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Seeing and Treating the Out-group Like Family:  
Transference Effects in an Ethnic Context

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### Abstract

Transference effects occur when our impressions are guided by our mental representations of significant others. For instance, if a target resembles an individual's significant other, then that person's feelings toward their significant other will be transferred onto the target. The present research examines whether transference effects emerge even when the target belongs to an ethnic out-group. In two experiments, participants received descriptions of in-group and out-group targets who partly resembled their own (or another's) positive significant other. The findings showed that resemblance to one's own significant other improves attitudes and behavior toward both in-group and ethnic out-group targets, as found across two nations and three different ethnic out-groups. The present research hence provides evidence of robust transference effects across ethnic group boundaries.

*Keywords:* transference, resemblance, prejudice, ethnicity, significant other, similarity, attitudes

Research has shown that the resemblance of a target person to an individual's close relationship partner (i.e., a significant other) can influence first impressions of the target (for a review, see Andersen & Berk, 1998). For instance, if a previously unknown target person resembles an individual's significant other (e.g., in terms of personality characteristics in a description of the target), people tend to go beyond the information given and misremember characteristics of the target that are in fact only part of the significant-other representation (Andersen & Cole, 1990). Moreover, if a target person resembles a positive or a negative significant other, the target is evaluated more positively or more negatively, respectively (Andersen & Baum, 1994). These effects of resemblance can be explained by the concept of transference (Andersen & Berk, 1998). Transference means that the traits of a significant other, which are seen in a newly encountered person, activate the mental representation of the significant other, which is then applied to the person. In other words, the beliefs and feelings toward the significant other are *transferred* to the target person, thereby biasing the first impression of the target.

The aim of the present research is to investigate whether transference effects occur even when the target person belongs to an ethnic out-group. An individual's ethnicity is an important factor in first impressions. A target's ethnicity is registered within 120ms (Ito, Thompson, & Cacioppo, 2004), which then automatically triggers a host of beliefs, feelings, and evaluations about the target that are based on previous experiences (Cunningham et al., 2004; Fiske & Neuberg, 1990; Smith & DeCoster, 2000). Accordingly, people have been shown to instantaneously form a negative impression of an unknown ethnic out-group member (e.g., Chaiken & Trope, 1999; Fazio, Jackson, Dunton, & Williams, 1995). Given the evidence of common negativity toward ethnic out-group members, it is important to examine whether targets resembling a positive significant other are evaluated more positively across ethnic group boundaries.

Past research indicates that significant others play an important role in an ethnic context. For instance, Mikulincer and Shaver (2001) showed that visualizing a person “who accepts and loves you and helps you in times of need” attenuated negative reactions to Russian immigrants. Moreover, Saribay and Andersen (2007a) found that when a target person’s ethnicity was unspecified and they resembled a participant’s significant other, the significant other’s ethnicity became activated and transferred onto the target. Interestingly, the authors speculated that the ethnicity of the significant other may not be transferred when the out-group status of the target person is obvious. In a similar unpublished experiment, Saribay and Andersen noted that the transference of positivity (but surprisingly not of ethnicity) occurred even when the significant other did not share the participants’ ethnicity. Their findings also indicated that when the significant other’s representation was activated participants’ intergroup bias increased when the significant other’s social network was ethnically narrow and decreased when the significant other’s social network was ethnically diverse. While these studies inform our research by suggesting that transference effects can occur in an ethnic context (see also Saribay & Andersen, 2007b), the findings do not indicate whether the positivity of a significant other can be transferred onto out-group members whose ethnicity is specified.

Putting this notion to a first test, Kraus, Chen, Lee, and Straus (2010) examined whether transference effects would emerge for clear out-group targets in two experiments. Participants were asked to describe a positive significant other who shares their political orientation (Experiment 1) or their ethnicity (Experiment 2). The results of Experiment 1 showed that participants evaluated both the political in-group and out-group targets more positively when they resembled their significant other.

Importantly for the present research, Kraus et al.’s (2010) second experiment recruited Asian American participants and presented Asian American ingroup or European American

outgroup targets. The findings showed no effect of resemblance on target favorability. However, collective self-esteem appeared to moderate the effect on target evaluation, such that evaluations were consistent with previous research on collective self-esteem (i.e., people high in collective self-esteem evaluate out-group members more negatively) in the control condition, whereas this effect disappeared when the target resembled participants' significant other. This pattern was not paralleled on a behavioral measure, which instead revealed that participants in a waiting room paradigm placed their chair closer to the target's supposed chair when the target resembled their significant other compared to when the target did not resemble their significant other. This mixed pattern of results makes it important to continue to evaluate the role and strength of transference effects in an ethnic context. That is, although Kraus et al. (2010) provide important evidence that transference effects can transcend group boundaries in a political context (i.e., liberal vs. conservative), findings for ethnic groups were less clear-cut.

The present article describes two studies that provide a partial conceptual replication of Kraus et al.'s (2010) studies, while addressing three important issues. First, in Kraus et al.'s (2010) Experiment 2, participants were mainly Asian Americans who evaluated Asian American in-group or European American out-group targets. While it is important to examine a minority group's prejudice against the majority group, prejudice expressed against minority groups is more pronounced (Nosek, Banaji, & Greenwald, 2002) and an arguably more prevalent societal issue. Given this strength and prevalence of prejudice against minority groups, it is important to examine whether transference effects occur when the target belongs to a minority out-group. Second, because research examining transference effects in an ethnic context has been scarce and has obtained mixed findings, there is a strong need for replication and for exploring the generalizability of such effects. To address this need, we conducted the research in two countries (i.e., UK, Netherlands) and presented three novel

minority out-groups (i.e., Pakistani, Afghans, Moroccans).

Third, we made several changes to the procedure to offer a powerful, ecologically valid, and stringent test of the hypothesis. That is, we used a more powerful repeated measures design (rather than a between-participants design) where participants saw two targets: one target resembling their significant other and one control target. In addition, while Kraus et al. (2010) presented the target's ethnicity as the sixth descriptor (out of eleven), the current research presented information about the target's ethnicity as the first items in the target descriptions. This change may provide a more ecologically valid test of transference effects in an ethnic context because a target's ethnicity would similarly be among the first pieces of information that are gathered in ethnic intergroup encounters (Cunningham et al., 2004; Ito et al., 2004). Moreover, we presented male targets in Study 2 rather than matching the target's gender to participants' significant other. This change was based on evidence for the outgroup male target hypothesis (Navarrete, McDonald, Molina, & Sidanius, 2010) which states that prejudice is primarily directed at outgroup male targets rather than female targets and that this inclination is driven by fear of sexual coercion among women, and by fear of aggression and social dominance among men. Hence, the present research provides a stringent test for transference effects in an ethnic context by testing whether they occur even when information about ethnicity is presented first and even when the targets are male.

Overall, the present two studies conceptually replicate scarce past research which showed mixed findings, extending it by examining novel in-groups and out-groups across two countries and by providing a powerful, stringent, and ecologically valid test of transference effects in an ethnic context. Each study contained two lab sessions. In the first session, which occurred three to four weeks earlier, participants provided a description of a positive significant other. In the second session, participants received descriptions of two in-group or two out-group targets, one of whom resembled their significant other and one of whom

resembled a matched participant's significant other. We then examined whether favorability ratings and behavior toward in-group and out-group targets were affected by the manipulation of resemblance.

### Study 1

Study 1 was conducted in the United Kingdom with White European participants. Resemblance was manipulated within participants. That is, we presented participants with two targets – one who resembled their significant other and one who resembled a yoked participant's significant other. Ethnicity was manipulated between participants such that participants saw two in-group targets (British) or two out-group targets (Pakistani and Afghan). We examined the effects on favorability toward the targets and asked participants how many points they wished to remove from the targets in a game scenario. We expected transference effects for the in-group targets based on previous evidence (Andersen & Baum, 1994) but had no a priori hypotheses for out-group targets given the mixed findings by Kraus et al. (2010).

### Method

**Participants.** Eighty-one participants took part in two lab sessions for course credit or monetary compensation. Sixty-two participants identified as White British, 12 as White European, six as Asian, and one participant as American. One participant was excluded from analyses because they did not correctly remember the targets' ethnicities. The analyses were restricted to White European participants, because the design relied on Asian targets being out-group members.<sup>1</sup> Thus, 73 participants (66 women; age range=18-27 years,  $M=18.78$ ) were retained for analyses.<sup>2</sup>

**Power analysis.** Previous research testing the basic transference effect on evaluations found a medium to large effect (Cohen's  $d \sim 0.60$ ; Andersen & Baum, 1994). We conducted a

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<sup>1</sup> Non-White European participants were allowed to take part for ethical reasons.

<sup>2</sup> Both studies retained participants whose yoked participant was excluded.



power analysis based on a 2x2 mixed design, a power of .80, a Cohen's  $d$  of 0.50, and a moderate correlation ( $r=.3$ ) among the repeated measures (G\*Power; Faul, Erdfelder, Lang, & Buchner, 2007). This analysis recommended 46 participants to detect a within-participants main effect of resemblance, and 34 participants (i.e., 68 participants in total) to detect a simple effect of resemblance within each ethnicity condition in the event of an interaction effect. Our sample size hence met both recommendations.

**Pre-test procedure.** As part of the resemblance procedure, participants were asked to provide a description of a positive significant other. They were first informed that a significant other is “someone who is very important to you and has been for many years, perhaps a relative, a parent, or a good friend” (adapted from Andersen, Glassman, Chen, & Cole, 1995). To ensure that participants described a positive significant other, it was added that “the person should be someone who is close to you and who you like very much” (based on Andersen & Baum, 1994). Apart from this specification, participants were free to choose their significant other.<sup>3</sup> The majority of participants described a female (74%), White European (97%) family member (66%), friend (25%), or partner (10%) as their significant other. Significant other age varied from 4 to 90 years ( $M=33$  years).

Participants were then asked to provide the first name of their significant other, and subsequently, to provide a unique description that would distinguish this person from others (as in Andersen & Cole, 1990). Participants filled in seven traits and seven preferences in a sentence completion task (e.g., “a person like *name* ... is outgoing”) and subsequently ranked these 14 items according to their importance and uniqueness in describing their significant other.<sup>4,5</sup> Finally, participants were given 15 traits and 15 preferences, which they categorized

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<sup>3</sup> We did not ask participants to provide a significant other who shared their ethnicity as in research by Kraus et al. (2010) because the primary aim of the present studies was to compare targets that belonged to participants' ethnic ingroup or an outgroup. This decision was also based on findings by Saribay and Andersen (2007a) that transference of positivity occurred even when the significant other did not share participants' ethnicity, and it ensured that participants described their primary positive significant other.

<sup>4</sup> The task deviated from previous transference research by asking participants to provide traits and preferences, rather than characteristics more generally. This change was made because pilot work suggested that some

as either good descriptors of their significant other, bad descriptors, or irrelevant descriptors. Participants were instructed to distribute the traits and preferences equally over the categories such that they arrived at five traits and five preferences categorized as good descriptors, five traits and five preferences as bad ones, and five traits and five preferences as irrelevant ones. The ten irrelevant descriptors were later used as filler items in the descriptions of new targets in the main session.

**Main session procedure.** Approximately four weeks later, participants arrived for the main session. They were told that the study's purpose was to investigate memory and learning in getting-acquainted processes. To familiarize participants with the procedure, we first presented a description of a Finnish filler target, and participants indicated their general favorability toward the target (items described further below). Subsequently, participants received two descriptions that were allegedly about students from another university. The names of the students at the beginning of the description were gender neutral in order to enhance the applicability of the significant other's traits to the target (as in Andersen & Cole, 1990). Participants were asked to visualize the targets, and they were informed that their memory of these persons would be tested at the end of the study.

We manipulated resemblance to the significant other within participants, closely mirroring the procedure used by Andersen et al. (1995). In the own significant other condition, participants saw a target description that contained six items (i.e., traits or preferences) which participants had used in the pre-test and which they had ranked as moderately descriptive of their significant other, among four filler items. Put differently, the target person partly resembled the significant other. In contrast, in the yoked condition,

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participants reported difficulties providing 14 characteristics and appeared to assume that preferences (e.g., "a person like Robert enjoys gardening") were less appropriate answers. We hence provided more guidance for the task by asking for traits and preferences separately.

<sup>5</sup> In contrast to previous research by Andersen and Baum (1994) and by Kraus et al. (2010), but consistent with Andersen et al. (1995), participants were not restricted in how many positive or negative items they listed. We gave participants the freedom to describe their significant other to ensure that the descriptions were as close to the mental representation of their primary positive significant other as possible.

participants received the exact same description as a fellow participant in the own significant other condition. In other words, the target person in the yoked condition partly resembled the significant other of a fellow participant. Thus, participants saw two target descriptions, with one matching their own significant other and one matching a fellow participant's significant other. The presentation order of the descriptions was counterbalanced. In addition, the ethnicity of the target person was manipulated between participants in the descriptions. After the first item of the description introduced the target's name (Alex and Charlie or Ihsan and Noor), the second item presented the two targets either as being ingroup members (born in the UK) or outgroup members (born in Pakistan or Afghanistan). The third item described all targets as living in the UK. The subsequent ten items presented the targets' traits and preferences in random order. All thirteen items of the description were presented on separate screens.

After each of the two descriptions, we presented eight items assessing participants' general favorability toward the respective target. Participants indicated (1) how much they liked the person, (2) how trustworthy they found the person, (3) their willingness to help the person with his or her coursework, (4) their willingness to meet and (5) spend time with the person, and (6) how comfortable they thought another student would feel with this person on a scale from 1 (not at all) to 7 (very much). They also indicated (7) their general impression of the person on a scale from 1 (very negative) to 7 (very positive). In addition, participants completed the (8) Inclusion of the Self in the Other scale (IOS-scale; Aron, Aron, & Smollan, 1992; Levinger & Snoek, 1972), which assesses the amount of perceived closeness to the target person. These items were adapted from previous research examining transference effects on evaluations (Andersen & Baum, 1994; Kraus et al., 2010), and similar items assessing general favorability have been shown to be relevant in a prejudice context (e.g., Haddock, Zanna, & Esses, 1993; Wolf, Weinstein, & Maio, 2019). The eight items formed a

reliable scale for both the own significant other ( $\alpha=.90$ ) and for the yoked significant other conditions ( $\alpha=.91$ ), reflecting participants' favorability toward the targets.

Finally, to investigate the behavioral consequences of the manipulations, participants were asked to imagine that they are the referee in a game in which the player, the target person, is presented with a series of challenges. Participants were presented with six scenarios in which the target person makes a mistake or violates a game rule and the participants could indicate how many points they wanted to remove from the target person from 0 to 10. This measure was based on a study by Hunter et al. (2011), which found evidence of out-group discrimination.

At the end of the experiment, after all dependent variables for both targets had been measured, participants were asked about the target's birthplace, which served as a manipulation check for ethnicity. Next, participants were probed for suspicion. When asked generally about the study's purpose, none of the participants mentioned the link to the first session of the study. When asked more directly, two participants indicated they noticed the link to the description of their significant other. Because excluding these participants from the analyses left the main conclusions unchanged, we kept them in the analyses. We then presented the manipulation check for resemblance by asking participants how similar and how different (reverse scored) the target was to their significant other and to themselves on a scale from 1 (not at all) to 7 (very much). These items were averaged to form a similarity-to-the-SO and a similarity-to-the-self index. Finally, we assessed participant and significant other demographics.<sup>6,7</sup>

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<sup>6</sup> This final set of questions also included single-item assessments of the perceived skin tone of the targets. This measure was included to explore whether transference effects would also affect the perceived appearance of outgroup members such that they resemble ingroup members more. The results showed only a strong ethnicity effect and no main effect or moderation by resemblance and was left out of the main analyses.

<sup>7</sup> The descriptions of measures in Study 1 and 2 are exhaustive; no additional measures were included.

## Results

**Manipulation check.** Participants perceived the target to be more similar to their significant other in the own significant other condition ( $M=4.73$ ,  $SE=0.18$ ) than in the yoked significant other condition ( $M=3.94$ ,  $SE=0.17$ ),  $t(72)=3.88$ ,  $p<.001$ . Interestingly, participants also perceived the target to be more similar to themselves in the own significant other condition ( $M=4.92$ ,  $SE=0.14$ ) than in the yoked significant other condition ( $M=4.39$ ,  $SE=0.14$ ),  $t(72)=3.14$ ,  $p=.002$ . Both similarity indices were moderately correlated,  $r=.25$ ,  $p=.035$ .

**Target favorability.** We conducted a 2 (resemblance: own SO vs. yoked SO) x 2 (ethnicity: British vs. Asian) mixed-model ANOVA with favorability toward the target as the dependent variable. The results showed that the target resembling participants' significant other was evaluated more favorably ( $M=5.56$ ,  $SE=0.10$ , CI 95% [5.34, 5.75]) than the target resembling yoked participants' significant other ( $M=5.32$ ,  $SE=0.10$ , CI 95% [5.13, 5.52]),  $F(1,71)=4.05$ ,  $p=.048$ ,  $\eta^2=.05$ . The effect of ethnicity was not significant,  $F<1$ ; British targets:  $M=5.45$ ,  $SE=0.11$ , CI 95% [5.24, 5.66]; Asian targets:  $M=5.44$ ,  $SE=0.11$ , CI 95% [5.23, 5.65]. Moreover, resemblance and ethnicity did not interact,  $F<1$ . That is, both the British targets and the Asian targets were evaluated more positively in the resemblance condition ( $M=5.53$ ,  $SE=0.13$ , CI 95% [5.27, 5.80];  $M=5.59$ ,  $SE=0.14$ , CI 95% [5.33, 5.86]) than in the yoked condition ( $M=5.36$ ,  $SE=0.14$ , CI 95% [5.09, 5.63];  $M=5.29$ ,  $SE=0.14$ , CI 95% [5.01, 5.56]). The results are shown in Figure 1.

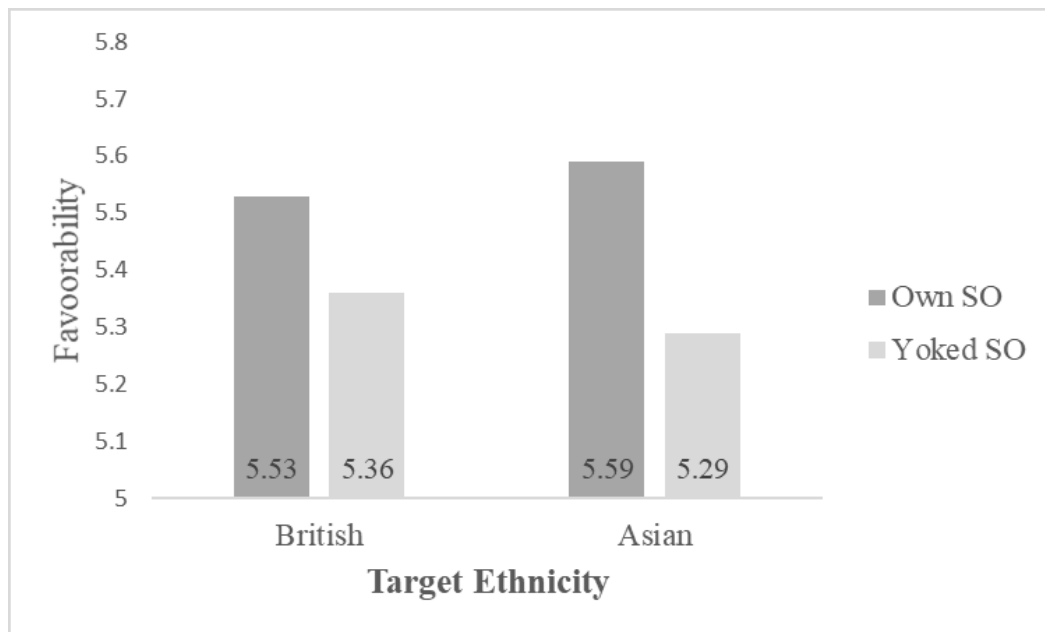


Figure 1. Study 1 effects of resemblance (own significant other vs yoked significant other) for British ingroup targets and Pakistani/Afghan outgroup targets.

We tested whether the order of presenting the resemblance conditions played a role in the effects. The main effect of resemblance became more pronounced after including order in the analysis,  $F(1,69)=5.57, p=.021, \eta^2=.08$ , and its interaction with order was significant,  $F(1,69)=9.16, p=.003, \eta^2=.12$ . Examining the simple effects of resemblance within order revealed a strong resemblance effect when the target resembling participants' own SO was presented first,  $F(1,31)=14.22, p=.001, \eta^2=.32$ ; own SO condition:  $M=5.70, SE=0.13, CI\ 95\% [5.44, 5.96]$ , yoked SO condition:  $M=5.08, SE=0.16, CI\ 95\% [4.76, 5.40]$ . In contrast, this effect was non-significant when the target resembling a yoked SO was presented first,  $F<1$ ; own SO condition:  $M=5.45, SE=0.14, CI\ 95\% [5.17, 5.73]$ , yoked SO condition:  $M=5.53, SE=0.12, CI\ 95\% [5.29, 5.77]$ . The simple effects of order within resemblance conditions showed that the target resembling yoked participants' significant other was evaluated more favorably when the target was presented first rather than second,  $F(1,71)=5.76, p=.019, \eta^2=.08$ . This effect was non-significant for the target resembling participants' own significant

other,  $F(1,71)=1.78$ ,  $p=.186$ ,  $\eta^2=.02$ . We further tested whether resemblance as a between-participants factor influenced evaluations of the first and the second target separately. This effect was non-significant for the first target,  $F(1,71)=1.02$ ,  $p=.315$ ,  $\eta^2=.01$ , and not conventionally significant for the second target,  $F(1,71)=3.36$ ,  $p=.071$ ,  $\eta^2=.05$ . All other effects of order, ethnicity, ethnicity x resemblance, ethnicity x order, and the three-way interaction were non-significant,  $F_s < 1$ .

**Behavioral measure.** In a 2 (resemblance: own SO vs. yoked SO) x 2 (ethnicity: British vs. Asian) mixed-model ANOVA with the amount of points taken from the target as the dependent variable, the effect of resemblance was non-significant,  $F < 1$ ; own SO target:  $M=4.62$ ,  $SE=0.17$ , CI 95% [4.29, 4.94]; yoked SO target:  $M=4.62$ ,  $SE=0.17$ , CI 95% [4.29, 4.94]. In addition, the effect of ethnicity was non-significant,  $F < 1$ ; British target:  $M=5.41$ ,  $SE=0.23$ , CI 95% [4.96, 5.87]; Asian target:  $M=5.61$ ,  $SE=0.23$ , CI 95% [5.15, 6.07]. Finally, the interaction between resemblance and ethnicity was not significant,  $F < 1$ . That is, the own significant other condition and the yoked significant other condition did not differ for the British target ( $M=5.47$ ,  $SE=0.25$ , CI 95% [4.98, 5.97];  $M=5.35$ ,  $SE=0.23$ , CI 95% [4.90, 5.80]) or for the Asian target ( $M=5.41$ ,  $SE=0.25$ , CI 95% [5.07, 6.08];  $M=5.64$ ,  $SE=0.23$ , CI 95% [5.19, 6.10]). Including order in the analysis did not yield any significant effects.

## Discussion

Study 1 provided the first evidence for a significant-other-resemblance effect on evaluations in an ethnic context. That is, participants evaluated targets more positively when the targets resembled their significant other than when the targets resembled yoked participants' significant other. Importantly, this effect emerged irrespective of the target's ethnicity, suggesting that transference improves evaluations across ethnic group boundaries.

The mixed design in Study 1 allowed us to examine whether order affected the results. Interestingly, these analyses indicated that resemblance effects on evaluations occurred only

when the target resembling a participant's significant other was presented first, but not when the target was presented second. This could point to a ceiling effect in evaluations such that participants evaluated a target resembling a yoked significant other very positively when the target was presented first, giving participants little room to express a more positive evaluation toward the second target resembling their significant other. In contrast, when the target resembling participants' significant other was presented first, participants could express their preference for this target by evaluating the second target less favorably. Supporting this speculation, while evaluations of the target resembling participants' own significant other did not differ whether the target was presented first or second, and hence consistently remained at a highly favorable level, evaluations of the target resembling a yoked participant's significant other were lower when the target was presented second rather than first. Alternatively, this finding may also indicate that resemblance effects on evaluations only emerge when the target resembling a significant other is directly contrasted with a target that does not resemble the significant other. Additional analyses using resemblance as a between-participants factor on evaluations of the first targets supported this speculation: in this case no effect of resemblance emerged. We revisited this issue in Study 2.

In contrast to previous research by Kraus et al. (2010), we did not find any evidence of a resemblance effect on behavior. We speculate that the negative nature of the behavioral task may play a role in this unexpected null-finding. For instance, it may be the case that participants were motivated to be fair and hence reluctant to remove more points from targets they liked less. Study 2 examined resemblance effects on behavior by selecting a measure that is less likely to evoke motivations to be fair.

Moreover, Study 1 involved a few limitations. That is, the manipulation check for the resemblance manipulation was presented after participants were probed for suspicion about the link between the pre- and main session of the study. The knowledge that the target was in



fact based on their description of their significant other may hence have biased participants' similarity-to-the-SO ratings. Moreover, Study 1 did not include a recognition-memory test which in transference research typically assesses whether participants indeed go beyond the information given about the target and misremember characteristics of the target that were in fact only part of their significant-other representation (Andersen & Cole, 1990; Andersen et al., 1995). Hence, although Study 1 provided first evidence that resemblance to a significant other can elicit more favorable evaluations across ethnic group boundaries, we cannot be certain that these effects are attributable to transference effects given compromised similarity ratings and the absence of a recognition-memory test. We aimed to address these limitations in Study 2.

### **Study 2**

Study 2 extended Study 1 in a number of ways. First, Study 2 tested whether the transference effects can be obtained in a different country with different in-group and out-group targets: It took place in the Netherlands with Dutch in-group targets and Moroccan out-group targets. Second, in contrast to Study 1, Study 2 presented male targets. Male out-group targets have been shown to elicit higher prejudice than female targets among both men and women (Navarrete et al., 2010); it was hence important to test whether transference effect occur even for male out-group targets. Third, Study 2 presented a different behavioral measure that is presumably less likely to evoke motivations of fairness: participants' willingness to give coins to the target in a give-some dilemma task. And finally, we sought to establish that transference in fact occurred by administering a recognition-memory task which assesses whether participants falsely remember characteristics of the target that were in fact only part of their own significant other description. Apart from these changes, the procedure remained largely the same.

## Method

**Participants.** Sixty-nine participants took part in two lab sessions for course credit or monetary compensation. Fifty-five participants were Dutch, twelve German, one Pakistani, and one Indonesian. Four additional participants failed to return for the second session. One participant was excluded from further analyses because they did not correctly remember the target's ethnicity. Additionally, the analyses were restricted to White European participants. Thus, 66 participants (50 women; age range=18-39 years,  $M=22.32$ ) were retained for analysis.

**Power analysis.** As in Study 1, we based our power analysis on a medium effect size in a 2x2 mixed design, a power of .80, and a moderate correlation ( $r=.3$ ) among the repeated measures. Given the non-significant interaction effect in Study 1, we calculated the required sample size to detect a within-participants effect across ethnicity conditions but not within ethnicity conditions. Our sample size exceeded the requirement of 46 participants (G\*Power; Faul et al., 2007).

**Pre-test procedure.** Participants described their significant other using the same procedure as in Study 1. The majority of participants described a White European (94%) as their significant other.<sup>8</sup>

**Second session procedure.** Three weeks later, the main experiment started with a filler description of a Finnish person followed by a measure of favorability (items described further below). Subsequently, participants received two descriptions that were allegedly about male students from another university. Resemblance in these descriptions was manipulated within participants in the same way as in Study 1, with the order of the descriptions counterbalanced. The ethnicity of the target person was again manipulated

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<sup>8</sup> Study 2 also measured participants' level of prejudice using an Implicit Association Test (see Greenwald, McGhee, & Schwartz, 1998) and a Modern Racism Scale (McConahay, 1986). While the findings consistently revealed no moderating effects by level of prejudice, it is important to note that our sample size was too small to examine the interactions with sufficient power.

between participants. After the first item of the description introduced the target's name (Martijn and Thijs or Mohammed and Achmed), the second item presented the two targets either as both being ingroup members (born in the Netherlands) or outgroup members (born in Morocco). The third item described all targets as living in the Dutch city where the research was conducted. The subsequent ten items presented the targets' traits and preferences in random order. All thirteen items of the description were presented on separate screens. After each description, we assessed general impression, trustworthiness, helping intention, willingness to spend time, perceived comfort, and the IOS-scale. These six items formed a reliable scale assessing favorability toward the targets in both the own significant other ( $\alpha=.74$ ) and the yoked significant other conditions ( $\alpha=.81$ ).

To investigate the behavioral consequences of the manipulations, participants completed a give-some dilemma task adopted from Karremans and Van Lange (2004; Van Lange & Kuhlman, 1994). In this game, participants were asked to imagine that they and the target person received four coins each. They were told that each coin held by them is worth one point, whereas each coin they gave to the target is worth two points to the target. Similarly, each coin held by the target person is worth one point to them, and each coin that they would give to the participant is worth two points to the participant. Participants' task was to indicate how many coins they wanted to give to the target person.

After each target description, participants were asked about the target's birthplace, which served as a manipulation check for ethnicity. Participants subsequently completed a standard recognition-memory test for the respective target, adopted from Andersen et al. (2015). This task tested whether participants indeed go beyond the information given about the target and misremember characteristics of the target that were in fact only part of their significant-other mental representation. In this task, participants viewed 15 items describing the target, presented in a random order on separate screens. Four of these items had in fact

been shown in the target description before; two of them had been provided by participants themselves in the pre-test and two were irrelevant filler items. The remaining eleven items had not been shown in the target description; eight items had been provided by participants themselves in the pre-test and three items were irrelevant filler items. Participants indicated for each item how certain they were that this item was presented in the description they saw earlier from 1 (certain this statement was not presented) to 4 (certain this statement was presented).

At the end of the experiment, after all dependent variables for both targets had been measured, the manipulation check for resemblance was presented by asking participants how similar the targets were to their significant other and to themselves. In contrast to Study 1, these similarity ratings were obtained before the suspicion checks. In a funnel-style final debrief, none of the participants mentioned the link to the first session where they provided the description of their significant other. Finally, we assessed participant and significant other demographics.<sup>9,10</sup>

## Results

**Manipulation check.** Participants perceived the target to be more similar to their significant other in the own significant other condition ( $M=4.83$ ,  $SE=0.19$ ) than in the yoked significant other condition ( $M=3.38$ ,  $SE=0.17$ ),  $t(65)=6.15$ ,  $p<.001$ . Participants also perceived the target to be more similar to themselves in the own significant other condition ( $M=4.53$ ,  $SE=0.16$ ) than in the yoked significant other condition ( $M=3.77$ ,  $SE=0.20$ ),  $t(65)=3.16$ ,  $p=.002$ . The two similarity indices were correlated,  $r=.52$ ,  $p<.001$ .

**Recognition test.** We conducted a 2 (resemblance: own SO vs. yoked SO) x 2

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<sup>9</sup> We also measured participants' mood with six items, but its inclusion did not change the principal findings and did not interact with the main variables.

<sup>10</sup> In a final attention check, we asked participants directly whether they managed to visualize the targets while reading through the descriptions and whether they managed to pay attention throughout the study. All participants indicated that they paid attention, and all but two participants indicated that they visualized the targets. Excluding these two participants did not affect the principal conclusions and we hence kept them in the analyses.

(ethnicity: Dutch vs. Moroccan) mixed-model ANOVA with recognition certainty as the dependent variable. Participants were more likely to misremember characteristics of the target when the target resembled their significant other ( $M=1.67$ ,  $SE=0.05$ ) than when the target resembled a yoked participant's significant other ( $M=1.56$ ,  $SE=0.04$ ),  $F(64)=4.30$ ,  $p=.042$ ,  $\eta^2=.06$ . Surprisingly, we also found a main effect of ethnicity such that participants were more likely to misremember items when the target was Moroccan ( $M=1.70$ ,  $SE=0.05$ ) than when the target was Dutch ( $M=1.54$ ,  $SE=0.05$ ),  $F(64)=5.57$ ,  $p=.021$ ,  $\eta^2=.08$ . Resemblance and ethnicity did not interact,  $F(64)=1.32$ ,  $p=.26$ ,  $\eta^2=.02$ . The principal conclusions of these effects were not altered or moderated by the inclusion of order.

**Target favorability.** We conducted a 2 (resemblance: own SO vs. yoked SO) x 2 (ethnicity: Dutch vs. Moroccan) mixed-model ANOVA with favorability toward the target as the dependent variable. As in Study 1, the target resembling participants' significant other was evaluated more favorably ( $M=5.13$ ,  $SE=0.09$ , CI 95% [4.95, 5.31]) than the target resembling yoked participants' significant other ( $M=4.51$ ,  $SE=0.10$ , CI 95% [4.31, 4.71]),  $F(1,64)=35.66$ ,  $p<.001$ ,  $\eta^2=.36$ . The effect of ethnicity was again not significant,  $F(1,64)=1.40$ ,  $p=.24$ ,  $\eta^2=.02$ ; Dutch target:  $M=4.73$ ,  $SE=0.11$ , CI 95% [4.50, 4.95]; Moroccan target:  $M=4.91$ ,  $SE=0.11$ , CI 95% [4.69, 5.14]. The interaction between resemblance and target ethnicity also again did not reach conventional levels of significance,  $F(1,64)=3.71$ ,  $p=.059$ ,  $\eta^2=.06$ . That is, both the Dutch and the Moroccan targets were evaluated more positively in the resemblance condition ( $M=5.14$ ,  $SE=0.12$ , CI 95% [4.89, 5.39];  $M=5.13$ ,  $SE=0.13$ , CI 95% [4.87, 5.38]) than in the yoked condition ( $M=4.31$ ,  $SE=0.14$ , CI 95% [4.03, 4.59];  $M=4.70$ ,  $SE=0.14$ , CI 95% [4.41, 4.99]). The results are shown in Figure 2.

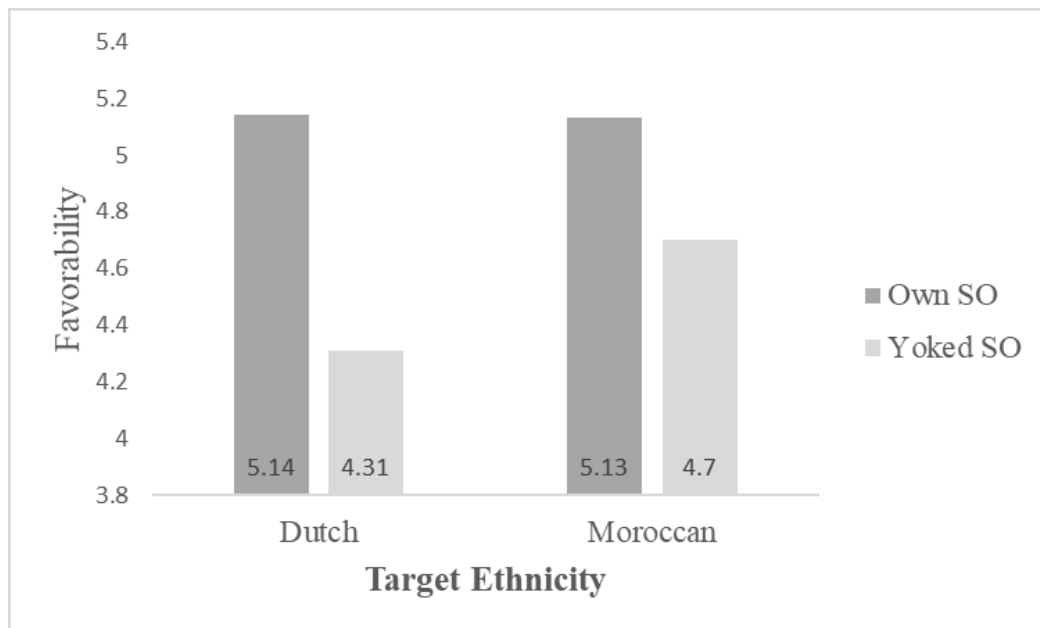


Figure 2. Study 2 effects of resemblance (own significant other vs yoked significant other) for Dutch ingroup targets and Moroccan outgroup targets.

As in Study 1, the main effect of resemblance became more pronounced after including order in the analysis,  $F(1,62)=40.24$ ,  $p<.001$ ,  $\eta^2=.39$ , and its interaction with order was significant,  $F(1,62)=5.90$ ,  $p=.018$ ,  $\eta^2=.09$ . Examining the simple effects of order revealed a strong resemblance effect when the target resembling participants' own significant other was presented first,  $F(1,28)=29.43$ ,  $p<.001$ ,  $\eta^2=.51$ ; own SO condition:  $M=5.15$ ,  $SE=0.11$ , CI 95% [4.94, 5.37], yoked SO condition:  $M=4.26$ ,  $SE=0.14$ , CI 95% [3.98, 4.53]. This effect was weaker but still strong when the target resembling a yoked participants' significant other was presented first,  $F(1,34)=10.08$ ,  $p=.003$ ,  $\eta^2=.23$ ; own SO condition:  $M=5.14$ ,  $SE=0.14$ , CI 95% [4.86, 5.42], yoked SO condition:  $M=4.74$ ,  $SE=0.14$ , CI 95% [4.46, 5.02]. The simple effects of order within resemblance conditions showed that the target resembling yoked participants' significant other was evaluated more favorably when the target was presented first rather than second,  $F(1,64)=7.06$ ,  $p=.010$ ,  $\eta^2=.10$ . This effect was non-significant for the target resembling participants' own significant other,  $F<1$ . We further

tested whether resemblance as a between-participants factor influenced evaluations of the first and second target. This effect was significant for the first target,  $F(1,64)=4.91, p=.030, \eta^2=.07$ , and the second target,  $F(1,64)=21.00, p<.001, \eta^2=.25$ . That is, the target resembling participants' significant other was evaluated more favorably regardless of whether the target was presented first or second; however, this effect was stronger when the target was presented second, after the target resembling yoked participants' significant other. The effect of ethnicity remained non-significant,  $F(1,62)=1.46, p=.231, \eta^2=.02$ , the interaction between resemblance and ethnicity remained non-significant,  $F(1,62)=2.95, p=.091, \eta^2=.05$ , the interaction between ethnicity and order was non-significant,  $F(1,62)=2.49, p=.12, \eta^2=.04$ , and the three-way interaction was also non-significant,  $F<1$ . There was no main effect of order,  $F(1,62)=2.19, p=.14, \eta^2=.03$ .

**Behavioral measure.** Participants used the full range of possible scores on the number of coins given to each target (i.e., 0 to 4) and the data were normally distributed. The difference score of the number of given coins between the two conditions ranged from -2 to +3 and was similarly normally distributed.<sup>11</sup> We therefore employed a 2 (resemblance: own SO vs. yoked SO) x 2 (ethnicity: Dutch vs. Moroccan) mixed-model ANOVA with the amount of coins given to the target as the dependent variable. The effect of resemblance was significant,  $F(1,64)=8.02, p=.006, \eta^2=.11$ ; own SO target:  $M=2.80, SE=0.12, CI\ 95\% [2.56, 3.04]$ ; yoked SO target:  $M=2.52, SE=0.14, CI\ 95\% [2.25, 2.78]$ . The effect of ethnicity was non-significant,  $F<1$ ; Dutch targets:  $M=2.74, SE=0.16, CI\ 95\% [2.41, 3.06]$ ; Moroccan targets:  $M=2.58, SE=0.17, CI\ 95\% [2.24, 2.92]$ . Moreover, resemblance and ethnicity did not interact,  $F(1,64)=1.62, p=.21, \eta^2=.03$ . That is, participants gave more coins to both the Dutch and the Moroccan targets in the resemblance condition ( $M=2.94, SE=0.17, CI\ 95\% [2.61, 3.28]$ ;  $M=2.67, SE=0.17, CI\ 95\% [2.31, 3.00]$ ) than in the yoked condition ( $M=2.53, SE=0.19,$

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<sup>11</sup> The principal conclusions remained the same when the data was analysed using a Poisson distribution treating the amount of coins given as a count variable.

CI 95% [2.16, 2.90];  $M=2.50$ ,  $SE=0.19$ , CI 95% [2.11, 2.89]).

We again tested whether order moderated the effects. The main effect of resemblance became more pronounced after including order in the analysis,  $F(1,62)=10.37$ ,  $p=.002$ ,  $\eta^2=.14$ , and its interaction with order was significant,  $F(1,62)=6.52$ ,  $p=.013$ ,  $\eta^2=.10$ . Examining the simple effects of order revealed a strong resemblance effect when the target resembling participants' own significant other was presented first,  $F(1,28)=12.27$ ,  $p=.002$ ,  $\eta^2=.31$ ; own SO condition:  $M=2.89$ ,  $SE=0.16$ , CI 95% [2.56, 3.21], yoked SO condition:  $M=2.32$ ,  $SE=0.20$ , CI 95% [1.90, 2.74]. This effect was non-significant when the target resembling a yoked significant other was presented first,  $F<1$ ; own SO condition:  $M=2.73$ ,  $SE=0.18$ , CI 95% [2.36, 3.10], yoked SO condition:  $M=2.67$ ,  $SE=0.18$ , CI 95% [2.30, 3.03]. The simple effects of order within resemblance conditions were non-significant for both the target resembling participants' own significant other,  $F<1$ , and for the target resembling yoked participants' significant other,  $F(1,64)=1.56$ ,  $p=.216$ ,  $\eta^2=.02$ . The effect of resemblance as a between-participants factor was non-significant for the first target,  $F<1$ , and the second target,  $F(1,64)=2.09$ ,  $p=.153$ ,  $\eta^2=.03$ . All other effects of order, ethnicity, ethnicity x resemblance, ethnicity x order, and the three-way interaction were non-significant,  $F_s<1$ .

### General Discussion

The present research investigated whether transference effects occur across ethnic group boundaries: Do target persons resembling a positive significant other elicit more positive evaluations and behaviors even when they belong to an ethnic out-group? Two studies provided support for this idea. Study 1 showed for the first time that resemblance to one's own significant other (rather than someone else's significant other) can elicit more favorable evaluations of both British in-group and Pakistani or Afghan out-group targets. Unexpectedly, this transference effect was not manifested on the behavioral measure; we speculated that this null finding may be attributed to the negative nature of the task as will be



discussed further below. In line with this speculation, Study 2 found strong transference effects on evaluations of and amount of coins given to Dutch in-group and Moroccan out-group targets. Moreover, Study 2 suggested that these effects can in fact be attributed to the assumed transference process, given that participants were more likely to falsely remember information about the target consistent with the mental representation of their significant other when the target resembled their significant other than when the target resembled another participant's significant other. This finding hence suggests that the target resembling participants' positive significant other indeed activated the mental representation of their significant other, which then led participants to go beyond the information given about the target and to evaluate and treat them more positively.

It is noteworthy that these transference effects emerged even when the out-group target belonged to an ethnic minority, when the target was male, and when the target's ethnicity was the first information participants received about the target. Each of these conditions have been shown to implicate greater levels of prejudice against ethnic out-group members (e.g., Cunningham et al., 2004; Navarrete et al., 2010; Nosek et al., 2002). The present research hence provided a stringent test of whether transference effects occur in an ethnic context and suggests that such effects appear to be robust across intergroup boundaries. The generalizability of these transference effects is further reflected in their emergence across two nations, three different ethnic out-groups, and a new variant of the transference paradigm.

While the present research provided evidence for transference effects in both experiments, Study 1 unexpectedly showed no effect on a behavioral measure. The nature of the behavioral task may have been responsible for this null finding, given that participants were asked to be the referee in a hypothetical game where they removed points from the target persons. Being a referee may have motivated participants to be fair toward the targets, and the negative nature of the task may have increased participants' concerns about

discrimination against the targets. Accordingly, when the behavioral measure in Study 2 asked for positive actions, allocating coins to the targets, we found strong support for transference effects on behavior. This transference effect on positive behavior is in line with findings by Kraus et al.'s (2010) second experiment which similarly found more positive behavior toward ethnic outgroup targets (i.e., sitting closer to the targets) as a result of resemblance to an own significant other. Future research may benefit from systematically examining transference effects on different measures of behavior to better understand when and why resemblance to a significant other improves behavior.

The mixed designs of the present studies also allowed us to test whether the results are affected by the order in which participants saw the targets either resembling participants' significant other or resembling yoked participants' significant other. Interestingly, across both studies, transference effects were consistently stronger when the target resembling participants' significant other was presented first. This order effect may point to a ceiling effect, wherein participants evaluate a control target highly positively when the target is presented first, thus leaving little room to express a more positive evaluation toward the second target resembling participants' own significant other. Conversely, if the control target is presented second, participants could indicate their preference for the target resembling their own significant other by devaluating the second target. This speculation was supported by the data in both studies such that the control target was evaluated less favorably when the target was presented second rather than first, whereas evaluations of the target resembling participants' own significant other remained at a highly favorable level regardless of when the target was presented. Although the difference in coins given to the control targets was not significant in Study 2, it showed a similar pattern.

These order effects additionally suggest that transference effects on evaluations and behavior toward a target emerge more strongly when the target resembling participants' own

significant other is contrasted with a target that does not resemble their significant other. Conversely, transference effects appear to be weaker when the targets are considered in isolation, which may explain the mixed findings obtained in Kraus et al.'s (2010) second experiment. Additional analyses using resemblance as a between-participants factor on evaluations and behavior toward the targets provide some support for this speculation: When evaluations of only the first target were considered in a between-participants analysis, transference effects became substantially weaker or non-significant. Importantly, however, this need for targets to be contrasted may only arise in an ethnic context, given findings by Andersen and Baum (1994) and Kraus et al.'s first experiment that transference effects occurred on evaluations of targets that were presented individually in between-participants designs. It may hence be the case that the social sensitivity associated with evaluating ethnic outgroup targets in the present research inflated participants' initial ratings of these targets, and only intra-individual comparisons to such initial ratings may provide the room for transference effects to occur. The sample sizes of the present studies did not provide sufficient power to test for such a three-way interaction among resemblance, ethnicity, and order.

Another possibility lies in a change we made to our transference paradigm: While Andersen and Baum (1994) and Kraus et al. (2010) asked participants to list an equal number of positive and negative characteristics of their significant other in the pre-test session, we did not specify how many of the traits and preferences they listed had to be positive or negative to ensure that the descriptions were as close to their mental representation as possible. While this change was based on previous research by Andersen et al. (1995), it is possible that it contributed to the potential ceiling effect in our studies given that participants may have listed exclusively positive traits and preferences. Highly positive descriptions may have hence inflated participants' evaluations of the yoked targets.

Overall, these findings suggest that the transference effects were masked to some extent by ceiling effects but nevertheless emerged strongly through comparisons with control targets. Despite the potentially masked effects, we expect that the obtained transference effects have widespread practical implications. We argue that the occurrence of ceiling effects may be the result of the lab environment in which the studies were conducted, and that ceiling effects can be expected to be lower outside the lab. Outside the lab, individuals may often feel less observed and evaluated when they make judgements, decisions, and take actions regarding a target, thus reducing social desirability concerns. In addition, these decisions and actions are generally connected to real consequences that involve personal costs, which is likely to further reduce ceiling effects. And finally, people's impressions of others can also be expected to be less positive than the descriptions provided in the present research. Everyday life should hence be less likely to invoke ceiling effects and may provide ample opportunity for transference effects to unfold even when a target person is considered in isolation. Future research may benefit from taking measures to reduce the possibility of ceiling effects, for instance by assessing or decreasing social desirability concerns in the lab, or by examining transference effects in more realistic environments (e.g., using behaviors that involve personal costs, virtual reality studies, field studies).

Another interesting finding in the present studies was that participants not only perceived the significant-other-target as more similar to their significant other but also as more similar to themselves. This finding is not surprising given that the (perceived) characteristics of significant others can be expected to show high overlap with individuals' own characteristics (e.g., Andersen & Chen, 2002; Morry, 2007), and accordingly, ratings of target-significant other similarity and target-self similarity were in fact highly correlated in both studies. The finding may also be relevant to research on relational selves which has shown that activation of the significant-other mental representation in turn activates the

portion of individuals' self-concept that they associate with the significant other (Andersen & Chen, 2002). A target person activating individuals' self when-with-their-significant-other may hence further increase their perceptions of similarity between the target and themselves. It should be noted, however, that these similarity ratings were conscious evaluations and may hence not have adequately captured the activation of mental representations, given that this activation has been shown to occur outside of participants' awareness (e.g., Glassman & Andersen, 1999).

It is noteworthy that both studies did not show any effects of ethnicity, despite extensive evidence of negativity toward ethnic out-groups (e.g., Chaiken & Trope, 1999; Fazio et al., 1995). It is unlikely that our measures were not sensitive enough to detect effects or moderating effects of ethnicity, because research using similar items assessing general favorability has shown them to be relevant in a prejudice context (e.g., Haddock, Zanna, & Esses, 1993; Wolf, Weinstein, & Maio, 2019). A straightforward reason for the absence of an ethnicity effect is that the sample sizes of the present studies were determined based on the hypothesized within-participants effects of resemblance, not any between-participants effects of ethnicity. The sample sizes were hence too small to detect ethnicity effects given that these effects were beyond the immediate focus of the present research. Interestingly, the only ethnicity effect across both studies emerged for the recognition-memory task in Study 2: participants falsely remembered more characteristics of the out-group target than of the in-group target. This is particularly intriguing given that Kraus et al. (2010) found the same pattern in their second experiment in an ethnic context but not in a political context. The finding that this effect does not emerge in a political context may suggest that it relates to a social sensitivity issue, potentially indicating that participants are more distracted by social desirability concerns and consequently make more memory errors.

Finally, it is worth noting a limitation of the present research: In contrast to previous

research on transference (e.g., Andersen et al., 1995; Kraus et al., 2010), the pre-sessions and main sessions of the studies were not conducted by different experimenters; a procedure typically aimed at distracting participants from linking the two sessions and guessing the purpose of the study. We addressed this limitation with careful suspicion checks in the debriefings of the studies where we probed for general suspicions first and then asked directly whether participants noticed a link between the two sessions. Only a few participants indicated that they noticed the link and excluding these participants did not change the conclusions. We can hence be confident that the findings were not due to demand characteristics in the studies.

As the present findings help to instill greater confidence in the role of transference for ethnic out-groups, future research may now benefit from extending this paradigm beyond the lab. In everyday life, resemblance to a significant other may occur in facial features, appearance, or mannerisms. Indeed, previous research suggests that transference and resemblance effects emerge even when a target's facial features are morphed with those of a significant other (Günaydin, Zayas, Selcuk, & Hazan, 2012; Kraus & Chen, 2010) or a known person (Gawronski & Quinn, 2013). However, such effects have not yet been studied in an intergroup context. If resemblance is detected spontaneously in facial features or mannerisms, it may be particularly relevant to automatic associations and reactions. Future research could hence examine whether transference effects occur in such automatic reactions, even when the target is an out-group member. Such evidence would further bolster the conclusion that, irrespective of whether someone shares our ethnicity or not, we see and treat them like family when they remind us of our significant others.

### References

- Andersen, S. M., & Baum, A. (1994). Transference in interpersonal relations: Inferences and affect based on significant-other representations. *Journal of Personality*, *62*(4), 459–497. <https://doi.org/10.1111/j.1467-6494.1994.tb00306.x>
- Andersen, S. M., & Berk, M. S. (1998). The social-cognitive model of transference: Experiencing past relationships in the present. *Current Directions in Psychological Science*, *109*–115. <https://www.jstor.org/stable/20182518>
- Andersen, S. M., & Chen, S. (2002). The relational self: an interpersonal social-cognitive theory. *Psychological Review*, *109*(4), 619-645. <http://dx.doi.org/10.1037/0033-295X.109.4.619>
- Andersen, S. M., & Cole, S. W. (1990). “Do I know you?”: The role of significant others in general social perception. *Journal of Personality and Social Psychology*, *59*(3), 384–399. <http://dx.doi.org/10.1037/0022-3514.59.3.384>
- Andersen, S. M., Glassman, N. S., Chen, S., & Cole, S. W. (1995). Transference in social perception: The role of chronic accessibility in significant-other representations. *Journal of Personality and Social Psychology*, *69*(1), 41–57. <https://doi.org/10.1037//0022-3514.69.1.41>
- Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of Other in the Self Scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology*, *63*(4), 596–612. <https://doi.org/10.1037/0022-3514.63.4.596>
- Chaiken, S., & Trope, Y. (1999). *Dual-process theories in social psychology*. New York, N.Y.: Guilford Press.
- Cunningham, W. A., Johnson, M. K., Raye, C. L., Gatenby, J. C., Gore, J. C., & Banaji, M. R. (2004). Separable neural components in the processing of black and white faces. *Psychological Science*, *15*(12), 806–813. <https://doi.org/10.1111/j.0956->

7976.2004.00760.x

- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G\* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*(2), 175–191. <https://doi.org/10.3758/BF03193146>
- Fazio, R. H., Jackson, J. R., Dunton, B. C., & Williams, C. J. (1995). Variability in automatic activation as an unobtrusive measure of racial attitudes: a bona fide pipeline? *Journal of Personality and Social Psychology*, *69*(6), 1013–1027. <https://doi.org/10.1037/0022-3514.69.6.1013>
- Fiske, S. T., & Neuberg, S. L. (1990). A continuum of impression formation, from category-based to individuating processes: Influences of information and motivation on attention and interpretation. *Advances in Experimental Social Psychology*, *23*, 1–74. [https://doi.org/10.1016/S0065-2601\(08\)60317-2](https://doi.org/10.1016/S0065-2601(08)60317-2)
- Gaertner, S. L., Dovidio, J. F., Banker, B. S., Houlette, M., Johnson, K. M., & McGlynn, E. A. (2000). Reducing intergroup conflict: From superordinate goals to decategorization, recategorization, and mutual differentiation. *Group Dynamics: Theory, Research, and Practice*, *4*(1), 98–114. <http://dx.doi.org/10.1037/1089-2699.4.1.98>
- Gawronski, B., & Quinn, K. (2013). Guilty by mere similarity: Assimilative effects of facial resemblance on automatic evaluation. *Journal of Experimental Social Psychology*, *49*, 120–125. <https://doi.org/10.1016/j.jesp.2012.07.016>
- Glassman, N. S., & Andersen, S. M. (1999). Activating transference without consciousness: using significant-other representations to go beyond what is subliminally given. *Journal of Personality and Social Psychology*, *77*(6), 1146–1162. <http://dx.doi.org/10.1037/0022-3514.77.6.1146>
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. (1998). Measuring individual



- differences in implicit cognition: the implicit association test. *Journal of Personality and Social Psychology*, 74(6), 1464–1480. <https://doi.org/10.1037/0022-3514.74.6.1464>
- Gulker, J. E., & Monteith, M. J. (2013). Intergroup Boundaries and Attitudes The Power of a Single Potent Link. *Personality and Social Psychology Bulletin*, 39(7), 943–955. <https://doi.org/10.1177/0146167213485444>
- Günaydin, G., Zayas, V., Selcuk, E., & Hazan, C. (2012). I like you but I don't know why: Objective facial resemblance to significant others influences snap judgments. *Journal of Experimental Social Psychology*, (48), 350–353. <https://doi.org/10.1016/j.jesp.2011.06.001>
- Haddock, G., Zanna, M. P., & Esses, V. M. (1993). Assessing the structure of prejudicial attitudes: The case of attitudes toward homosexuals. *Journal of Personality and Social Psychology*, 65(6), 1105–1118. <http://dx.doi.org/10.1037/0022-3514.65.6.1105>
- Hunter, J. A., Banks, M., O'BRIEN, K., Kafka, S., Hayhurst, G., Jephson, D., ... Stringer, M. (2011). Intergroup Discrimination Involving Negative Outcomes and Self-Esteem. *Journal of Applied Social Psychology*, 41(5), 1145–1174. <https://doi.org/10.1111/j.1559-1816.2011.00751.x>
- Ito, T. A., Thompson, E., & Cacioppo, J. T. (2004). Tracking the timecourse of social perception: The effects of racial cues on event-related brain potentials. *Personality and Social Psychology Bulletin*, 30(10), 1267–1280. <https://doi.org/10.1177/0146167204264335>
- Karremans, J. C., & Van Lange, P. A. (2004). Back to caring after being hurt: The role of forgiveness. *European Journal of Social Psychology*, 34(2), 207–227. <https://doi.org/10.1002/ejsp.192>
- Kraus, M. W., & Chen, S. (2010). Facial-feature resemblance elicits the transference

- effect. *Psychological Science*, 21(4), 518-522.  
<https://doi.org/10.1177/0956797610364949>
- Kraus, M. W., Chen, S., Lee, V. A., & Straus, L. D. (2010). Transference occurs across group boundaries. *Journal of Experimental Social Psychology*, 46(6), 1067–1073.  
<https://doi.org/10.1016/j.jesp.2010.05.003>
- Levinger, G. K., & Snoek, J. D. (1972). *Attraction in relationship: A new look at interpersonal attraction*. Morristown, NJ: General Learning Press.
- McConahay, J. B. (1986). Modern racism, ambivalence, and the modern racism scale. In J. F. Dovidio & S. L. Gaertner, *Prejudice, discrimination, and racism*. (pp. 91–125). San Diego, CA.
- Mikulincer, M., & Shaver, P. R. (2001). Attachment theory and intergroup bias: evidence that priming the secure base schema attenuates negative reactions to out-groups. *Journal of Personality and Social Psychology*, 81(1), 97-115. <http://dx.doi.org/10.1037/0022-3514.81.1.97>
- Morry, M. M. (2007). The attraction-similarity hypothesis among cross-sex friends: Relationship satisfaction, perceived similarities, and self-serving perceptions. *Journal of Social and Personal Relationships*, 24(1), 117–138.  
<https://doi.org/10.1177/0265407507072615>
- Navarrete, C. D., McDonald, M. M., Molina, L. E., & Sidanius, J. (2010). Prejudice at the nexus of race and gender: An outgroup male target hypothesis. *Journal of Personality and Social Psychology*, 98(6), 933–945. <http://dx.doi.org/10.1037/a0017931>
- Nosek, B. A., Banaji, M., & Greenwald, A. G. (2002). Harvesting implicit group attitudes and beliefs from a demonstration web site. *Group Dynamics: Theory, Research, and Practice*, 6(1), 101–115. <https://doi.org/10.1037//1089-2699.6.1.101>
- Saribay, S. A., & Andersen, S. M. (2007a). Are past relationships at the heart of attachment

dynamics? What love has to do with it. *Psychological Inquiry*, 18(3), 183–191.

<https://doi.org/10.1080/10478400701512786>

Saribay, S. A., & Andersen, S. M. (2007b). Relational to collective: Significant-other representations, ethnic categories, and intergroup perceptions. *Personality and Social Psychology Bulletin*, 33(12), 1714–1726. <https://doi.org/10.1177/0146167207307486>

Smith, E. R., & DeCoster, J. (2000). Dual-process models in social and cognitive psychology: Conceptual integration and links to underlying memory systems. *Personality and Social Psychology Review*, 4(2), 108–131.

[https://doi.org/10.1207/S15327957PSPR0402\\_01](https://doi.org/10.1207/S15327957PSPR0402_01)

Van Lange, P. A., & Kuhlman, D. M. (1994). Social value orientations and impressions of partner's honesty and intelligence: A test of the might versus morality effect. *Journal of Personality and Social Psychology*, 67(1), 126–141.

<http://dx.doi.org/10.1037/0022-3514.67.1.126>

Wolf, L. J., Weinstein, N., & Maio, G. R. (2019). Anti-immigrant prejudice: Understanding the roles of (perceived) values and value dissimilarity. *Journal of Personality and Social Psychology*, 117(5), 925–953. <https://doi.org/10.1037/pspi0000177>