants who had experienced both positive and negative contact in the analyses. The ethnic grouping variable (Black vs. Hispanic Americans) was included as an additional covariate. Point estimates and confidence intervals of all indirect effects can be found in Table 7, and an illustration of the models can be found in Figure 2. Anger was again an important mediator of both positive and negative contact effects on anti-White attitudes and avoidance. We did not replicate prior findings that anxiety mediates the relationships between positive (Tausch et al., 2009) and negative (W. G. Stephan et al., 2002) contact and prejudice for minority group members.

In line with previous research (Barlow et al., 2009; W. G. Stephan & Stephan, 1985), anxiety was an important mediator for both positive and negative contact effects on avoidance. In fact, all three intergroup emotions mediated the relationships between positive and negative contact and avoidance of White Americans. None of the affective mediators included in the model explained the relationship between contact and outgroup evaluations. Given this lack of mediation, it is important that further work seeks to determine the mechanisms at play.

**Table 7.** Study 2: Point Estimates and Confidence Intervals for Mediated (Indirect) Effects.

	Anti-White attitudes		Positive evaluations		Avoidance	
	<i>b</i> (SE)	95% CIs	<i>b</i> (SE)	95% CIs	<i>b</i> (SE)	95% CIs
Positive contact						
M = anxiety	-.005 (0.004)	[-0.014, 0.003]	.012 (0.007)	[-0.001, 0.027]	-.026 (0.006)*	[-0.038, -0.014]
M = empathy	-.001 (0.001)	[-0.005, 0.001]	-.003 (0.002)	[-0.008, 0.001]	-.005 (0.002)*	[-0.010, -0.001]
M = anger	-.014 (0.004)*	[-0.023, -0.007]	.002 (0.004)	[-0.006, 0.009]	-.012 (0.004)*	[-0.020, -0.006]
Negative contact						
M = anxiety	.005 (0.004)	[-0.003, 0.013]	-.011 (0.007)	[-0.026, 0.001]	.024 (0.006)*	[0.014, 0.036]
M = empathy	.002 (0.002)	[-0.001, 0.007]	.004 (0.003)	[-0.001, 0.011]	.007 (0.003)*	[0.003, 0.014]
M = anger	.042 (0.008)*	[0.029, 0.058]	-.006 (0.012)	[-0.030, 0.017]	.037 (0.008)*	[0.022, 0.055]

Note. M = mediator. All models control for age, sex, SES, education, and group. All bias-corrected percentile bootstrap confidence intervals are reported at the 95% confidence level, and all results are reported based on 5,000 bootstrapped samples. \* = estimates for which confidence intervals do not cross 0. SES = socioeconomic status; CIs = confidence intervals.

**Figure 2.** Parallel mediation models of positive and negative contact on anti-White attitudes, positive evaluations, and avoidance of White Americans in Study 2.

Note. All models control for age, sex, SES, education, and minority group (Black vs. Hispanic Americans); standardized coefficients are reported. SES = socioeconomic status.

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

### Study 3

Studies 1 and 2 are cross-sectional, and so cannot determine causal relationships between contact and prejudice. As such, Study 3 tested the possible effects of positive and negative contact experiences experimentally. The threat of social desirability is particularly high with negative contact studies: although participants may be happy to say that they like outgroups after interacting positively with them, they may be less willing to report *disliking* outgroups after interacting negatively with a single outgroup member. To overcome this issue, we developed vignette contact scenarios with a member of a fictional ethnic outgroup, *Broneans*. Participants

imagined themselves interacting with a Bronean man for the first time, and were presented with a scenario detailing either a positive, negative, or neutral interaction. This paradigm also allowed us to carefully craft the scenarios, so that the negative contact scenario was the strict opposite of the positive contact scenario.

Study 3 addressed additional limitations with Studies 1 and 2. In the previous studies, we conceptualized intergroup emotions as feelings toward outgroup members *in general*, rather than as feelings toward the outgroup member(s) with whom one has interacted. We believe that these intergroup emotions are valuable to examine, but they are difficult to separate from our group-level affective prejudice measure

(outgroup evaluations). In Study 3, we examined the extent to which participants imagined that they would feel anger, anxiety, and empathy *during* the interaction, and how this predicted their attitudes toward and beliefs about the outgroup as a whole.

To improve upon the single-item empathy measure used in Studies 1 and 2, the present study included three items tapping into participants' ability to take the perspective of the outgroup member in the vignette. Moreover, some of the avoidance items used in Studies 1 and 2 might capture additional concepts beyond avoidance. For example, scoring highly on the item "I would rather study for an exam than talk to a Black American stranger on the street" may reflect a desire to avoid Black Americans, as well as studiousness or extraversion. Thus, in the present study, we included an additional avoidance measure that did not have these issues: intentions to engage with the outgroup in future, including the desire to befriend outgroup members.

Finally, cognitive prejudice measures like those used in Studies 1 and 2 reflect participants' beliefs about the outgroup with items such as "[The outgroup] gets more than they deserve." Given that we did not want to provide participants with any information about the relative status of the fictional ethnic group, we instead used stereotypes as an indicator of cognitive prejudice (see Tropp & Pettigrew, 2005a).

## Method

**Participants and design.** A community sample of 314 Americans completed the survey via Amazon Mechanical Turk. Data from five participants were removed because they completed less than 50% of the survey. The final sample comprised of 309 participants (59.2% men;  $M_{age} = 36.76$  years); 258 identified as White, 21 as Black, 18 as Asian, and nine as Hispanic. This sample size exceeded the estimated required  $N$  as specified by G\*Power software to detect the mean experimental effect size of positive contact on prejudice (Pettigrew & Tropp, 2006) and the experimental effect size of negative contact on a similar outcome of category salience (Paolini et al., 2010) with at least 95% power.

Participants were asked to imagine themselves engaging in an interaction with a fictional ethnic outgroup member (a Bronean man) for the first time. Participants were randomly allocated to one of three interaction conditions: positive contact ( $n = 106$ ), neutral contact ( $n = 100$ ), or negative contact ( $n = 103$ ). The positive and negative contact scenarios were carefully crafted to mirror one another, with positive words (e.g., "pleasant") replaced with their negative counterparts (e.g., "unpleasant"). The neutral contact scenario was comparatively short, and did not include positively or negatively valenced words (see supplementary materials).

**Measures.** Participants then completed measures of intergroup emotions they anticipated they would feel *during* the imagined interaction (anxiety, empathy, and anger) and

intergroup outcomes (belief in outgroup stereotypes, outgroup evaluations, outgroup avoidance, and future contact intentions).

**Demographics.** In addition to ethnicity, participants reported their age, sex, level of education, and SES.<sup>7</sup>

**Intergroup emotions.** All emotion items used a response scale from 1 = *strongly disagree* to 7 = *strongly agree*. Anxiety was measured with the same five items used in Studies 1 and 2 but adapted to reflect feelings of anxiety in response to the interaction with the Bronean man ("The experience made me feel . . ." anxious, nervous, uncertain, relaxed, and comfortable;  $\alpha = .93$ ). Similarly, anger was measured with the same items used in Studies 1 and 2, yet adapted to reflect anger during the interaction ( $\alpha = .95$ ). Empathy was measured with three items tapping into feelings of perspective taking during the interaction: "The experience made me feel . . ." as though I could see things from his point of view; as though I would find it easy to relate to him; and that it would be difficult for me to put myself in his shoes (reverse scored;  $\alpha = .83$ ).

**Outcome measures.** We then asked participants to imagine that Bronean people lived in their country. Participants reported on their evaluations of and beliefs about Bronean people in general, as well as how much they desired engaging with Bronean people in future.

**Outgroup stereotypes.** Participants rated how much they believed Bronean people in general possessed 14 stereotypic traits—hostile, angry, violent, mean, lazy, foolish, ignorant, dumb, warm, intelligent, educated, kind, peaceful, hard-working—with the last six traits reverse scored (1 = *strongly disagree*, 7 = *strongly agree*;  $\alpha = .96$ ).

**Outgroup evaluations.** Participants completed five semantic-differential items indicating their evaluations of Bronean people in general (1 = *extremely negative*; *cold*; *distant*; *dislike*; *unfavorable* to 10 = *extremely positive*; *warm*; *close*; *like*; *favorable*;  $\alpha = .96$ ).

**Outgroup avoidance.** Avoidance of Broneans was measured with the same five items used in Studies 1 and 2 ( $\alpha = .90$ ).

**Future contact intentions.** Intentions to engage in future contact with Bronean people were measured with four items, for example, "I would be glad to meet Bronean people in future" (1 = *strongly disagree*, 7 = *strongly agree*;  $\alpha = .90$ ).

## Results

**Manipulation checks.** Seven participants failed the manipulation check regarding the name of the fictional ethnic group, and two did not answer this question.<sup>8</sup> Pairwise comparisons

with Bonferroni adjustment for multiple comparisons found that the positive contact scenario was rated as significantly more positive ( $M = 8.72$ ) than the neutral contact scenario ( $M = 6.79$ ), which was in turn rated as significantly more positive than the negative contact scenario ( $M = 2.69$ ),  $ps < .001$ ,  $F(2, 304) = 401.57$ ,  $p < .001$ .

Separate one-way ANOVAs then examined the effect of the contact manipulation on each intergroup outcome; significant effects were followed up with pairwise comparisons using Bonferroni adjustment.

**Anxiety.** A significant effect of contact type emerged on anxiety,  $F(2, 306) = 231.28$ ,  $p < .001$ ,  $\eta^2 = .60$ ; participants reported significantly more anxiety in the negative contact condition ( $M = 5.18$ ) than in both the neutral ( $M = 2.40$ ) and positive ( $M = 2.34$ ) contact conditions ( $ps < .001$ ). Anxiety scores did not significantly differ between participants in the positive and neutral conditions.

**Anger.** Anger was significantly different between contact conditions,  $F(2, 306) = 107.72$ ,  $p < .001$ ,  $\eta^2 = .41$ . Participants reported more anger in the negative contact condition ( $M = 3.88$ ) than in both the neutral ( $M = 1.72$ ) and positive ( $M = 1.68$ ) contact conditions,  $ps < .001$ . Anger scores did not significantly differ between participants in the positive and neutral conditions.

**Empathy.** An effect of condition was found on empathy,  $F(2, 306) = 155.40$ ,  $p < .001$ ,  $\eta^2 = .50$ , with more empathy reported in the positive contact condition ( $M = 5.36$ ) than in the neutral condition ( $M = 4.57$ ), which was in turn higher than in the negative condition ( $M = 2.81$ ),  $ps < .001$ .

**Outgroup stereotypes.** A significant effect of condition,  $F(2, 306) = 115.30$ ,  $p < .001$ ,  $\eta^2 = .43$ , revealed more agreement with negative outgroup stereotypes in the negative contact condition ( $M = 4.24$ ) than in the neutral condition ( $M = 2.80$ ), which was in turn higher than in the positive condition ( $M = 2.45$ ),  $ps < .021$ .

**Outgroup evaluations.** Analyses revealed a significant main effect of contact on outgroup evaluations,  $F(2, 306) = 121.58$ ,  $p < .001$ ,  $\eta^2 = .44$ . Participants reported more positive feelings toward the outgroup in the positive condition ( $M = 7.50$ ) than in the neutral condition ( $M = 6.41$ ), which was in turn more positive than in the negative condition ( $M = 4.30$ ),  $ps < .001$ .

**Outgroup avoidance.** Participants reported greater outgroup avoidance in the negative contact condition ( $M = 3.74$ ) than in both the neutral ( $M = 2.57$ ) and positive ( $M = 2.47$ ) conditions,  $F(2, 304) = 32.45$ ,  $ps < .001$ ,  $\eta^2 = .18$ . The neutral and positive conditions did not significantly differ.

**Future contact intentions.** Participants were less willing to engage in future contact with the outgroup in the negative

contact condition ( $M = 4.13$ ) compared with both the neutral ( $M = 5.70$ ) and positive ( $M = 5.86$ ) conditions,  $F(2, 304) = 73.13$ ,  $ps < .001$ ,  $\eta^2 = .33$ . There was no significant difference between neutral and positive contact.

**Tests of contact asymmetry.** Tests of asymmetry were then conducted by creating a set of new outcome variables where the mean score on each outcome for the positive and negative contact conditions was calculated to be in the same direction from neutral. For example, the difference in mean scores on anxiety between the positive and neutral contact conditions ( $-0.09$ ) was multiplied by 2 and added to the original mean anxiety score for participants in the positive contact condition. The mean anxiety score for the positive contact condition was now  $+0.09$  away from neutral in the positive direction (more anxiety). Now that mean anxiety scores for positive and negative contact conditions are on the same side of neutral, an ANOVA on the new anxiety variable can be used to detect differences between these two conditions. A significant mean difference between positive and negative contact conditions indicates that the *absolute* difference between negative and neutral contact is significantly larger than the *absolute* difference between positive and neutral contact. This indicates a significant contact asymmetry effect.

Tests of asymmetry showed that, for each intergroup outcome, the magnitude of the difference in mean scores between participants in the neutral and negative contact conditions was greater than the difference in mean scores between participants in the neutral and positive contact conditions. This trend was consistent in relation to mean scores on anxiety ( $M_{diff}$  between positive and negative contact =  $2.72$ ), anger ( $M_{diff} = 2.13$ ), empathy ( $M_{diff} = 0.97$ ), outgroup stereotypes ( $M_{diff} = 1.10$ ), outgroup evaluations ( $M_{diff} = 1.03$ ), outgroup avoidance ( $M_{diff} = 1.08$ ), and future contact intentions ( $M_{diff} = 1.41$ ),  $ps < .001$ .

**Mediation.** Mediation models examined whether anxiety, empathy, and anger mediated the relationships between contact and the outcome variables. To assess positive and negative contact as predictors in these models, we created two effect codes from the three conditions: the positive contact condition compared with the neutral condition (to assess the impact of positive contact), and the negative contact condition compared with the positive and neutral conditions combined (to assess the impact of negative contact). These effect codes were then entered as predictors in a series of mediation models conducted in *PROCESS*, as in Studies 1 and 2. Anger, anxiety, and empathy were entered as parallel mediators that were allowed to predict outgroup stereotypes, outgroup evaluations, avoidance, and future contact intentions.

Point estimates and confidence intervals of all indirect effects can be found in Table 8. Empathy mediated all effects of positive contact, as well as the effects of negative contact on prejudice and future contact intentions. Anxiety additionally mediated the relationships between negative contact and

**Table 8.** Study 3: Point Estimates and Confidence Intervals for Mediated (Indirect) Effects.

	Outgroup stereotypes		Positive evaluations		Avoidance		Future contact	
	<i>b</i> (SE)	95% CIs	<i>b</i> (SE)	95% CIs	<i>b</i> (SE)	95% CIs	<i>b</i> (SE)	95% CIs
Positive contact								
M = anxiety	-.004 (0.009)	[-0.026, 0.013]	.007 (0.017)	[-0.025, 0.046]	-.006 (0.014)	[0.040, -0.018]	.006 (0.015)	[-0.020, 0.041]
M = empathy	-.067 (0.024) <sup>a</sup>	[-0.122, -0.026]	.199 (0.053) <sup>a</sup>	[0.110, 0.315]	-.057 (0.036) <sup>a</sup>	[-0.141, -0.001]	.083 (0.033) <sup>a</sup>	[0.029, 0.161]
M = anger	.004 (0.018)	[-0.042, 0.030]	.002 (0.011)	[-0.014, 0.011]	-.011 (0.032)	[-0.076, 0.052]	.008 (0.025)	[-0.042, 0.057]
Negative contact								
M = anxiety	.113 (0.049) <sup>a</sup>	[0.020, 0.212]	-.212 (0.087) <sup>a</sup>	[-0.391, -0.046]	.163 (0.071) <sup>a</sup>	[0.032, 0.308]	-.175 (0.068) <sup>a</sup>	[-0.311, -0.042]
M = empathy	.121 (0.039) <sup>a</sup>	[0.047, 0.198]	-.363 (0.067) <sup>a</sup>	[-0.500, -0.263]	.102 (0.058)	[-0.004, 0.221]	-.150 (0.050) <sup>a</sup>	[-0.255, -0.061]
M = anger	.170 (0.032) <sup>a</sup>	[0.110, 0.239]	-.087 (0.056)	[-0.203, 0.016]	.300 (0.048) <sup>a</sup>	[0.211, 0.399]	-.233 (0.045) <sup>a</sup>	[-0.331, -0.151]

Note. M = mediator. All bias-corrected percentile bootstrap confidence intervals are reported at the 95% confidence level, and all results are reported based on 5,000 bootstrapped samples. CIs = confidence intervals.

<sup>a</sup>Estimates for which confidence intervals do not cross 0.

all outcomes, and anger mediated the effects of negative contact on outgroup stereotypes, avoidance, and future contact intentions.

## Discussion

Study 3 provided an experimental test of positive and negative contact experiences on intergroup attitudes. When participants imagined experiencing contact with a member of a fictional outgroup, a negative contact experience increased prejudice to a greater degree than a positive contact experience reduced prejudice, as compared to a neutral contact condition. This negative contact asymmetry was found across all outcomes: anger, anxiety, empathy, cognitive and affective prejudice, avoidance, and future contact intentions. This consistent evidence of a negative contact asymmetry differs somewhat from the findings of Studies 1 and 2, where no negative asymmetry was found on *positive* outcomes. In the circumstances afforded by the paradigm—where one imagines a single contact experience, with few concerns about appearing prejudiced—it seems that the impact of imagining a negative contact experience is generally greater than imagining a positive contact experience. This interpretation is consistent with cross-sectional research suggesting that negative contact experiences may wield more influence on our attitudes than positive contact experiences (Barlow et al., 2012), as we attune more closely to negative events than positive events (see Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001).

Study 3 also examined how feelings imagined *during* an intergroup interaction may mediate the effects of contact on prejudice and avoidance. Empathy toward the interaction partner significantly mediated the effects of both positive and negative contact on cognitive prejudice, affective prejudice, and future contact intentions, as well as the effect of positive contact on avoidance. Anxiety mediated all negative contact effects, and anger additionally mediated the effects of negative contact on cognitive prejudice, avoidance, and future contact intentions. Whereas anger (and to a lesser extent anxiety) mediated the relationships between both positive and negative contact and prejudice in Studies 1 and 2, they are only implicated in the effects of negative contact in Study 3. Empathy on the other hand did very little in the cross-sectional studies, mediating the relationship between positive contact and affective prejudice in Study 1, and between both forms of contact and avoidance in Study 2. Although the current study used a more reliable measure of empathy than the previous studies, it is also possible that these inconsistencies are driven by the nature of the task: imagining a single initial interaction with an outgroup member. One interaction may be sufficient to induce feelings of empathy (or lack thereof), at least with regard to the imagined ability to take the contact partner's perspective. However, a single positive interaction may not be sufficient to lower feelings of anger or anxiety, and it should be noted that mean scores on these negative emotions were low across all conditions.

## General Discussion

In recent years, the field of intergroup contact has undergone a shift toward understanding contact both when it is beneficial and detrimental to relations between groups. Recent empirical work has shown that negative intergroup contact occurs and can exert a stronger influence on prejudice and avoidance than positive contact (*positive-negative contact asymmetry*; Barlow et al., 2012; Paolini et al., 2010). In the current article, we present the first comprehensive examination of positive and negative contact and their effects on multiple indicators of prejudice and intergroup emotions within ethnic majority and minority samples. We addressed four gaps in the literature: (a) a lack of understanding regarding the range and nature of the specific contact experiences people commonly have with outgroup members, (b) little knowledge of the affective mediators that help explain relationships between negative contact and prejudice, (c) minimal exploration of these issues among members of both ethnic majority and minority groups, and (d) limited causal evidence that negative contact may lead to increased prejudice more than positive contact leads to reduced prejudice.

## A Real-World Account of Intergroup Contact Experiences

In Studies 1 and 2, we responded to Dixon and colleagues' (2005) call to examine contact as it is truly experienced, providing contact researchers with information about the frequency and perceived intensity of a range of positive and negative intergroup contact experiences. Overall, low-intensity contact (e.g., having a friendly interaction with an outgroup member) was more frequently reported than high-intensity contact (e.g., being friends with an outgroup member). Some interesting differences also emerged between groups: Black Americans reported experiencing many forms of negative contact (e.g., unpleasant or rude interactions), often at higher rates than the other two groups. Black Americans also reported that the negative contact they experienced with White Americans was more intense overall than that reported by Hispanic Americans. Given that negative contact frequency (and, in the current study, intensity) is known to predict intergroup negativity (e.g., Barlow et al., 2012), these differences are noteworthy.

An additional reason for measuring contact in this way was a methodological one. Past measures of contact—particularly those tapping into the *quality* of the contact with the outgroup—have typically asked about the frequency of a small number of different types of interactions (e.g., interactions that were pleasant; Islam & Hewstone, 1993). One issue with these scales is that participants will have a low mean score even if they have experienced one type of contact very frequently (because they will report low frequency on the other interactions). Moreover, participants may have experienced other types of interactions with the outgroup

that were simply not asked about. We attempted to address these issues with the novel measure by (a) asking about a wide range of different interactions and (b) calculating contact frequency using only the interactions participants reported having experienced at least once.

### ***Comparisons Between Positive Contact and Negative Contact***

In Studies 1 and 2, we generally observed that positive contact was rated as more positive than negative contact was rated as negative. We initially assumed that negative contact would in part be more influential by virtue of it involving more intense experiences than positive contact (see Baumeister et al., 2001, for a related discussion). However, positive contact was consistently rated as a highly positive experience, while the intensity of negative contact appeared more variable; more specifically, across the three groups, the average difference in ratings between the most and least intense positive contact experience was 0.54, whereas the difference between the most and least intense negative contact experience was 3.06. We suspect that these distinct trends reflect a difference in how we experience and recall positive and negative intergroup interactions—akin to what Leo Tolstoy wrote in *Anna Karenina*: “Happy families are all alike; every unhappy family is unhappy in its own way.” Parallel evidence has been shown in the analysis of positive and negative traits, with negative traits found to be more narrowly defined and more distinct from each other than positive traits (e.g., Claeys & Timmers, 1993). Together, our findings suggest that negative contact is not, on average, more powerful because it is more intense. Rather, negative contact may be more distinctive and memorable than positive contact, or may simply be more surprising due to its paucity; this could make it seem more informative, and in turn, impactful.

### ***Establishing the Positive–Negative Contact Asymmetry***

Across three studies of majority and minority groups, we found that negative contact predicted higher prejudice to a greater degree than positive contact predicted lower prejudice, replicating the *positive–negative contact asymmetry* effect (Barlow et al., 2012). We also presented the first evidence that, relative to positive contact, negative contact is a stronger predictor of prejudice and avoidance among minority groups (Study 2). Interestingly, in these cross-sectional studies, we found that negative contact was not the stronger predictor of “positive” outcomes (empathy and outgroup evaluations).

However, In Study 3, our manipulation of negative contact more strongly predicted all intergroup outcomes relative to the positive contact condition—including empathy and

outgroup evaluations. We suspect that these slight inconsistencies across the cross-sectional and experimental studies may be methodological: In the cross-sectional studies, asking participants about their negative emotions and attitudes toward the outgroup may activate their thoughts of past negative contact, whereas asking them about their positive emotions may activate their thoughts of past positive contact. Such reflection on past experience was not possible for participants in Study 3, who were asked to imagine a positive or negative contact experience with a member of a novel outgroup. This single interaction paradigm also provides a theoretical difference to the cross-sectional studies where we measured continued experiences of intergroup contact. We found that a single imagined positive interaction does not elicit as much change in attitudes and behavioral intentions as a single imagined negative interaction does, but the frequent positive contact reported in Studies 1 and 2 appears to exert strong influence on positive affective outcomes.

### ***Affective Mediators of Positive and Negative Contact Effects on Prejudice***

Another principal aim of the current research was to examine intergroup emotions as mediators of the effects of positive and negative contact on prejudice. We expected that anxiety and empathy would mediate the relationship between positive contact and lower prejudice. In the cross-sectional studies, this was only the case for majority group participants and only in relation to affective prejudice (outgroup evaluations). In the experimental study, empathy emerged as a consistent mediator of the relationship between positive contact and all outcome variables. This suggests that a single positive intergroup interaction (in the absence of past negative experiences) may be enough to elicit empathy and perspective taking toward the outgroup, and this empathy can drive changes in prejudice and future contact intentions. However, it may not play as much of a role in extended, face-to-face contact with real outgroups where experiences have been both positive and negative and where negative affect is also present (as in Studies 1 and 2; although note the limitations of the measure). Empathy may only shape attitudes when negative emotions such as anger and anxiety are low (see Pettigrew & Tropp, 2008; Swart et al., 2011).

We hypothesized that anger and anxiety would be particularly important in mediating negative contact effects, and this is indeed what we find across the three studies. Anxiety was particularly influential in predicting avoidance and future contact intentions across all studies, adding to mounting evidence that intergroup anxiety significantly reduces the likelihood of engaging in future contact (e.g., Barlow et al., 2009; Plant & Devine, 2003), limiting contact’s ability to have a positive influence on intergroup relations over the long term (Levin et al., 2003).

Anger mediated the relationship between negative contact and greater cognitive prejudice as well as greater outgroup

avoidance in all three studies. The consistency of findings regarding anger in these models is not surprising. Positive contact has been shown to predict intergroup forgiveness through reductions in anger (Tam et al., 2007), and anger has been linked both to automatic bias (DeSteno, Dasgupta, Bartlett, & Caidric, 2004) and to a desire to confront the outgroup (Mackie et al., 2000). We extend this work to reveal that anger plays a key role in predicting self-reported prejudice outcomes, and it appears to be a more consistent mediator than anxiety. Anger also predicted avoidance in all studies, providing evidence that anger can motivate moving away from the outgroup in addition to predicting offensive intergroup action tendencies (Mackie et al., 2000).

### *Avenues for Future Research*

Although we have uncovered a number of important findings in the present article, we acknowledge that our field is still in the nascent stage of conducting research on negative contact. Further exploration of negative contact and how it may undermine the beneficial effects of positive contact is needed. Recent research has begun to uncover some promising findings—past positive contact can buffer against the harmful effects of future negative contact (Paolini et al., 2014), particularly as positive contact is far more common (Barlow et al., 2012; Graf et al., 2014), although we did not consistently replicate this moderation effect. What is needed now is further extension of this work to incorporate the experiences of ethnic minority groups. Indeed, we found important differences in the experiences of contact across groups: Both minority samples appeared to experience negative contact relatively frequently, with Black Americans often experiencing it the most. Black Americans also reported their negative contact experiences as being more intense than Hispanic Americans. It is reasonable to propose that these differences in prior experiences may lead to differences in how contact is experienced and interpreted, particularly by altering expectancies surrounding interactions (Paolini et al., 2014).

It is also crucial that we examine the long-term effects of negative contact on a range of intergroup outcomes. A number of longitudinal studies on the effects of positive contact on prejudice have emerged in recent years (e.g., Binder et al., 2009; Levin et al., 2003; Swart et al., 2011; Tropp, Hawi, Van Laar, & Levin, 2012), and this methodology must now be extended to the study of negative contact. Finally, experimental work in real-world contexts is needed. Although we have presented important initial evidence that negative intergroup contact leads to greater prejudice, our study was limited to an imagined, scenario-based interaction paradigm that described a single positive or negative contact experience with a fictional outgroup. This paradigm was strong in its ability to carefully control the positive and negative interactions and to reduce social desirability; however, the generalizability of the findings to real groups with continued face-to-face contact is unknown. Although social desirability will be a significant

factor, experimental manipulations of face-to-face negative contact would allow for stronger claims regarding its capacity to increase prejudice.

### **Conclusion**

In sum, we have presented a detailed, comprehensive analysis of positive and negative intergroup contact and provided some insights into how these forms of contact are associated with prejudice. We replicated the positive–negative contact asymmetry effect across ethnic minority and majority groups in the United States, and also replicated it experimentally: Negative contact appears to increase prejudice, avoidance, and negative affect at a stronger rate than positive contact reduces it. Moreover, we show that intergroup anger, an emotion not typically considered in contact research, does much of the heavy lifting in explaining the association between negative contact and intergroup attitudes. We hope the present research will guide researchers toward a more nuanced understanding of intergroup contact that recognizes group members' subjective experiences (Tropp, 2006), and explores the range of intergroup emotions that are elicited in response to these interactions.

### **Declaration of Conflicting Interests**

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### **Supplemental Material**

The supplemental material is available with the online version of the article.

### **Notes**

1. All participants answered the initial page of negative contact questions first because it contained the instructions.
2. Results did not substantively change when control variables were removed, except that a negative contact  $\times$  group interaction was found on outgroup evaluations in Study 2, with negative contact predicting less positive evaluations for Hispanic Americans but not predicting evaluations for Black Americans. The asymmetry and mediation findings for this measure did not change.
3. To be confident in the data, participants who were included in contact analyses completed a minimum of 85% of the contact items (separately determined for positive and negative items). Results did not substantively change after removing these individuals, except that anxiety mediated the relationship between negative contact and outgroup evaluations in Study 1.



4. To provide some evidence for causal direction in our cross-sectional data, we conducted supplementary analyses with avoidance predicting contact. If, theoretically, avoidance is the exogenous variable, then avoidance should predict lower positive contact and *lower* negative contact. If, however, contact is the exogenous variable, then we would expect higher avoidance to be associated with lower positive contact but *higher* negative contact. In Studies 1 and 2, these models revealed that avoidance predicted lower positive contact ( $\beta_s > -.30, ps < .001$ ) and greater negative contact ( $\beta_s > .34, ps < .001$ ).
5. We also conducted analyses with positive contact frequency, positive intensity, negative contact frequency, and negative intensity included as separate predictors (note, however, that the positive contact variables were highly correlated in Studies 1 and 2 [ $r_s > .45, ps < .001$ ]; the negative contact variables were not [ $r_s < .06, ps > .172$ ]). In Study 1, a negative asymmetry was still found for frequency on anger and anti-Black attitudes, but the asymmetry became non-significant on anxiety and avoidance. Only one asymmetry was found for intensity: *Positive* contact intensity was a stronger predictor of outgroup evaluations than negative contact intensity. In Study 2, all asymmetry findings for frequency were the same; for intensity, a negative asymmetry was found on anti-White attitudes. Overall, it seems that if forced to separate the measures, frequency may be largely driving the negative contact asymmetry findings, rather than intensity (see supplementary materials).
6. The original sample contained 422 participants. Fifty-six participants were removed because they did not identify as either Black or Hispanic American, and one was removed for completing less than 50% of the survey.
7. The results did not substantively change when these variables were controlled for, except that anger mediated the effect of negative contact on outgroup evaluations, and empathy no longer mediated the effect of positive contact on avoidance.
8. Results did not change when these participants were excluded.

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