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Perspective Taking and Automatic Intergroup Evaluation Change:  
Testing an Associative Self-Anchoring Account

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## Abstract

The current research adopted a multipronged mediational approach to test an associative self-anchoring account of automatic intergroup evaluation change following perspective taking. We contend that actively contemplating outgroup members' perspectives strengthens associative links between that outgroup and the self, enabling a transfer of positive automatic self-evaluations to the group. A first set of experiments, using both *measurement-of-mediation* and *experimental-causal-chain* designs, supported a model in which strengthened self-outgroup associations underlie perspective taking's positive effects on automatic intergroup evaluations. Additional experiments, using a *moderation-of-process* design, found that the benefits of perspective taking were attenuated when measured or manipulated automatic self-evaluations were relatively negative, preventing positive associative transfer. A final experiment uncovered a practical downstream implication of our causal model, as perspective-taking-induced changes in automatic intergroup evaluations were still evident 1 day later. Overall, these findings supported our associative self-anchoring account; additional analyses found no support for an alternative, empathy-based account.

*Keywords:* automaticity; intergroup attitudes; perspective taking; prejudice; self-anchoring

## Perspective Taking and Automatic Intergroup Evaluation Change:

## Testing an Associative Self-Anchoring Account

Social scientific inquiry has long been committed to developing effective methods for cultivating mutually-beneficial intergroup relations. This theoretical and empirical dedication has unearthed several promising approaches for attenuating both overt and covert expressions of intergroup bias (Bodenhausen, Todd, & Richeson, 2009; Paluck & Green, 2009). One such strategy, *perspective taking*, involves contemplating another person's thoughts, feelings, intentions, and other mental states. Widely considered among the most noteworthy of human mental faculties, the ability to reason about others' minds is crucial for successfully negotiating the social world (Apperly, 2011; Epley & Waytz, 2010). An accumulating body of evidence indicates that actively imagining the psychological experiences of stigmatized outgroup members, in particular, can be an effective strategy for undercutting processes involved in the perpetuation of negative stereotypes (Galinsky & Moskowitz, 2000; Todd, Galinsky, & Bodenhausen, 2012b), for increasing recognition of the harsh realities of discrimination (Dovidio et al., 2004; Todd, Bodenhausen, & Galinsky, 2012a), and for promoting positive intergroup evaluations (Batson et al., 1997; Dovidio et al., 2004; Galinsky & Ku, 2004; Galinsky & Moskowitz, 2000; Shih, Wang, Bucher, & Stotzer, 2009; Todd, Bodenhausen, Richeson, & Galinsky, 2011; Vescio, Sechrist, & Paolucci, 2003). The salutary effects of perspective taking also have been observed in rapid, automatically activated intergroup reactions (Shih, Stotzer, & Gutiérrez, in press; Todd et al., 2011; see also Devine, Forscher, Austin, & Cox, 2012) and in behaviors displayed during intergroup encounters (Blatt, LeLacheur, Galinsky, Simmens, & Greenberg, 2010; Todd et al., 2011).

Although prior research has identified several routes through which perspective taking can positively alter *deliberate* intergroup evaluations (e.g., empathic concern: Batson et al., 1997; self-other merging: Galinsky, Ku, & Wang, 2005; shifts in attributional thinking:

Vescio et al., 2003), it is currently unknown whether these or related mechanisms underlie the positive effects of perspective taking on *automatic* intergroup evaluations. The current investigation aimed to address this question by integrating recent theorizing in the attitude change and self-anchoring literatures to test an associative self-anchoring account of perspective taking and automatic intergroup evaluation change.

### **Altering Automatic Evaluations**

A venerable history of social psychological research has examined the processes involved in attitude formation and change (Abarracín, Johnson, & Zanna, 2005). And with the rise of indirect measures of evaluation (De Houwer, Teige-Mocigemba, Spruyt, & Moors, 2009; Fazio & Olson, 2003), there has been growing interest in elucidating the mechanisms underlying automatic evaluations in particular. Although automatic evaluations have often been thought to reflect highly stable mental representations rooted in long-term socialization experiences (e.g., Rudman, 2004; Wilson, Lindsay, & Schooler, 2000), elsewhere they have been conceptualized as dynamic states that readily shift (sometimes quite dramatically) depending on numerous contextual and strategic factors (e.g., Schwarz, 2007; Smith & Conrey, 2007). In line with the latter view, a sizable literature attests to the malleability of automatic evaluations (see Gawronski & Sritharan, 2010, for a comprehensive review), prompting the proposal of theoretical models aiming to delineate the mechanisms underlying this change (e.g., Petty, Briñol, & DeMarree, 2007; Gawronski & Bodenhausen, 2006, 2011).

The associative–propositional evaluation (APE) model (Gawronski & Bodenhausen, 2006), for instance, posits two direct routes through which automatic evaluations may change. The first route proceeds from the assumption that many (if not most) targets of evaluation are represented in a multifaceted manner; accordingly, different factors can activate associative patterns reflecting different facets of that representation (Smith, 1996). For instance, calling to mind a few examples of liked African Americans (a social group

characterized by both positive and negative attributes; Fiske, Cuddy, Glick, & Xu, 2002) can activate positive group-based associative content, thereby resulting in more favorable automatic evaluations of African Americans as a group (Gawronski & Bodenhausen, 2005).

A second route to automatic evaluation change, according to the APE model, involves changes in the underlying structure of associative representations. The paradigmatic example of evaluation change via this route is *evaluative conditioning*, the phenomenon whereby repeatedly pairing a particular entity with valenced stimuli produces corresponding changes in evaluations of that entity (Hofmann, De Houwer, Perugini, Bayens, & Crombez, 2010). Another example comes from research on *associative self-anchoring*, a phenomenon whereby an associative link between a particular entity and the self is created, resulting in the transfer of (usually positive) self-associations to that entity (Cadinu & Rothbart, 1996). To illustrate, one set of studies found that (a) simply choosing an object (e.g., a painting) was sufficient to create an associative link between the object and the self, (b) automatic evaluations of the chosen object were more positive than those of a non-chosen object, and (c) this evaluation change was greater in magnitude for people with relatively positive automatic self-evaluations (Gawronski, Bodenhausen, & Becker, 2007; see also Perkins & Forehand, 2012; Prestwich, Perugini, Hurling, & Richetin, 2010; Zhang & Chan, 2009). In both evaluative conditioning and associative self-anchoring, automatic evaluation change is thought to stem from a restructuring of associative representations rather than a shift in activated associations (Gawronski & Bodenhausen, 2006, 2011).

Here, we focused on this latter route to automatic evaluation change by testing an associative self-anchoring account of perspective taking and changes in automatic intergroup evaluations. This account, which is depicted in Figure 1 and described below, entails a causal sequence whereby adopting an outgroup member's perspective strengthens associations

between a targeted outgroup and the self, which, in turn, enable more positive automatic intergroup evaluations.

### **An Associative Self-Anchoring Account of Perspective Taking and Automatic Intergroup Evaluation Change**

In formulating our associative self-anchoring account of perspective taking and automatic intergroup evaluation change, we drew inspiration not only from the associative self-anchoring and automatic evaluation work described above but also from the intergroup self-anchoring literature. This literature has generally found that the projection of self-referent information (e.g., traits, preferences, and other personal characteristics) to ingroups is stronger than projection to outgroups (Robbins & Krueger, 2005); this differential projection, in turn, has been posited to underlie ingroup favoritism and other intergroup evaluative biases (Cadinu & Rothbart, 1996; Gramzow & Gaertner, 2005; Krueger, 2007; Otten, 2003).

Although meta-analytic data indicate that the strength of outgroup projection is negligible under default conditions (Robbins & Krueger, 2005), recent research has identified contexts and strategies that can strengthen associations between the outgroup and the self. For instance, one study found that working cooperatively with outgroup members led people to ascribe more self-attributes to that outgroup as a whole (Ricketta & Sacramento, 2008). More recently, Phills, Kawakami, Tabi, Nadolny, and Inzlicht (2011) had participants undergo a training exercise in which they learned over a series of trials to approach facial images of outgroup members. Their results indicated that this outgroup approach training strengthened automatic self-outgroup associations; importantly, these strengthened self-outgroup associations, in turn, predicted more favorable automatic intergroup evaluations.

Building on this recent outgroup self-anchoring work, we contend that situations encouraging the active contemplation of an outgroup member's perspective can instill a similar sense of psychological connectedness between that outgroup and the self (see left side

of Figure 1). Evidence supporting this contention comes from a vast literature documenting the central role of the self as an informational base in reasoning about others' mental states (Epley, Keysar, Van Boven, & Gilovich, 2004; Goldman, 2006; Mitchell, 2009), including numerous demonstrations that actively imagining another person's thoughts, feelings, and other psychological experiences can heighten perceptions of overlap in mental representations of self and other (Ames, Jenkins, Banaji, & Mitchell, 2008; Davis, Conklin, Smith, & Luce, 1996; Goldstein & Cialdini, 2007; Maner et al., 2002). Particularly relevant for the current investigation is research showing that a single act of perspective taking with an outgroup target can increase *self-outgroup* merging. For instance, one study found that imagining an elderly target's perspective led college students to ascribe more self-descriptive traits to the elderly as a group (Galinsky & Moskowitz, 2000), and another found that contemplating a Black target's perspective strengthened automatic associations between the category African American and the self (Todd et al., 2012a).

We further contend that, insofar as perspective takers' automatic self-evaluations are relatively positive (as they are for most people; Yamaguchi et al., 2007), this positivity should extend to the targeted outgroup through an associative transfer process, resulting in more favorable automatic intergroup evaluations (see right side of Figure 1). Providing initial support for the moderating role of self-esteem on group evaluations is research showing that evaluations of novel ingroups (i.e., groups with no previous connection to the self) are more positive insofar as people feel positively about themselves (Gramzow & Gaertner, 2005). Support for the interactive effect of self-esteem and perspective taking, in particular, on intergroup evaluations comes from work showing that the positive effect of perspective taking on deliberate intergroup evaluations was stronger for people with relatively positive explicit self-esteem than for those with less positive self-esteem (Galinsky & Ku, 2004).



The current research aimed to build on this work by empirically testing an associative self-anchoring account of perspective-taking-induced changes in automatic intergroup evaluations. Despite the conceptual overlap among the literatures on self-anchoring and automatic evaluation, self-anchoring and intergroup relations, and perspective taking and self–other merging, to our knowledge, our experiments are the first to try to integrate these literatures in a systematic way. This theoretical integration notwithstanding, we see the current investigation as valuable for several additional reasons: First, contemporary expressions of intergroup bias are often covert, yet their impact is far reaching and consequential for the lives of stigmatized group members (Greenwald, Poehlman, Uhlmann, & Banaji, 2009; Pager & Shepherd, 2008). Thus, it is critical to identify theoretically-grounded strategies that can undermine these subtle biases and to explain their underlying mechanisms. Second, it is important to isolate the processes through which perspective taking, in particular, exerts positive effects on automatic intergroup evaluations because the mechanisms underlying changes in deliberate evaluations often differ from those underlying changes in automatic evaluations (for detailed treatments of these differences, see Gawronski & Bodenhausen, 2006, 2011). We report six experiments using three different mediational approaches to examine the veracity of our associative self-anchoring account of perspective taking and automatic intergroup evaluation change.

### **A Brief Note on Mediation**

Before describing these experiments in detail, we first note several recent observations regarding mediation. First, the traditional approach to gathering evidence of psychological processes, based on recommendations from Baron and Kenny's (1986) seminal article, has been to use regression analyses to assess whether a particular independent variable ( $X$ ) causes an effect on a particular outcome variable of interest ( $Y$ ) through a particular mediating variable ( $M$ ). Despite its widespread acceptance and continued use, the

limitations of this correlation-based approach for making causal arguments about psychological processes have been articulated repeatedly in recent years (see Bullock, Green, & Ha, 2010; Fiedler, Schott, & Meiser, 2011; Jacoby & Sassenberg, 2011; Spencer, Zanna, & Fong, 2005; Zhao, Lynch, & Chen, 2010, for detailed discussions of these limitations). Second, to account for some of the limitations of the *measurement-of-mediation* approach, scholars have proposed alternative approaches that aim to isolate the psychological process(es) of interest—these include *experimental-causal-chain* and *moderation-of-process* designs (Spencer et al., 2005; see also Jacoby & Sassenberg's, 2011, *testing-process-by-interaction* strategy). To be sure, these alternative approaches have their own limitations (Bullock et al., 2010; Spencer et al., 2005), and it is with these limitations of any single approach to mediation in mind that we undertook the experiments reported here.

### Overview of Experiments

The current research adopted a multipronged mediational approach (Smith, 2012) to test an associative self-anchoring account of perspective taking and automatic intergroup evaluation change. Experiment 1 used a traditional *measurement-of-mediation* design to investigate whether changes in self–outgroup associations following perspective taking predict positive changes in automatic intergroup evaluations. Additional experiments used an *experimental-causal-chain* design to provide direct causal evidence for our proposed model by examining whether experimentally altering self–outgroup associations can produce corresponding changes in automatic intergroup evaluations (Experiments 2a and 2b). Experiments 3 and 4 used *moderation-of-process* designs to determine if the positive effects of perspective taking can be attenuated in circumstances in which positive associative transfer cannot occur—specifically, when automatic self-evaluations are relatively negative. Finally, Experiment 5 examined the temporal durability of these effects by assessing automatic intergroup evaluations both immediately and 24 hr after the perspective-taking induction.

To ensure that our findings generalize across different target outgroups, these experiments used three different stigmatized groups—Turks, the elderly, and African Americans—as targets. Additionally, performance on different indirect measures is driven by different underlying mechanisms, and the same independent variable can produce different results depending on which measure is used (Deutsch & Gawronski, 2009; Gawronski & Bodenhausen, 2005). Thus, to confirm that our findings are robust across measurement tools with different underlying mechanisms, we employed variants of two widely used measures of automatic evaluation, one that relies on a response-interference mechanism—the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998)—and one that does not—the Affect Misattribution Procedure (AMP; Payne, Cheng, Govorun, & Stewart, 2005).

On the basis of prior research linking perspective taking to increased positivity in spontaneous intergroup reactions (Shih et al., in press; Todd et al., 2011), we predicted that actively imagining an outgroup member’s perspective would engender more positive automatic evaluations of that person’s group, regardless of the particular target group or the particular measure of automatic evaluations. In accordance with our associative self-anchoring account, moreover, we anticipated that (a) changes in self–outgroup associations would play a critical role in explaining automatic intergroup evaluation change following perspective taking and (b) the positive effects of perspective taking would be more (less) pronounced when automatic self-evaluations were relatively positive (negative). Finally, based on the notion that automatic evaluation change stemming from changes in underlying associative structure (via associative self-anchoring) may exhibit relatively high levels of temporal durability (Fazio & Olson, 2003; Gawronski & Bodenhausen, 2006), we expected that these perspective-taking-induced changes in automatic intergroup evaluations would still be evident 24 hr later.

## **Experiment 1**

As an initial investigation of our proposed associative self-anchoring account, Experiment 1 used a classic *measurement-of-mediation* design (Baron & Kenny, 1986) to test a model in which changes in self–outgroup associations underlie changes in automatic intergroup evaluations following perspective taking. We modeled this experiment on prior research documenting that outgroup approach training can positively alter automatic intergroup evaluations via strengthened self–outgroup associations (Phills et al., 2011). Participants first underwent a procedural priming paradigm (Smith, 1994) wherein they composed an essay about a day in the life of an outgroup member, in this case a young Turkish man, who appeared in a photo (Galinsky & Ku, 2004; Galinsky & Moskowitz, 2000; Galinsky et al., 2008; Skorinko & Sinclair, 2013; Todd et al., 2011, 2012a; Todd & Galinsky, 2012). Some participants adopted the person’s perspective as they were writing; others wrote their essays while trying to be objective and detached. Afterwards, participants completed two IATs (Greenwald et al., 1998)—one assessing automatic *self-associations* with Turks relative to Germans, the other assessing automatic *evaluations* of Turks relative to Germans.

We had three key predictions: First, we anticipated that adopting an outgroup member’s perspective would strengthen automatic associations between the self and that outgroup. Second, we predicted that perspective taking would promote more positive automatic intergroup evaluations. Third, and most important for our associative self-anchoring account, we expected to find support for a mediational model in which strengthened self–outgroup associations underlie positive changes in automatic intergroup evaluations following perspective taking.

## **Method**

**Participants.** Forty-two German<sup>1</sup> university students (36 women, 6 men), none of whom self-identified as Turkish, received a chocolate bar or coffee coupon for participating. They were randomly assigned to a perspective-taking or objective-focus condition. Data from

one participant were lost to a computer malfunction; we also excluded data from one participant whose mean overall response latencies on both IATs were extremely slow ( $> 2.5$  *SDs* from the grand mean), leaving a final sample of 40 participants.<sup>2</sup>

**Procedure and materials.** In this and all subsequently reported experiments, participants arrived to the lab in groups of up to three. They were led to a private cubicle where they completed several ostensibly unrelated experimental tasks, all of which were administered via computer.

***Perspective-taking manipulation.*** As part of a linguistic task investigating “how people construct life event details from visual information,” participants first composed a short narrative essay about an unknown target person. To emphasize the seemingly random selection of the target, we presented participants with 8 different boxes, each of which purportedly corresponded to a specific person. After clicking on one of the boxes, participants saw a photo of a young Turkish man, along with instructions to spend 5 min describing a day in his life. Participants in the *perspective-taking* condition were asked to take the person’s perspective—to visualize clearly and vividly what he might be thinking, feeling, and experiencing during the day. Participants in the *objective-focus* condition were asked to adopt an objective perspective—to not get caught up in what he might be thinking, feeling, and experiencing, but rather, to write as if they were a casual observer.

***Self-outgroup association IAT.*** Next, as part of a “word categorization” task, participants completed an IAT assessing automatic associations between the self and Turks relative to Germans (Phills et al., 2011; Todd et al., 2012a). In one critical trial block (40 trials), participants assigned 4 self-related words (*me, my, mine, myself*) and 8 common Turkish names (e.g., *Mehmet, Hatice*) to one response key, and they assigned 4 non-self-related words (*they, them, their, themselves*) and 8 common German names (e.g., *Lukas, Katharina*) to a different key. In another critical block (40 trials), the response mappings were

reversed (i.e., one key for self-related words and German names, another key for non-self-related words and Turkish names). Before each block, participants were urged to respond quickly and accurately. Incorrect responses were accompanied by a red *X*, which remained on screen until participants corrected their response. An inter-trial interval of 250 ms followed both correct and incorrect responses.

***Intergroup evaluation IAT.*** Finally, as part of a second “word categorization” task, participants completed an IAT assessing the degree to which they automatically associate Turks versus Germans with positivity versus negativity. This IAT was nearly identical to the previous IAT, except the labels Me and Not Me were replaced with Good and Bad, respectively. The stimuli comprised 10 positive words (e.g., *honesty, love*) and 10 negative words (e.g., *cancer, vomit*), along with the same German and Turkish names used previously.

IAT scores were computed using Greenwald, Nosek, and Banaji’s (2003) scoring algorithm. Higher *D*-scores on the *self-outgroup association* IAT reflect stronger associations between the self and Turks relative to Germans; higher *D*-scores on the *intergroup evaluation* IAT reflect an automatic preference for Germans over Turks (i.e., pro-German bias).

## **Results and Discussion**

Preliminary analyses revealed no moderating effects of participant gender in any of the experiments; thus, the data were collapsed across this variable. We expected to observe *higher* self–outgroup association IAT scores and *lower* intergroup evaluation IAT scores among perspective takers than objective-focus participants.

In line with these expectations, perspective takers ( $M = -0.27$ ,  $SD = 0.37$ ) evinced stronger self–Turkish associations than did objective-focus participants ( $M = -0.51$ ,  $SD = 0.29$ ),  $t(38) = 2.27$ ,  $p < .03$ ,  $d = 0.74$ . Also as predicted, perspective takers ( $M = 0.42$ ,  $SD = 0.40$ ) displayed weaker pro-German bias than did objective-focus participants ( $M = 0.75$ ,  $SD = 0.25$ ),  $t(38) = 3.15$ ,  $p < .005$ ,  $d = 1.02$ .

We next tested a mediational model in which changes in automatic self–outgroup associations underlie the effect of perspective taking on automatic intergroup evaluations (see Figure 2). A simultaneous regression analysis revealed that controlling for changes in automatic self–outgroup associations reduced the effect of instruction set (0 = *objective focus*, 1 = *perspective taking*) on automatic intergroup evaluations, though it was still reliable,  $\beta = -.35$ ,  $t = 2.38$ ,  $p = .02$ . Moreover, a bias-corrected bootstrapping analysis (Preacher & Hayes, 2008) revealed that the indirect path through automatic self–outgroup associations was significant, 95% CI: [-.21, -.01].

These results offer initial evidence that is consistent with our associative self-anchoring account. Engaging in intergroup perspective taking strengthened self–outgroup associations and led to more favorable automatic intergroup evaluations. Additionally, using a traditional measurement-of-mediation design, we found support for a model in which changes in self–outgroup associations underlie (at least in part) the relationship between perspective taking and automatic intergroup evaluation change. These findings complement prior work showing that strengthened self–outgroup associations can help explain the positive effects of outgroup approach training on automatic intergroup evaluations (Phills et al., 2011). Importantly, our findings extend this prior research by showing that a single instance of perspective taking with an outgroup target can produce comparable effects.

Although these results fully comport with our hypotheses, the measurement-of-mediation design we adopted fails to provide conclusive evidence for a causal relationship between our proposed mediator (self–outgroup associations) and our outcome of interest (automatic intergroup evaluations). To overcome this limitation and to increase confidence in the veracity of our proposed account, our remaining experiments adopted alternative approaches to test our causal model.

### **Experiments 2a and 2b**

Experiments 2a and 2b both used an *experimental-causal-chain* design (Spencer et al., 2005) to provide direct causal evidence for our proposed model. The first link in the causal chain—from perspective taking to strengthened automatic self–outgroup associations—was established in Experiment 1 and in prior research (Todd et al., 2012a). To establish the second link—from strengthened self–outgroup associations to positive changes in automatic intergroup evaluations—we used a subliminal association-strengthening paradigm<sup>3</sup> (Dijksterhuis, 2004; Grumm, Nestler, & von Collani, 2009; Riketta & Dauenheimer, 2003) to manipulate directly (outside of awareness) the strength of associations between an outgroup and the self. To increase confidence in any observed changes in evaluations stemming from our association-strengthening paradigm, we employed two different measures of automatic evaluations: Experiment 2a used the intergroup evaluation IAT from Experiment 1, and Experiment 2b used a variant of the AMP (Payne et al., 2005). A response-interference mechanism underlies performance on the IAT but not on the AMP (Gawronski, Deutsch, LeBel, & Banse, 2008); by including both measures, we can be confident that our findings are not limited to response-interference tasks. Another difference between these two measures is that the AMP can distinguish changes in outgroup evaluations from changes in ingroup evaluations, whereas the IAT cannot do so.

In both experiments, we anticipated that participants who had undergone the self–outgroup association-strengthening procedure would evince more positive automatic intergroup evaluations than would those who had not. In Experiment 2b, we made the additional prediction that these effects would be driven by positive changes in automatic outgroup evaluations and not by negative changes in automatic ingroup evaluations.

## **Experiment 2a**

### **Method.**



**Participants.** Eighty-seven German university students (53 women, 34 men), none of whom self-identified as Turkish, received a chocolate bar or coffee coupon for participating. They were randomly assigned to a self-outgroup-association, self-activation, or outgroup-exposure condition. Data were excluded from two participants who made excessive errors (> 25% of trials) on the letter-identification task (see below) and one participant whose mean overall response latencies on the IAT were extremely slow (> 2.5 *SDs* from the grand mean), leaving a final sample of 84 participants.

**Procedure and materials.**

*Strengthening automatic self-outgroup associations.* As part of a “letter-identification” task, participants first underwent a subliminal association-strengthening procedure wherein a self-related stimulus or a non-self-related stimulus was repeatedly paired either with the word *Turkish* or with a neutral stimulus, depending on condition. The task consisted of 40 randomly-presented trials, each of which began with a row of *Xs* appearing in the center of the screen for 500 ms. In the *self-outgroup-association* condition, the row of *Xs* was replaced by the word *I* for 13 ms, after which the word *Turkish* appeared for 13 ms and was replaced by one of 40 target letter strings (e.g., *hjwwiuxc*). In the *self-activation* condition, the row of *Xs* was replaced by the word *I* for 13 ms, after which a neutral stimulus (the letter string *xxx*) appeared for 13 ms and was replaced by one of the 40 target letter strings. In the *outgroup-exposure* condition, the row of *Xs* was replaced by the neutral letter string *xxx* for 13 ms, after which the word *Turkish* appeared for 13 ms and was replaced by one of the 40 target letter strings. Participants’ focal task was to indicate quickly whether the first letter in each target letter string was a consonant or a vowel. The target letter strings remained on screen until participants pressed one of two response keys. An inter-trial interval of 1000 ms followed both correct and incorrect responses.

*Intergroup evaluation IAT.* Next, as part of a “word categorization” task, participants completed the same *intergroup evaluation IAT* from Experiment 1. IAT scores were computed as in Experiment 1; higher *D*-scores reflect an automatic preference for Germans over Turks (i.e., pro-German bias).

**Results.** We expected to observe *lower* IAT scores for participants who had repeatedly paired the self with the category Turkish than for those who had paired the self with a neutral stimulus or who had simply been exposed to the category Turkish, and we expected no difference between the latter two conditions. We tested these predictions by conducting a planned contrast (Rosenthal, Rubin, & Rosnow, 2000) comparing the self-outgroup-association condition with the self-activation and outgroup-exposure conditions; we also report all simple comparisons and the omnibus analysis of variance (ANOVA).

As expected, the critical contrast comparing the pro-German bias of participants in self-outgroup-association condition with that of participants in the self-activation and outgroup-exposure conditions was reliable,  $t(81) = 2.27, p < .03, d = 0.50$  (see Figure 3). Additional comparisons revealed that pro-German bias was weaker in the self-outgroup-association condition than the self-activation condition,  $t(81) = 1.94, p < .06, d = 0.43$ , and the outgroup-exposure condition,  $t(81) = 1.98, p = .05, d = 0.44$ , whereas the self-activation and outgroup-exposure conditions did not differ from each other,  $t < 1, p > .95, d < 0.02$ . Overall, the effect of experimental condition was marginally significant in a one-way ANOVA,  $F(2, 38) = 2.58, p = .08, \eta_p^2 = .06$ .

## **Experiment 2b**

### **Method.**

**Participants.** Ninety-seven German university students (56 women, 41 men), none of whom self-identified as Turkish, received a chocolate bar or coffee coupon for participating. As in Experiment 2a, they were randomly assigned to a self-outgroup-association, self-

activation, or outgroup-exposure condition. Data were excluded from one participant for making excessive errors (> 25% of trials) on the letter-identification task; we also excluded data from five participants for not following instructions<sup>4</sup>, leaving a final sample of 91 participants.

***Procedure and materials.***

*Strengthening automatic self-outgroup associations.* As part of a “letter identification” task, participants first underwent the same association-strengthening procedure from Experiment 2a.

*Intergroup evaluation AMP.* Next, as part of a task investigating “how people make rapid categorization judgments while being distracted,” participants completed an AMP (Payne et al., 2005) assessing automatic evaluations of Turks and Germans. Each trial began with a fixation cross for 1000 ms, which was replaced by a prime stimulus for 75 ms. The prime stimulus was followed by a blank screen for 125 ms, after which a Chinese character appeared for 100 ms. The Chinese character was replaced by a black-and-white pattern mask, which remained on screen until participants pressed one of two keys to indicate whether they considered that character to be *more pleasant* or *more unpleasant* than the average Chinese character. Participants were instructed to respond using their “gut” reaction and to avoid being influenced by the prime. The task included a total of 72 randomly-ordered trials—24 trials for each of the two prime categories (i.e., Turkish, German) and 24 filler trials on which a gray square served as the prime stimulus. The group prime stimuli were 12 facial images of Turkish-looking men and 12 facial images of German-looking men<sup>5</sup>; each appeared twice during the task. The target stimuli were 72 distinct Chinese characters; each appeared once. AMP scores were computed by calculating the proportion of “more pleasant” responses following each of the group primes.

**Results.** A 3 (Association Strengthening)  $\times$  2 (Group Prime) mixed ANOVA on these scores yielded the expected interaction,  $F(2, 88) = 3.23, p = .04, \eta_p^2 = .07$ . To specify this interaction in terms of our hypotheses and to allow a direct comparison with Experiment 2a, we created an index of pro-German bias by subtracting the proportion of “more pleasant” responses following Turkish primes from the proportion of “more pleasant” responses following German primes. We then conducted a planned contrast (Rosenthal et al., 2000) comparing the self-outgroup-association condition with the self-activation and outgroup-exposure conditions; we also report all simple comparisons (the omnibus ANOVA is identical to the two-way interaction reported above).

As expected, the critical contrast comparing the self-outgroup-association condition ( $M = -0.06, SD = 0.19$ ) with the self-activation ( $M = 0.04, SD = 0.21$ ) and outgroup-exposure conditions ( $M = 0.04, SD = 0.18$ ) was reliable,  $t(88) = 2.54, p = .01, d = 0.54$ . Additional comparisons revealed that pro-German bias in the self-outgroup-association condition was weaker than that observed in the self-activation,  $t(88) = 2.20, p = .03, d = 0.47$ , and outgroup-exposure conditions,  $t(88) = 2.20, p = .03, d = 0.47$ . The self-activation and outgroup-exposure conditions did not differ from each other,  $t < 1, p > .99, d < 0.01$ .

Additionally, we examined the proportion of “more pleasant” responses separately following Turkish primes and German primes across experimental conditions. As predicted, the critical contrast comparing automatic positivity toward Turks in the self-outgroup-association condition with that in the self-activation and outgroup-exposure conditions was reliable,  $t(88) = 2.18, p = .03, d = 0.46$  (see Figure 4). Additional comparisons revealed that automatic positivity toward Turks was stronger in the self-outgroup-association condition than in the outgroup-exposure condition,  $t(88) = 2.39, p < .02, d = 0.51$ , whereas the difference between the self-outgroup-association and self-activation conditions was in the predicted direction but did not reach significance,  $t(88) = 1.37, p = .17, d = 0.29$ . The self-

activation and outgroup-exposure conditions did not differ from each other,  $t(88) = 1.00$ ,  $p = .32$ ,  $d = 0.21$ . Overall, the effect of experimental condition on automatic positivity toward Turks was marginally significant in a one-way ANOVA,  $F(2, 88) = 2.87$ ,  $p = .06$ ,  $\eta_p^2 = .06$ . An identical set of analyses on the proportion of “more pleasant” responses following German primes revealed no differences across conditions—contrasts and simple effects:  $t_s < 1.30$ ,  $p_s > .19$ ,  $d_s < 0.28$ ; one-way ANOVA:  $F < 1$ ,  $p > .38$ .

## Discussion

Extending the results of Experiment 1, Experiments 2a and 2b provide direct causal evidence that strengthening associations between the self and a targeted outgroup can elicit more positive automatic intergroup evaluations. Critically, in Experiment 2b, the association-strengthening procedure had the predicted positive effect on outgroup evaluations and no effect on ingroup evaluations. Together, these findings complement prior research demonstrating that repeatedly pairing a particular outgroup (e.g., elderly people) with positive stimuli (e.g., smiling faces) can engender positive automatic evaluations of that group (Karpinski & Hilton, 2001; Olson & Fazio, 2006). Notably, we extend this earlier work by showing that repeatedly pairing an outgroup category with the self (a positive stimulus for most people; Yamaguchi et al., 2007) can likewise promote positive automatic intergroup evaluations (cf. Phills et al., 2011).

Together, the first three experiments—using a combination of *measurement-of-mediation* and *experimental-causal-chain* designs—offer converging support for our causal model, according to which perspective taking strengthens self–outgroup associations and thereby enables a transfer of automatic self-evaluations to the targeted outgroup. Because most people have relatively positive automatic self-evaluations, this associative transfer ordinarily would be expected to produce positive automatic intergroup evaluations, as results from Experiment 1 attest. When automatic self-evaluations are less positive, however, this

perspective-taking-induced associative transfer should not lead to positive automatic intergroup evaluations. We examined these hypotheses in our next two experiments.

### Experiment 3

Experiment 3 used a *moderation-of-process* design (Jacoby & Sassenberg, 2011; Spencer et al., 2005) to determine if automatic self-evaluations moderate the impact of perspective taking on automatic intergroup evaluations. Drawing on prior associative self-anchoring work (Gawronski et al., 2007; Gramzow & Gaertner, 2005; Perkins & Forehand, 2012; Prestwich et al., 2010), we anticipated that the positive effect of perspective taking would be readily apparent when automatic self-evaluations are relatively positive but not when they are relatively negative (i.e., when positive associative transfer is interrupted). To test this possibility, we had participants consider a day in the life of a Turkish target, and we used variants of the IAT to measure both automatic self-evaluations and automatic intergroup evaluations.

#### Method

**Participants.** Sixty German university students (38 women, 22 men), none of whom self-identified as Turkish, received a chocolate bar or coffee coupon for participating. They were randomly assigned to a perspective-taking or objective-focus condition. Data were excluded from two participants whose mean overall response latencies on both IATs were extremely slow ( $> 2.5$  *SDs* from the grand mean), leaving a final sample of 58 participants.

#### Procedure and materials.

**Self-evaluation IAT.** As part of a “word categorization” task, participants first completed an IAT assessing the degree to which they automatically associate the self (versus others) with positivity and negativity (Greenwald & Farnham, 2000). Across two critical trial blocks, participants assigned self-related words, non-self-related words, positive words, and negative words to the categories Me, Not Me, Good, and Bad, respectively. IAT scores were

computed as before; higher *D*-scores reflect relatively positive automatic self-evaluations ( $M = .61, SD = .32$ ).

***Perspective-taking manipulation.*** Next, as part of a “linguistic” task, participants composed a brief narrative essay about a photographed Turkish man, as in Experiment 1. Also as in Experiment 1, some participants received *perspective-taking* instructions, whereas others received *objective-focus* instructions.

***Intergroup evaluation IAT.*** Finally, as part of a second “word categorization” task, participants completed the same intergroup evaluation IAT from Experiments 1 and 2a. Higher *D*-scores here reflect an automatic preference for Germans over Turks (i.e., pro-German bias).

## **Results and Discussion**

We expected to observe *lower* intergroup evaluation IAT scores among perspective takers than objective-focus participants. Additionally, we predicted that this effect would be magnified for participants with *higher* self-evaluation IAT scores and weaker for those with *lower* self-evaluation IAT scores. We examined these hypotheses using hierarchical regression; main effects of Instruction Set and Automatic Self-Evaluations (standardized) were entered in the first step, and their interaction was entered in the second step.

As predicted, perspective takers exhibited weaker pro-German bias than did objective-focus participants,  $\beta = -.32, t = 2.50, p = .02$ . Critically, this analysis also yielded the predicted Automatic Self-Evaluation  $\times$  Instruction Set interaction,  $\beta = -.36, t = 2.54, p = .01$  (see Figure 5). Simple slopes analyses (Aiken & West, 1991) revealed that, for participants with relatively positive automatic self-evaluations (+1 *SD*), perspective taking significantly reduced pro-German bias,  $\beta = -.64, t = 3.65, p = .001$ . For participants with relatively negative automatic self-evaluations (-1 *SD*), however, the effect of perspective taking was negligible,  $\beta = .09, t < 1, p > .66$ .

These results offer additional support for our associative self-anchoring account. Replicating Experiment 1 and prior research (Todd et al., 2011), we found that engaging in intergroup perspective taking led to more favorable automatic intergroup evaluations. Critically, though, this was the case only when automatic self-evaluations were relatively positive; the benefits of perspective taking were entirely absent when automatic self-evaluations were relatively negative (i.e., when positive associative transfer was prevented).

#### **Experiment 4**

Our primary aim in Experiment 4 was to increase confidence in the robustness of Experiment 3's findings by manipulating rather than measuring automatic self-evaluations. To temporarily alter automatic self-evaluations, we had participants undergo a subliminal association-strengthening procedure (Dijksterhuis, 2004; Grumm et al., 2009; Riketta & Dauenheimer, 2003) wherein they repeatedly paired a self-related stimulus with either negative or neutral stimuli. We had three additional goals in this experiment: First, to demonstrate the generalizability of perspective-taking effects across different outgroups, we had (student) participants consider a day in the life of an elderly person. Second, to ensure that findings from Experiments 1 and 3 reflect the presence of perspective taking and not its absence in the objective-focus condition, we included a no-instruction (i.e., control) condition. Although prior research has convincingly demonstrated that relative changes in intergroup reactions are due to the benefits of perspective taking and not the possible detriments of an objective focus (Dovidio et al., 2004; Galinsky et al., 2008; Todd et al., 2011; Todd et al., 2012a, 2012b), it is still useful to replicate this pattern directly in the present context. Third, because there is considerable debate over which of several IAT variants is optimal for measuring automatic evaluations (Gawronski, Peters, & LeBel, 2008; Han, Czellar, Olson, & Fazio, 2010; Nosek & Hansen, 2008a, 2008b; Olson & Fazio, 2004;



Olson, Fazio, & Han, 2009), we used a *personalized* variant of the IAT (Olson & Fazio, 2004) to assess automatic evaluations of elderly people relative to young people.

### **Method**

**Participants.** Eighty-five German university students (43 women, 42 men), none of whom was elderly (age range: 18–37;  $M = 23.6$ ,  $SD = 3.6$ ), received a chocolate bar or coffee coupon for participating. They were randomly assigned to one of four conditions in a 2 (Automatic Self-Evaluations: neutral vs. negative)  $\times$  2 (Instruction Set: perspective taking vs. control) design. Data from one participant were lost to a computer malfunction; we also excluded data from two participants for making excessive errors ( $> 25\%$  of trials) on the letter-identification task and one participant for not completing the essay task, leaving a final sample of 81 participants.

### **Procedure and materials.**

**Temporarily altering automatic self-evaluations.** As part of a “letter-identification” task, participants underwent an association-strengthening procedure wherein the self was repeatedly paired with either negative trait words or neutral words, depending on condition. This task, which was very similar to that used in Experiments 2a and 2b and in prior research (Dijksterhuis, 2004; Grumm et al., 2009; Riketta & Dauenheimer, 2003), comprised 30 randomly-ordered trials. Each trial began with a row of *Xs*, which appeared in the center of the screen for 500 ms. The row of *Xs* was replaced by the word *I* for 13 ms. In the *self+negative* condition, *I* was replaced by one of 15 negative trait words that are not stereotypic of the elderly (e.g., *lazy*, *stupid*) for 13 ms; in the *self+neutral* condition, *I* was replaced by one of 15 neutral words (e.g., *chair*, *table*) for 13 ms. Each negative and neutral word appeared twice. In both conditions, the negative and neutral words were followed by one of 30 letter strings (e.g., *hjwwiuxc*). Participants’ focal task again was to decide whether the first letter in each string was a consonant or a vowel.

Prior research has confirmed the efficacy of similar procedures for temporarily reducing the positivity of self-evaluations (Riketta & Dauenheimer, 2003); nevertheless, we sought to verify the efficacy of our (slightly different) procedure for temporarily altering automatic self-evaluations in our participant population. To do so, we had a separate sample of 20 students undergo this association-strengthening procedure and then complete the *self-evaluation* IAT from Experiment 3. Although participants in the self+negative condition continued to exhibit automatic self-evaluations that were quite positive in an absolute sense ( $M = 0.57, SD = 0.41; p < .001$ ), importantly, they evinced less positive automatic self-evaluations than did participants in the self+neutral condition ( $M = 0.91, SD = 0.24$ ),  $t(18) = 2.21, p = .04, d = 1.04$ . These findings attest to the effectiveness of this procedure for temporarily altering automatic self-evaluations in the intended direction.

***Perspective-taking manipulation.*** Next, as part of a “linguistic” task, participants composed a brief narrative essay about a photographed elderly man. Some participants received the same *perspective-taking* instructions from Experiments 1 and 3; others wrote their essays without any additional instructions (i.e., *control* condition).

***Personalized intergroup evaluation IAT.*** Finally, as part of a “rapid categorization” task, participants completed a *personalized* IAT (Olson & Fazio, 2004) assessing the degree to which they associate elderly (versus young) people with positivity and negativity. This IAT was similar to the intergroup evaluation IAT from Experiments 1 and 2a, but with several changes: First, the categories German and Turkish were replaced with Young and Old, respectively; the stimuli representing these categories were facial images of 6 elderly (3 male, 3 female) and 6 young people (3 male, 3 female). Second, the categories Good and Bad were replaced with I Like and I Dislike, respectively; the stimuli representing these categories were the same 10 positive and 10 negative words as before. Third, no error feedback was

provided. IAT scores were computed as before; higher *D*-scores reflect an automatic preference for young people over elderly people (i.e., pro-youth bias).

### Results and Discussion

We expected to observe *lower* IAT scores among perspective takers than control participants. Additionally, we predicted that this effect would be present only when automatic self-evaluations were relatively positive (i.e., *self+neutral* condition) and would *not* emerge when automatic self-evaluations were relatively negative (i.e., *self+negative* condition).

A 2 (Automatic Self-Evaluation)  $\times$  2 (Instruction Set) ANOVA revealed the expected interaction,  $F(1, 77) = 4.30, p = .04, \eta_p^2 = .05$ . As displayed in Figure 6, simple comparisons indicated that when automatic self-evaluations were relatively positive, perspective takers evinced less pro-youth bias than did control participants,  $t(36) = 2.36, p = .02, d = 0.79$ . When automatic self-evaluations were relatively negative, however, the positive effect of perspective taking was attenuated,  $|t| < 1, p > .68, d = -0.13$ .

These results complement those from Experiment 3 by showing that experimentally-altered automatic self-evaluations moderate the effect of perspective taking on automatic intergroup evaluations. Whereas participants with relatively positive automatic self-evaluations exhibited more positive automatic intergroup evaluations after engaging in perspective taking, those with relatively negative automatic self-evaluations did not. Additionally, our use of a no-instruction, control condition increases our confidence that the effects observed in Experiments 1 and 3 stem from the presence of perspective taking rather than its absence when adopting an objective focus (see also Dovidio et al., 2004; Galinsky et al., 2008; Todd et al., 2011; Todd et al., 2012a, 2012b).

The findings reported thus far provide converging evidence in line with our associative self-anchoring account. Experiments 1, 2a, and 2b—using a combination of *measurement-of-mediation* and *experimental-causal-chain* designs and two different

measures of automatic intergroup evaluations—found support for a causal model in which perspective taking strengthens self–outgroup associations, which, in turn, promote more positive automatic intergroup evaluations. Additional findings from Experiments 3 and 4—using *moderation-of-process* designs with both measured and manipulated instantiations of automatic self-evaluations, two targeted outgroups, two comparison conditions, and two measures of automatic intergroup evaluations—also comport with our associative self-anchoring account. One practical implication of this account, derived from the APE model (Gawronski & Bodenhausen, 2006), is that changes in associative structure (via associative self-anchoring) should produce changes in automatic intergroup evaluations that exhibit a relatively high level of temporal durability (see also Fazio & Olson, 2003). Our final experiment investigated this possibility.

### **Experiment 5**

Experiment 5 examined the temporal durability of changes in automatic intergroup evaluations following perspective taking. To examine the generalizability of our effects across another outgroup, we had participants consider a day in the life of a young Black man, either while taking his perspective or while adopting an objective focus. Afterwards, participants completed a variant of the AMP that included facial images of Blacks, Whites, and Asians as prime stimuli; this allowed us to assess automatic evaluations of the targeted outgroup (i.e., Blacks) as well as evaluations of a different, non-targeted outgroup (i.e., Asians). Participants then returned to the lab 24 hr later to complete the same AMP a second time. We selected an interval of 24 hr based on prior work assessing the durability of changes in automatic intergroup reactions (Kawakami, Dovidio, Moll, Hermsen, & Russin, 2000).

We had three key predictions: First, as before, we expected that perspective takers would display more positive automatic intergroup evaluations than would objective-focus participants. Second, we anticipated that this effect would be driven by positive changes in

automatic evaluations of Blacks (i.e., the targeted outgroup) rather than by positive changes in automatic evaluations of outgroups more generally. Third, we predicted that this pattern of automatic evaluation change would be evident both immediately and 24 hr later.

## Method

**Participants.** Seventy-two American university students (36 women, 29 men, 7 unreported), none of whom self-identified as Black or Asian (55 White, 11 Latino/a, 7 unreported), participated for course credit. They were randomly assigned to a perspective-taking or objective-focus condition. Data from one participant were lost to a computer malfunction; we also excluded data from four participants whose response times were faster than 100 ms on more than 25% of AMP trials, leaving a final sample of 67 participants.

### Procedure and materials.

**Perspective-taking manipulation.** As part of a “linguistic” task, participants first composed a brief narrative essay about a photographed Black male. Some participants received *perspective-taking* instructions; others received *objective-focus* instructions.

**Intergroup evaluation AMP: Time 1.** Next, as part of a task investigating “how people make rapid categorization judgments while being distracted,” participants completed an AMP assessing automatic evaluations of Blacks, Whites, and Asians. This AMP was identical to the one from Experiment 2b, except it included a total of 96 randomly-ordered trials—24 trials for each of the three prime categories (i.e., Black, White, Asian) and 24 filler trials on which a gray square served as the prime. The prime stimuli were 12 facial images of Black men, 12 images of White men, and 12 images of Asian men; each appeared twice during the task. The target stimuli were 96 distinct Chinese characters; each appeared once.

**Intergroup evaluation AMP: Time 2.** Participants then returned to the lab 24 hr later to complete the same intergroup evaluation AMP. AMP scores were computed by calculating the proportion of “more pleasant” responses following each of the group primes: Black,

Asian, and White. Seven participants did not return for the second session; thus, analyses are based on the 60 participants who completed both sessions.

### Results and Discussion

A 2 (Instruction Set)  $\times$  3 (Group Prime)  $\times$  2 (Time of Assessment) mixed ANOVA, with repeated measures on the last two factors, revealed a significant Instruction Set  $\times$  Group Prime interaction,  $F(2, 115) = 3.73, p = .03, \eta_p^2 = .06$ , that was not moderated by Time of Assessment,  $F(2, 115) = 1.03, p = .36, \eta_p^2 = .02$ . To specify the two-way interaction in terms of our hypotheses, we conducted separate 2 (Instruction Set)  $\times$  2 (Time of Assessment) ANOVAs for each of the group primes. Means are displayed in Table 1.

**Automatic evaluations of Blacks.** Consistent with our predictions, perspective takers exhibited more favorable automatic evaluations of Blacks than did objective-focus participants,  $F(1, 58) = 7.30, p < .01, d = 0.60$ . Critically, this positive effect of perspective taking was evident both immediately and 24 hr later, as confirmed by a non-significant Instruction Set  $\times$  Time of Assessment interaction,  $F < 1, p > .61$ .

**Automatic evaluations of Asians.** Also as expected, adopting the perspective of a Black target had little influence on automatic evaluations of Asians. There were no effects of Instruction Set, Time of Assessment, or their interaction,  $F_s < 1, p_s > .56$ .

**Automatic evaluations of Whites.** Finally, as predicted, adopting a Black target's perspective had no effect on automatic evaluations of Whites at time 1,  $t < 1, p > .98$ . At time 2, however, results revealed an unexpected positive effect of perspective taking,  $t(58) = 2.35, p = .02, d = 0.62$ . This pattern of means produced a significant Instruction Set  $\times$  Time of Assessment interaction,  $F(1, 58) = 3.93, p = .05, \eta_p^2 = .06$ .

These results indicate that adopting the perspective of a Black target led to more positive automatic evaluations of Blacks as a group, an effect that was evident both immediately following the perspective-taking induction and 1 day later. That this effect

persisted over time accords with our associative self-anchoring account and with theoretical claims that changes in associative structure (via associative self-anchoring) should produce changes in automatic intergroup evaluations that are relatively enduring (Fazio & Olson, 2003; Gawronski & Bodenhausen, 2006). That perspective taking had little effect on automatic evaluations of Asians at either time 1 or time 2 or of Whites at time 1 also comports with our associative self-anchoring account and with prior research documenting the target-group-specificity of perspective-taking effects on intergroup evaluations (Galinsky et al., 2005; Todd et al., 2011; Vescio et al., 2003). To our surprise, however, perspective taking increased positivity toward Whites at time 2, an issue we revisit below.

### **General Discussion**

The current research employed a multipronged mediational approach to test an associative self-anchoring account of perspective taking and automatic intergroup evaluation change. According to this account, adopting the perspective of a particular outgroup member strengthens associations between that outgroup and the self, thus enabling a transfer of positive automatic self-evaluations to that outgroup as a whole. Six experiments provided converging evidence supporting this causal model. To summarize, Experiment 1 found that engaging in perspective taking strengthened automatic self-outgroup associations and engendered more favorable automatic intergroup evaluations, with changes in self-outgroup associations predicting changes in automatic intergroup evaluations. Noting the limitations of correlation-based approaches to mediation, we conducted four additional experiments using designs that are more appropriate for making causal claims. Results from these experiments demonstrated that (a) directly strengthening automatic associations between the self and a particular outgroup enabled more positive automatic evaluations of that outgroup (Experiments 2a and 2b) and (b) the positive effects of perspective taking on automatic intergroup evaluations failed to emerge when positive associative transfer from the self to the

targeted outgroup could not occur—that is, when measured (Experiment 3) and manipulated (Experiment 4) automatic self-evaluations were relatively negative. Finally, in line with theoretical claims that changes in associative structure (via associative self-anchoring) should produce relatively enduring changes in automatic evaluations (Fazio & Olson, 2003; Gawronski & Bodenhausen, 2006), Experiment 5 found that the positive effects of perspective taking on automatic intergroup evaluations persisted for at least 24 hr.

These findings complement and extend prior work in several noteworthy ways: First, prior research has identified self–other merging as a mechanism underlying the effect of perspective taking on deliberate intergroup evaluations (Galinsky et al., 2005). Our findings extend this work by providing evidence that strengthened associations between the self and a targeted outgroup (i.e., self–outgroup merging) underlie increases in *automatic* intergroup positivity following perspective taking. Additionally, whereas Galinsky and colleagues’ work (Galinsky & Ku, 2004; Galinsky & Moskowitz, 2000) has focused exclusively on evaluations of elderly people, a social group in which participants may eventually be members (i.e., a future ingroup), our experiments used as targets both elderly people and racial/ethnic outgroups (Turks and Blacks) in which our participants will likely never claim membership.

Second, prior studies have shown that extensive training procedures wherein participants learn to approach images of outgroup members across hundreds of trials can be effective for strengthening associations between the self and a particular outgroup (Phills et al., 2011) and for promoting positive automatic evaluations of that group (Kawakami, Phills, Steele, & Dovidio, 2007; Phills et al., 2011). Our findings extend this work by demonstrating that a single act of intergroup perspective taking is sufficient to strengthen self–outgroup associations and promote more favorable automatic intergroup evaluations. Additionally, the results of Experiments 2a and 2b indicate that passive exposure to repeated pairings of a self-related stimulus with an outgroup category label over the course of just 40 trials can produce



changes in automatic intergroup evaluations comparable to (albeit smaller than) those reported by Kawakami et al. (2007) and Phillips et al. (2011).

Third, results from Experiment 5 indicated that perspective taking increased automatic positivity toward the targeted outgroup (i.e., Blacks), but it did not affect automatic evaluations of a non-targeted outgroup (i.e., Asians). These findings comport with prior work showing that the benefits of perspective taking on deliberate intergroup evaluations seem to be restricted to the targeted outgroup (Todd et al., 2011; Vescio et al., 2003) and are entirely consistent with our associative self-anchoring account, which posits that adopting an outgroup target's perspective enables a transfer of (usually positive) self-associations to that particular outgroup (see also Galinsky et al., 2005).

Fourth, prior research has shown that (a) changes in deliberate evaluations of social groups that are associated with the self are moderated by deliberate self-evaluations (Gramzow & Gaertner, 2005) and (b) changes in automatic evaluations of consumer products that are associated with the self are moderated by automatic self-evaluations (Perkins & Forehand, 2012; Prestwich et al., 2010; Zhang & Chan, 2009). Results from Experiments 3 and 4 extend this earlier work by showing that changes in automatic evaluations of groups that have come to be associated with the self via perspective taking are likewise moderated by automatic self-evaluations. That benefits did not emerge for people with relatively negative automatic self-evaluations adds to an emerging literature documenting qualifications of perspective taking as a strategy for navigating socially-diverse environments (Bruneau & Saxe, 2012; Skorinko & Sinclair, 2013; Vorauer, Martens, & Sasaki, 2009). For instance, a recent study found that perspective taking was ineffective in reducing outgroup negativity among perceivers who strongly identified with their ingroup (Tarrant, Calitri, & Weston, 2012). One potential explanation for this finding, derived from an associative self-anchoring account of intergroup perspective taking, is that highly-identified perspective takers have

difficulty establishing a psychological connection with outgroup members (Riketta, 2005), thus impeding positive associative transfer from self to outgroup.

Finally, in formulating our causal model, we drew on theory and empirical findings from the literatures on self-anchoring and automatic evaluation, self-anchoring and intergroup relations, and perspective taking and self–other merging. Indeed, we believe our experiments are the first to integrate them in a systematic manner. Although we derived our causal model from these literatures with the primary goal of explicating how perspective taking positively alters automatic intergroup evaluations, we believe the associative self-anchoring account advocated here has implications beyond perspective taking. A similar associative transfer mechanism has already been posited to underlie the positive effects of outgroup approach training (Phills et al., 2011), and we contend that such a mechanism is likely to be initiated by and may help explain the efficacy of other interventions that strengthen connections between outgroups and the self (e.g., actual, extended, and imagined forms of intergroup contact; Crisp & Turner, 2012; Pettigrew & Tropp, 2006; Turner, Hewstone, Voci, & Vonofakou, 2008).

### **Testing an Alternative Account**

Although the specific aim of the current research was to test our proposed associative self-anchoring account rather than to test among competing accounts, we readily acknowledge that other underlying processes could also be operating. One route through which perspective taking can promote more favorable intergroup responding is via increased empathic concern for the targeted group. Batson et al. (1997), for instance, found support for a mediational model in which changes in empathic concern underlie changes in deliberate intergroup evaluations following perspective taking (see also Vescio et al., 2003).

We attempted to address an empathy-based alternative account of our findings by inspecting the narrative essays for the presence of empathic arousal. Specifically, we had

coders (three native German speakers for Experiments 1, 3, and 4; three native English speakers for Experiment 5; all blind to experimental condition and hypotheses) rate the essays on the extent to which the writer expressed *empathy* for the essay target (0 = *not at all*, 9 = *very much*). Agreement among raters was reasonable across experiments (mean  $\alpha = .75$ ; range: .69 to .84). Results revealed that perspective takers expressed more empathy in their essays than did non-perspective takers in Experiments 1, 3, and 4<sup>6</sup> ( $ps < .001$ ,  $ds \geq 1.12$ ). Perspective takers also expressed more empathy in Experiment 5, though this difference was notably smaller ( $d = 0.17$ ) and did not approach significance. Additionally, empathy was correlated with automatic intergroup evaluations in the expected direction across experiments (mean  $|r| = .23$ ; range:  $.11 < |r|s < .42$ ), but only in Experiments 1 and 4 was this relationship (marginally) reliable. Critically, though, in both cases, bias-corrected bootstrapping analyses yielded 95% confidence intervals that contained 0 (Experiment 1: [-.34, .19]; Experiment 4: [-.32, .08]). Thus, we were unable to find evidence that increased empathy underlies changes in automatic intergroup evaluations following perspective taking.

It is important to note, however, that these experiments were not specifically designed to test an empathy-based account. Indeed, because our outgroup targets were not depicted as having experienced some sort of hardship or misfortune (as is typical in studies examining empathic concern following intergroup perspective taking; Batson et al., 1997; Dovidio et al., 2004; Vescio et al., 2003), one could reasonably argue that our experiments, despite documenting evidence of greater expressed empathy among perspective takers, did not afford a strong test of an empathy-based account. Thus, our failure to find support for such an account should be interpreted cautiously. Future research using paradigms more conducive to eliciting empathy will be needed to determine the role (if any) of empathic arousal in accounting for changes in automatic intergroup evaluations following perspective taking.

### **Limitations, Strengths, and Future Research Directions**

We briefly acknowledge several limitations of the current research, each of which suggests potential directions for future research: First, all of our reported experiments relied on the same induction of perspective taking (i.e., imagining a day in the life of a stigmatized outgroup member who appeared in a photo). Indeed, the narrative essay task is among the most frequently used methods for manipulating intergroup perspective taking (Galinsky & Ku, 2004; Galinsky & Moskowitz, 2000; Galinsky et al., 2008; Skorinko & Sinclair, 2013; Tarrant et al., 2012; Todd et al., 2011, 2012a; Todd & Galinsky, 2012). Although prior research has documented perspective-taking-induced changes in automatic intergroup evaluations using other paradigms (e.g., watching a video depicting an outgroup target enduring racial discrimination; Todd et al., 2011, Experiment 1), future research will be needed to determine if our findings—especially those most pertinent to our associative self-anchoring account—generalize across different perspective-taking inductions.

A second limitation stems from the fact that our outgroup targets were always male. Because group stereotypes tend to be associated more strongly with male than with female group members (Eagly & Kite, 1987), we elected to use male targets in the current research. One consequence of this decision is that targets belonged to at least one salient outgroup (ethnicity in Experiments 1, 2a, 2b, and 5; age in Experiment 3) for male participants, whereas targets belonged to at least two salient outgroups (ethnicity/age *and* gender) for female participants. Preliminary analyses, however, revealed no moderating effect of participant gender in these experiments or in prior research on perspective taking and automatic intergroup evaluation change (Todd et al., 2011). Additionally, a recent study found that perspective taking with a female group exemplar produced changes in automatic intergroup evaluations comparable to those reported here (Shih et al., in press). Nevertheless, given that most prior research on intergroup perspective taking has relied exclusively on a single target (e.g., a Black man, an Asian woman), a potential direction for future research

could be to incorporate multiple targets that vary systematically along more than one identity dimension.

Third, although not the focus of the current research, the effects of perspective taking on automatic evaluations of Whites were inconsistent in Experiment 5. Adopting a Black target's perspective had no effect on automatic positivity toward Whites immediately following the perspective-taking induction, a null effect that comports with prior research showing no effects of intergroup perspective taking on automatic reactions to Whites (Todd et al., 2011, Experiment 4). Curiously, though, when automatic intergroup evaluations were assessed again 24 hr later, adopting a Black target's perspective *increased* automatic positivity toward Whites. This inconsistency is puzzling, especially when considered alongside Todd et al.'s (2011) findings. Although we hesitate to interpret this unexpected finding pending replication, one possibility is that adopting a Black target's perspective motivated an active regulation of positivity toward Whites at time 1. Then, at time 2, when this suppression motivation presumably had been relaxed, automatic positivity toward Whites may have become highly accessible (i.e., a rebound effect; cf. Macrae, Bodenhausen, Milne, & Jetten, 1994). A test of the veracity of this speculative claim awaits future research.

Finally, Paluck and Green (2009) recently noted that most "laboratory interventions are often separated and abstracted from their real-world modalities" (p. 349). This criticism also applies to our perspective-taking induction; however, research has begun to uncover ways to encourage perspective taking in the absence of experimental instructions explicitly urging participants to do so (Neel & Shapiro, 2012; Todd, Hanks, Galinsky, & Mussweiler, 2011; cf. Kaufman & Libby, 2012). For instance, Todd and Galinsky (2012) found that exposure to a multicultural (versus a color-blind) diversity ideology can strengthen motivations to engage in perspective taking and can facilitate perceptual and conceptual forms of actual perspective taking. Given that exposure to multiculturalism also has been

shown to promote more positive automatic intergroup evaluations (Richeson & Nussbaum, 2004), an intriguing direction for future research could be to test whether enhanced tendencies for intergroup perspective taking underlie this relationship.

We also wish to note several strengths of the current research: First, the observed effects of perspective taking on automatic intergroup evaluations were remarkably consistent across three target outgroups (Turks, African Americans, and elderly people), variants of two measures of automatic intergroup evaluations that rely on different underlying mechanisms (IAT and AMP), and participant samples drawn from two countries (Germany and the United States). This methodological diversity attests to the robustness of our findings.

Second, these experiments are unique in their use of multiple, state-of-the-art mediational approaches (Smith, 2012) to test our causal model. Recognizing the limitations of traditional mediational approaches, after finding initial support for our hypotheses using a classic *measurement-of-mediation* approach (Baron & Kenny, 1986), our subsequent experiments employed *experimental-causal-chain* and *moderation-of-process* designs (Spencer et al., 2005) and found evidence that was similarly supportive of our account. This methodological diversity again attests to the robustness of our findings.

Third, the current research is distinctive in its assessment of the persistence of perspective-taking effects on automatic intergroup evaluation change. Indeed, the majority of laboratory-based interventions fail to test if evaluative changes persist longer than the initial experimental session (Paluck & Green, 2009; for exceptions, see Devine et al., 2012; Kawakami et al., 2000; Olson & Fazio, 2006). Experiment 5, in contrast, demonstrated that perspective-taking-induced changes in automatic positivity toward Blacks persisted for at least 24 hr, which attests to the efficacy of perspective taking for effecting change that transcends the immediate experimental context. Although we selected an interval of 24 hr based on prior research examining the temporal durability of changes in automatic intergroup

reactions (Kawakami et al., 2000), we recognize that this interval is rather brief in an absolute sense. There is suggestive evidence, though, that the benefits of perspective taking on automatic intergroup evaluation might persist longer than 24 hr: Devine and colleagues (2012) found that a multifaceted bias-reduction intervention, which included a perspective-taking induction similar to ours, produced changes in automatic intergroup reactions that persisted for up to 8 weeks. Because perspective taking was only one facet of Devine et al.'s (2012) intervention, however, it is impossible to ascertain its unique contribution to their findings. Future research will be needed to determine more conclusively the durability of the effects of perspective taking *per se* on automatic intergroup reactions.

Finally, in providing evidence for our causal model, we found that perspective taking strengthened associations between a targeted outgroup and the self (see also Galinsky & Moskowitz, 2000; Todd et al., 2012a). Other work has shown that intergroup perspective taking, in addition to activating one's own *personal* identity (Davis et al., 2004), can activate one's own *ingroup* identity (Vorauer & Sasaki, 2009). Given that self–outgroup associations and ingroup–outgroup associations tend to be moderately positively correlated (Schubert & Otten, 2002), it seems plausible that perspective taking could lead perceivers to recategorize members of a targeted outgroup as part of a more inclusive ingroup (Gaertner & Dovidio, 2000), thereby strengthening ingroup–outgroup associations. The work by Todd and Galinsky (2012) described earlier suggests that this might not be the case, however. Indeed, they found that the relationship between multiculturalism (an ideology that encourages the recognition and appreciation of intergroup differences) and perspective taking was bidirectional. That is, engaging in intergroup perspective taking heightened support for multiculturalism, suggesting the intriguing possibility that perspective taking, in addition to strengthening *self*–outgroup associations, might actually weaken *ingroup*–outgroup associations. It remains for future research to test this possibility.

**Conclusion**

Despite continued scholarly interest in devising effective approaches for navigating demographically-diverse environments, the precise mechanisms underlying many of these strategies are poorly understood. We aimed to shed light on the processes involved in one such strategy, perspective taking. Using a multipronged mediational approach, six experiments provided converging support for an associative self-anchoring account of perspective taking and automatic intergroup evaluation change. The robustness of our findings notwithstanding, we concur with others (Bullock et al., 2010; Smith, 2012) that evidence for process is best established through programs of research (ideally across multiple laboratories) that systematically test among multiple, theoretically-plausible mediators. We, therefore, view the current work as adding a valuable piece to the puzzle and urge future research to continue exploring the efficacy of both our account and potential alternative accounts of perspective-taking-induced changes in automatic intergroup evaluations.



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## Footnotes

<sup>1</sup> All stimuli in Experiments 1–4 appeared in German, and all participants were native German speakers.

<sup>2</sup> We also decided *a priori* to discard data from participants whom the experimenter noted were talking to each other while performing the tasks or were otherwise not following instructions. In total, there were 2 participants in Experiment 1, 7 in Experiment 2a, and 3 in Experiment 2b who met these criteria; retaining their data did not alter the pattern of results in any of the experiments.

<sup>3</sup> Because questions have arisen about whether effects observed using the Dijksterhuis (2004) paradigm constitute conditioning *per se* (e.g., Pleyers, Corneille, Luminet, & Yzerbyt, 2007), we have opted for the term *association strengthening*—though potentially problematic itself (see, e.g., Mitchell, De Houwer, & Lovibond, 2009)—to refer to both the procedure and the effect observed as a result of undergoing the procedure.

<sup>4</sup> We excluded one participant with response times < 100 ms on more than 25% of AMP trials and four participants who gave the same response on > 90% of critical trials.

<sup>5</sup> Pilot testing confirmed that the Turkish-looking and German-looking men were reliably categorized as Turkish and German, respectively. We had 49 students from the same population rate each of the photos (1 = *Turkish*, 9 = *German*). Results indicated that German targets ( $M = 7.55$ ,  $SD = 0.74$ ) were more likely to be categorized as German than were Turkish targets ( $M = 2.53$ ,  $SD = 1.09$ ),  $t(48) = 21.92$ ,  $p < .001$ ,  $d = 5.39$ ; both group means differed from the scale's midpoint in the predicted direction ( $ps < .001$ ).

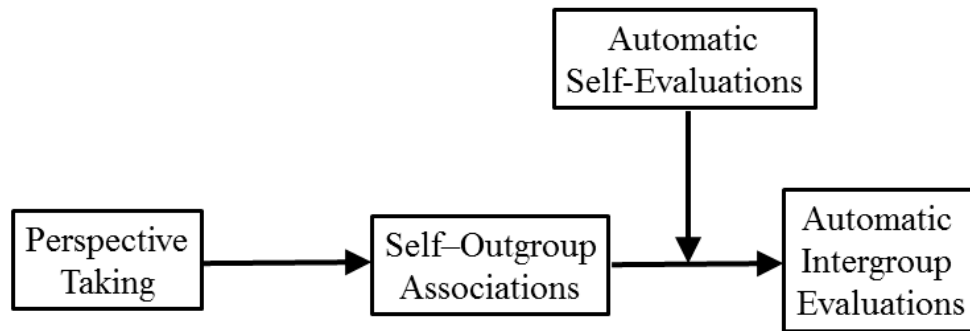
<sup>6</sup> To afford a relatively uniform test across experiments, we restricted our empathy analyses to the self+neutral condition in Experiment 4.

Table 1

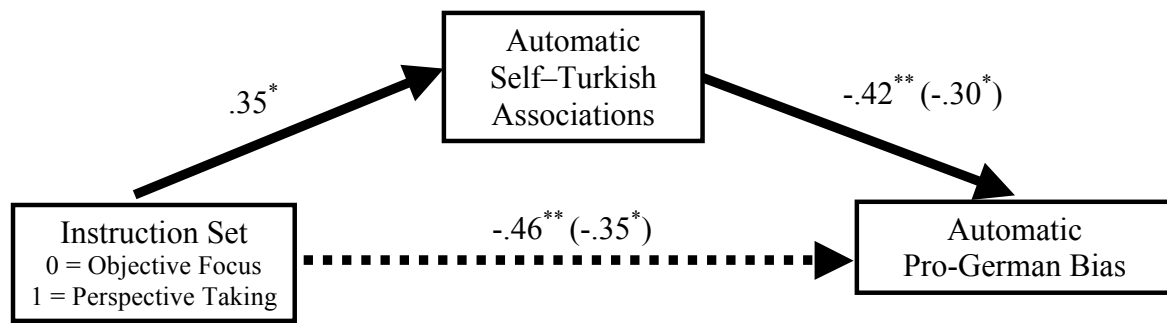
*Proportion of “more pleasant” AMP responses by instruction set, group prime, and time of assessment (Experiment 5)*

Group Primes	Instruction Set	
	Objective Focus	Perspective Taking
Black		
Time 1	0.52 <sub>a</sub> (0.16)	0.60 <sub>b</sub> (0.13)
Time 2	0.49 <sub>a</sub> (0.15)	0.58 <sub>b</sub> (0.13)
Asian		
Time 1	0.57 <sub>a</sub> (0.14)	0.55 <sub>a</sub> (0.10)
Time 2	0.57 <sub>a</sub> (0.15)	0.56 <sub>a</sub> (0.14)
White		
Time 1	0.54 <sub>a</sub> (0.14)	0.54 <sub>a</sub> (0.10)
Time 2	0.51 <sub>a</sub> (0.15)	0.60 <sub>b</sub> (0.14)

*Notes.* Standard deviations are in parentheses; within each row, means with different subscripts differ ( $p < .05$ ).

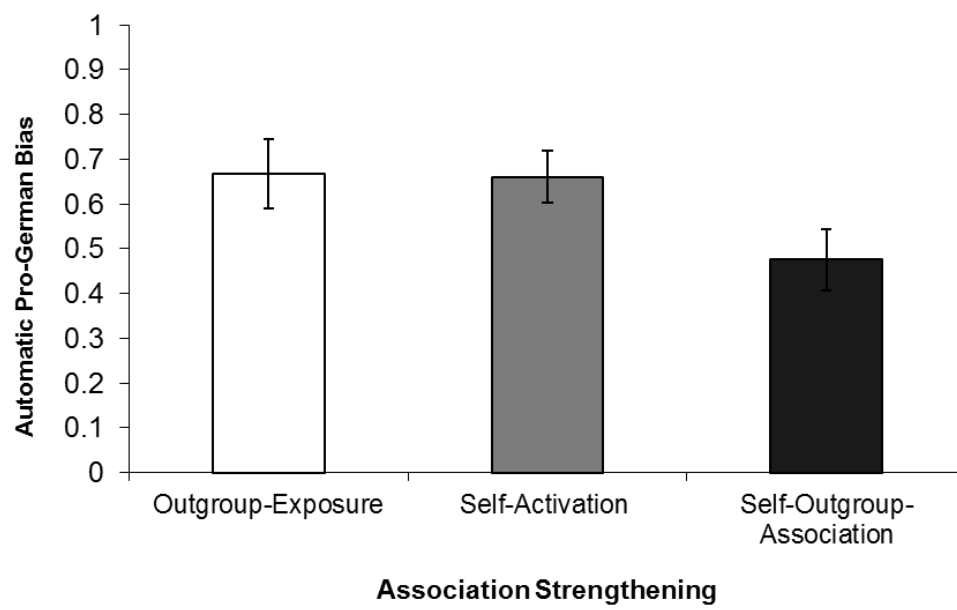


*Figure 1.* Schematic depiction of the associative self-anchoring account of perspective taking and automatic intergroup evaluation change.

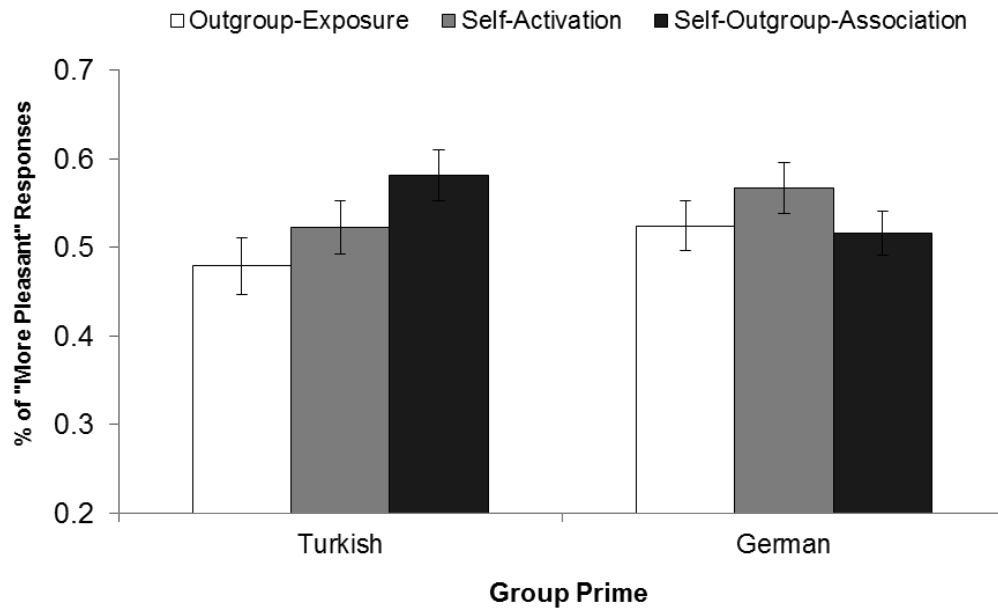


\*\*  $p \leq .01$  \*  $p \leq .05$

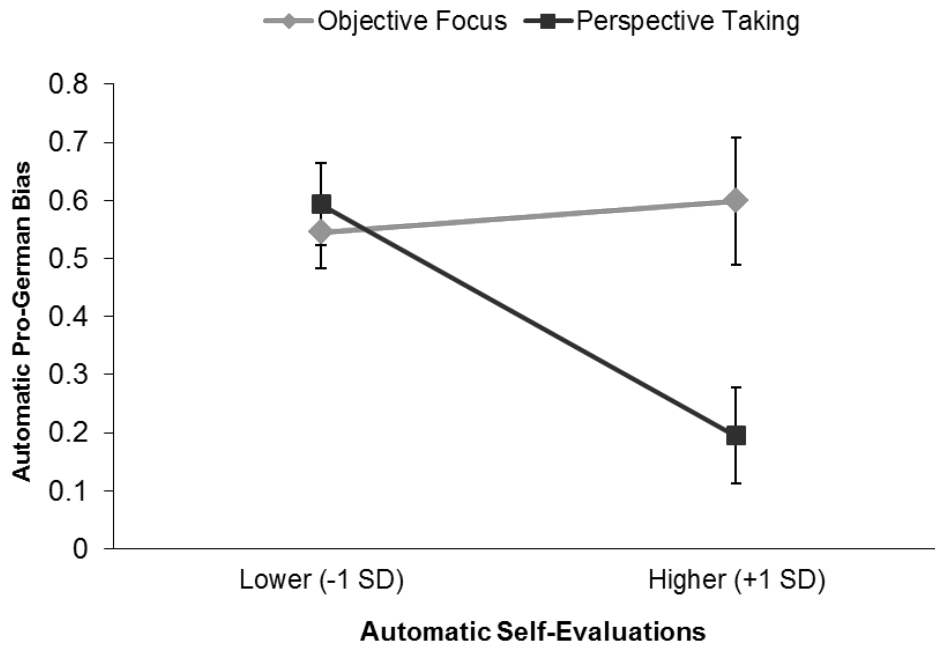
*Figure 2.* Mediation model in which changes in automatic self-Turkish associations underlie the effect of perspective taking on automatic pro-German bias. Numbers represent standardized regression coefficients; numbers in parentheses represent simultaneous regression coefficients (Experiment 1).



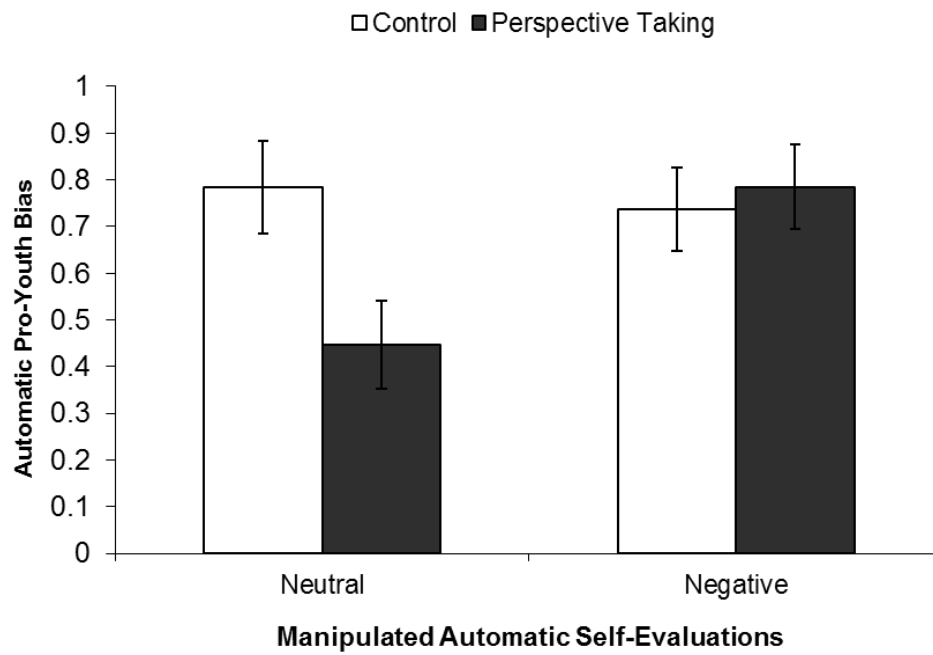
*Figure 3.* Automatic pro-German bias by experimental condition (outgroup-exposure vs. self-activation vs. self-outgroup-association); error bars reflect  $\pm 1$  *SEM* (Experiment 2a).



*Figure 4.* Automatic evaluations of Turks and Germans by experimental condition (outgroup-exposure vs. self-activation vs. self-outgroup-association); error bars reflect  $\pm 1$  *SEM* (Experiment 2b).



*Figure 5.* Predicted means for automatic pro-German bias by automatic self-evaluations (lower vs. higher) and instruction set (objective focus vs. perspective taking); error bars reflect  $\pm 1$  SEM (Experiment 3).



*Figure 6.* Predicted means for automatic pro-youth bias by (manipulated) automatic self-evaluations (neutral vs. negative) and instruction set (control vs. perspective taking); error bars reflect  $\pm 1$  SEM (Experiment 4).