


Social Projection Increases for Positive Targets: Ascertaining the Effect and Exploring Its Antecedents

Personality and Social
Psychology Bulletin
2014, Vol. 40(10) 1373–1388
© 2014 by the Society for Personality
and Social Psychology, Inc
Reprints and permissions:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/0146167214545039
pspb.sagepub.com


Maya Machunsky¹, Claudia Toma², Vincent Yzerbyt³,
and Olivier Corneille³

Abstract

Social projection denotes the attribution of characteristics of the self to others and, therefore, increases perceived self–other similarity. The present research tests the assumption that positive but not negative targets elicit social projection. Earlier research has attributed an effect of target valence to mere consistency principles of judgment and has, thus, questioned projection processes to be the origin of self–other similarity. Building on more recent evidence, we suggest that target valence influences self–other similarity above and beyond a consistent response behavior. The results of three experiments in which target valence was manipulated through evaluative conditioning and by smiling versus neutral facial expression support our hypothesis. We discuss how cognitive versus motivated processes can account for these findings and suggest a new conceptualization of social projection whereby projection is a means to regulate social distance.

Keywords

social projection, approach/avoidance, target valence, evaluative conditioning, distance regulation

Received April 5, 2013; revision accepted June 30, 2014

Imagine you are at a party with a lot of people whom you do not know very well. There is one person, Thomas, whom you find particularly interesting, friendly, and, more generally, positive. At the same party there is another person, John, whom you see as rather unfriendly, cold, and, more generally, negative. Because people typically go beyond the information given, you may form expectations about Thomas and John even before getting to know them better. The question is how you form expectations about them. Obviously, there are several ways to form expectations about others with stereotyping being probably the most prominent one. Another option would be to use your own characteristics to draw inferences about Thomas' and John's characteristics, a process referred to as social projection. Would you project your characteristics to the same extent onto Thomas and onto John? And would you project more your positive or your negative characteristics? Finally, would this process occur irrespective of how you feel about yourself? The present research aims at addressing those important and unanswered questions.

Social projection denotes the assignment of one's own characteristics, attitudes, and behavioral preferences to other people or social groups (Ames, 2004a, 2004b; Cadinu & Rothbart, 1996; Krueger, 2007; Krueger, Acevedo, & Robbins, 2006) and may contribute to many well-known social-psychological phenomena, among which are the

endowment effect (Van Boven, Dunning, & Loewenstein, 2000), empathy gaps (Van Boven & Loewenstein, 2005), and ingroup favoritism (DiDonato, Ullrich, & Krueger, 2011).

There is one variable that is commonly recognized as a powerful determinant of social projection, namely, social categorization. Numerous studies have shown that ingroups elicit more social projection than outgroups (for a meta-analysis, see Robbins & Krueger, 2005) and this finding is typically interpreted in light of a cognitive or heuristic approach (Ames, 2004a, 2004b; Dawes, 1989; Krueger & Clement, 1996). We propose that target valence represents another determinant of social projection. Specifically, we assume that people expect positive persons to possess similar traits, attitudes, and preferences as themselves. In contrast, negative persons are not expected to possess similar characteristics and may even trigger contrast. We therefore predict higher levels of projection for positive compared

¹University of Mannheim, Germany

²Tilburg University, The Netherlands

³Université catholique de Louvain, Louvain-la-Neuve, Belgium

Corresponding Author:

Maya Machunsky, University of Mannheim, Schloss Ehrenhof Ost,
Mannheim, 68131, Germany.

Email: machunsky@uni-mannheim.de

with negative targets. In our example, we expect more social projection onto Thomas than onto John.

The anticipated effect of target valence has a number of practical implications. For instance, it is known that projection causes empathy gaps because people tend to ignore situational variables and simply assume that others feel and think the same way they do (Van Boven & Loewenstein, 2005). This may prove detrimental when people want to give social support to others. As a matter of fact, they risk misinterpreting their distress because they take too much into account their own current feelings and cognitions. On a different note, relying on one's own evaluation to assess how much another negotiation party values a specific, to be negotiated, good may prevent the emergence of win-win situations (Van Boven et al., 2000). If indeed target valence has the hypothesized effect of becoming stronger for positive as compared with negative targets, this may ironically increase these biases for liked compared with disliked others.

The effect of target valence is also worth considering for more theoretical reasons. First, valence is a fundamental psychological variable, so that it may be possible to theoretically incorporate a number of effects on social projection under one common concept. Second, and as we will discuss below, an effect of target valence may inform theoretical models of social projection and, thus, shed some further light on the suspected driving forces of social projection in terms of motivation and cognition.

We first review the relevant literature with regard to the hypothesis that target valence influences social projection and provide directions for how the role of target valence should be examined. Then, we consider cognitive as well as motivational approaches to social projection and illustrate in how far the effect of target valence informs these models. We then present three experiments that were designed to test the general hypothesis that positive targets elicit more social projection than negative targets.

Target Valence and Self-Other Similarity: Empirical Ambiguities in Past Evidence

Social projection research builds on the assumption that people transfer their own characteristics onto others and that this process results in an increase in perceived self-other similarity. In other words, the perception of self-other similarity results from the *process* of projection. In opposition to this perspective, cognitive consistency approaches assume that self-other similarity does not result from the process of projection but simply constitutes a consistent response behavior. In this view, self-other similarity is a by-product of judgment processes other than projection in which the self and the target remain completely disconnected.

The argument developed by Sherman, Chassin, Presson, and Agostinelli (1984) and LaPrelle, Hoyle, Insko, and Bernthal (1990) holds that people use the rule that "good

targets have good characteristics." That is, people infer that if they have a positive attitude toward a target person and if a certain characteristic is positive, then this characteristic should be attributed to the target. A higher number of matches between self and target judgments (i.e., self-other similarity) for positive targets than for negative targets thus arises simply because people tend to attribute more positive than negative characteristics to themselves (as most people hold positive self-concepts). In other words, according to this argument, self-other similarity results from a mere valence overlap between the self and a positive target and not from the process of projecting self-attributes onto others. Hence, this theoretical perspective necessarily incorporates the assumption that self-other similarity increases for positive targets, but it also implies that self-other similarity vanishes when one statistically controls for trait valence.

According to the consistency approach of self-other similarity it is, thus, *not* that you assume that the likable acquaintance, Thomas, has the *same* traits and attitudes as yourself, whereas the unlikable acquaintance, John, has *different* traits and attitudes than yourself. Rather, you assume that Thomas shares your political opinion, is sportive and tidy because these characteristics are *positive* (from your point of view). Likewise, you assume that John has the opposite political opinion, is not athletic and messy because these characteristics are *negative*. Perceived self-other similarity emerges if you also hold positive self-views—which is the case for the majority of people (Greenwald & Banaji, 1995). Under this condition, you will also perceive yourself as tidy and sportive and as having the only true perspective on death penalty. The resulting (dis)similarity between you and Thomas (John) can thus be attributed to converging (diverging) valence that is independent from (dis)similarity with regard to content.

To test the assumption that self-other similarity can be attributed to a pure valence overlap between positive but not negative targets and the self, Sherman et al. (1984) manipulated target valence by describing target persons in an either favorable or unfavorable way. The results only partly supported the notion that self-other similarity increases as a function of target valence because the effect of target valence emerged on some dependent variables but not on others.¹ Maybe even more important than the inconsistency across results, the authors did not demonstrate that the self-target covariation for positive targets disappears once trait valence is statistically controlled, a procedure that may have provided more unequivocal evidence for the assumption that the self-target covariation can be indeed attributed to consistency principles. Because such an analysis is missing, it remains an open question whether the entire variance can be attributed to consistency or whether a significant proportion of the variance may be attributed to projection processes.

Likewise, LaPrelle et al. (1990) manipulated target valence by providing either positive or negative feedback that allegedly came from a dyad partner with whom participants had discussed political issues. The correlations

between self and partner ratings were found to be higher for positive compared with negative targets. Here too, the authors did not control for trait valence. It thus remains unclear whether the variance can be entirely accounted for by consistency principles or whether a significant proportion of variance remains after controlling for trait valence that may be attributed to projection proper. In a similar vein (though not in the context of the consistency framework), Marks and colleagues (Marks & Miller, 1982; Marks, Miller, & Maruyama, 1981; see also Miyake & Zuckerman, 1993) manipulated valence by varying the physical attractiveness of the target persons. Again, these results proved ambiguous because the similarity indices were not controlled for item valence.

In sum, consistency approaches represent a convincing and parsimonious approach to self–other similarity and we agree that a sizable portion of variance in self–other similarity can most likely be attributed to a consistent response behavior. Still, empirical evidence for this perspective remained ambiguous due to inconsistent results or a lack of experimental or statistical control of trait valence. It is thus unclear whether, after controlling for trait valence, a substantial amount of unexplained variance leaves room for social projection processes. In short, the conclusion that consistency principles represent the prevailing factor for the effect of target valence on self–other similarity may be premature.

As it happens, a review of the relevant literature suggests that there is definitely some room for social projection processes. Specifically, several experiments showed that people project more to cooperative than competitive individuals and outgroups (Riketta & Sacramento, 2008; Toma, Yzerbyt, & Corneille, 2010). Because cooperative partners are liked more than competitive partners (Fiske & Ruscher, 1993), these results suggest that target valence orients social projection. Likewise, Clement and Krueger (2002, Experiment 3) investigated social categories as targets of social projection and manipulated category valence (i.e., positive vs. negative valence) orthogonally to social categorization (i.e., ingroup vs. outgroup). The analyses revealed that social projection was stronger for positive groups than for negative groups irrespective of the groups' status as ingroup or outgroup. However, social projection was measured twice in this study and the effect was not consistent across the two points of measurement. To be sure, evidence from this research remains indirect because these studies did not directly investigate the role of target valence. Still, the fact is that these studies controlled for trait valence and found that social projection occurred beyond a consistent response behavior.

Finally, in contrast to the studies cited above, Castelli, Arcuri, and Carraro (2009) did not control for trait valence statistically but used the month of birth as a neutral personal characteristic. Participants were asked to guess the birth month of politicians and some other famous target persons. The analyses consistently revealed that participants were

more likely to attribute their birth month to politicians of preferred parties and to positive exemplars (e.g., Albert Einstein) than to politicians of disliked parties and to negative exemplars (e.g., Adolf Hitler). One problem about these studies is the confound between exemplar valence and other attributes of the well-known public target persons (e.g., political membership, nationality etc.) as these additional attributes may have guided social projection (see Krueger & Clement, 1996). Furthermore, it is questionable whether the month of birth is a completely neutral characteristic (Jones, Pelham, Mirenberg, & Hetts, 2002).

In sum, research that aimed at demonstrating that self–target similarity to positive targets results from a mere valence overlap remains ambiguous due to inconsistent results or a lack of experimental or statistical control of trait valence. At the same time, there is indirect evidence for the role of target valence from studies that focus on such variables as, for instance, cooperation versus competition. Hence, it is still an open question whether the effect of target valence on self–other similarity can be attributed only to a consistent response behavior or whether some variance remains to be explained by social projection. It is the main aim of the present research to test whether target valence is a predictor of social projection above and beyond a consistent response behavior.

Integration Into Current Models of Projection

Besides the potential of valence to incorporate the effects of cooperativeness, attractiveness, and some specific unknown feature of famous exemplars under the common concept of target valence, the current research may also allow to inform current models of social projection. In fact, our hypothesis can be easily integrated into current models of social projection though under different boundary conditions.

According to the *inductive reasoning account* (Dawes, 1989; Krueger & Clement, 1996), people consider the self as a sample of the population to which they belong and those who rely on self-information are more likely to make normatively correct population judgments than people disregarding self-information (see Table 1 for a summary of the theoretical accounts). This also applies to person judgments because under most conditions and for most characteristics it is reasonable to assume that both the self and the target originate from a normally distributed population (Dawes, 1989; Krueger & Clement, 1996). The general finding that people do not project to outgroups (see Robbins & Krueger, 2005, for a meta-analysis) is interpreted as showing that people do not consider the self as a reliable sample from a population to which they do not belong (although this generalization strategy is normatively questionable, see Krueger & Clement, 1996, for a discussion). As such, this finding is considered as evidence for the inductive reasoning account (DiDonato et al., 2011).

Table 1. Theoretical Accounts of Social Projection, Their Assumptions, and the Predictions Concerning Target Valence, Trait Valence, and Self-Esteem.

Model	Assumptions	The effect of target valence	Statistical control of trait valence	Self-esteem
Cognitive consistency account	Self–other similarity emerges due to a consistent response pattern following the rule “good targets have good characteristics”	Necessary precondition for the consistency effect to emerge	Self–other similarity vanishes	Necessary precondition for the consistency effect to emerge
Inductive reasoning account	Self–other similarity emerges because the self is considered as a sample of $n = 1$ of a population; in an inductive reasoning process self-information is used for target judgment	Can be integrated into the model under the assumption that the self is only a sample of a positive population (or social group)	Self–other similarity remains	Necessary precondition for the effect of target valence to emerge; only positive self and a positive target form a common category; self–other similarity to positive targets should be pronounced for participants with high self-esteem
Similarity contingency model	Self–other similarity emerges/increases as a result of an initial similarity testing that signals a priori similarity	Can be integrated into the model under the assumption that a positive self is a priori more similar to a positive target than to a negative target	Self–other similarity remains	Necessary precondition for the effect of target valence to emerge; only positive self and a positive target signal a priori similarity; self–other similarity to positive targets should be pronounced for participants with high self-esteem
Affiliation account	Self–other similarity increases as a result of a need for affiliation	Can be integrated into the model given that people want to affiliate with positive but not with negative others	Self–other similarity remains	<ul style="list-style-type: none"> • Assuming that people generally want to affiliate with positive but not with negative others, no effect of self-esteem is expected. • Assuming that especially people with negative self-esteem want to affiliate with positive others, the effect of target valence should be pronounced for people with low self-esteem

According to an alternative cognitive view, the *similarity–contingency model* suggested by Ames (2004a, 2004b), people initially engage in a holistic assessment of similarity and if this assessment signals similarity, people infer target characteristics from self-characteristics (i.e., social projection) so that targets become more similar to the self. In other words, a priori similar targets will be perceived as even more similar to the self. Ames tested this model with a variety of targets (i.e., individuals, ingroups, and outgroups), forms of a priori similarity (e.g., general similarity, preference similarity etc.), and dimensions of projection (e.g., preferences, mental states etc.) and, altogether, the similarity–contingency model received substantial empirical support.

The anticipated effect of target valence can be incorporated into these cognitive models if one assumes that negative targets are most likely construed in a way that they do

not belong to the same social category as the generally positive self (from the perspective of the inductive reasoning account) or that they are a priori dissimilar to the generally positive self (from the perspective of the similarity–contingency model; see also Table 1). Crucial for this argument is the common finding that, by and large, people hold positive self-attitudes (Greenwald & Banaji, 1995). Consequently, positive targets are perceived as more similar (or ingroup-like) to the self than negative targets. Hence, the existing models indirectly support the idea that social projection is stronger for positive compared with negative targets. However, this hypothesis should only hold for people with positive self-attitudes. This means that if you have a positive self-view (Condition 1) and, additionally, have a generally positive impression of Thomas (Condition 2), you infer that you and Thomas are similar to one another (or belong to the

same ingroup) and, thus, expect Thomas to be tidy, sportive, and antideath penalty. In contrast, if you have a rather negative self-view but have a positive impression of Thomas, you might infer that you are rather dissimilar and will thus not assume Thomas to be sportive, tidy, and antideath penalty.

In contrast to cognition-based models of social projection, motivational accounts of social projection have received far less attention. There is nevertheless some empirical evidence for a motivated approach to social projection. For instance, Marks and colleagues (Marks & Miller, 1982; Marks et al., 1981) proposed that *self-enhancement motives* may underlie the effect that participants projected more strongly to attractive rather than unattractive target persons. However, the interpretation of the effect as a dynamic social projection effect remains somewhat problematic because the valence of the attributed characteristics was not controlled for so that the effect may be attributed to consistency effects (see above). Unfortunately, the idea that self-enhancement motives may drive projection processes was not tested in further studies.

Another motivational account of social projection was put forth by Arndt, Greenberg, Solomon, Pyszczynski, and Schimel (1999) as well as by Pyszczynski et al. (1996). These authors claimed that social projection serves a *need for connectedness* (or communion; see Locke, Craig, Baik, & Gohil, 2012) that should emerge when participants' own mortality becomes salient. As a matter of fact, mortality salience was found to increase social projection (see Arndt et al., 1999, Study 3; Pyszczynski et al., 1996; Simon et al., 1997). Similarly, the desire to be close or to cooperate with one's partner was found to increase projection and perceived self-other similarity (Slotter & Gardner, 2009; Toma, Corneille, & Yzerbyt, 2012). More specifically, people cooperate inasmuch as they project onto others suggesting that social projection is a motivated process that serves interpersonal cooperation and connectedness (Krueger, 2013; Toma & Wolpin, 2012).

This motivational perspective is compatible with our prediction that positive compared with negative targets elicit more social projection. In particular, if social projection serves a need for connectedness and given that people would want to feel connected to positive but not to negative targets, people should project more strongly to positive than to negative targets. According to this account, you will thus expect Thomas and not John to be sportive, tidy, and antideath penalty because you prefer being more similar and thus more connected to positive than negative others.

To recapitulate, numerous efforts in the social-psychological literature suggest that target valence influences self-other similarity and social projection, respectively. Several factors may account for this effect. Consistency approaches assume that an effect of target valence on self-other similarity results from a mere valence overlap between a positive target and the generally positively evaluated self. In this view, higher perceived self-target similarity for positive than

for negative targets emerges in the absence of projection proper. Empirically, this means that the expected effect of target valence vanishes when one controls for trait valence.

In contrast to this perspective, social projection accounts assume the transfer of self-characteristics to others to be the origin of self-other similarity. Whereas cognitive accounts hold that social projection results from an inductive reasoning process or a heuristic process that follows a holistic similarity judgment, motivational accounts assume that social projection creates connectedness to others. According to the cognitive view, the effect of target valence on social projection should be especially pronounced for people with high self-esteem because high self-esteem bolsters categorization of the self and the target in a joint category and increases initial similarity perceptions. The motivational view is also compatible with an effect of target valence on social projection. The role of participants' self-esteem is, however, less clear from a motivational perspective. On one hand, one may argue that low self-esteem participants will more readily search connectedness to positive others. On the other, connectedness to positive others may be such a general motive that social projection to positive others occurs irrespective of the level of self-esteem. Most important, both the cognitive and the motivational account on social projection expect the effect of target valence to remain substantial when trait valence is statistically controlled for and thus both deviate in their predictions from pure consistency approaches.

Overview of Experiments

We conducted three experiments aimed at providing a firmer test of the idea that social projection is enhanced for positive targets. In doing so, we sought to provide more compelling evidence for the hypothesis that target valence influences social projection and that this effect cannot simply be reduced to mere consistency. In addition, we also wanted to inform current models of social projection. In Experiment 1, we relied on an evaluative conditioning (EC) procedure to create a more positive view of one target person than of another. We anticipated more social projection to positive conditioned stimuli (CSs) compared with negative CSs. Experiment 2 replicated Experiment 1 with two important modifications: Trait valence was assessed idiosyncratically and self-esteem was measured with a well-established and reliable scale (a German version of the Rosenberg scale, von Collani & Herzberg, 2003). Finally, Experiment 3 replicates Experiment 2 with more realistic stimulus material.

Experiment 1

In Experiment 1, we sought to provide empirical support for our hypothesis that target valence leads to projection by manipulating the valence of the target through an EC procedure (for an overview on evaluative conditioning, see Hofmann, De Houwer, Perugini, Baeyens, & Crombez,

2010). Specifically, two neutral faces were associated with either positive or negative unconditioned stimuli (USs). Importantly, because the assignment of US valence to faces was counterbalanced, any projective effects are unconfounded with idiosyncratic features associated with the faces.

Method

Participants and design. A total of 32 participants (12 males) took part in a study on face processing in exchange for 5 Euro. The design of the experiment included target valence (positively vs. negatively CS) as a two-level within-subject factor.

Procedure. Participants were tested in a computer room in groups of 2 to 4 individuals. Participants first answered demographical questions and rated themselves on 20 traits, 10 positive and 10 negative, translated from Otten and Wentura (2001), on a scale ranging from 1 (*agree not at all*) to 9 (*agree completely*; all traits are listed in the appendix). They were told that this was standard procedure before the real study started.

In the conditioning phase, participants were instructed to follow the presentation of faces and words on the screen. They learned that the stimuli would be presented in random order, that they would not have to memorize them, and that they would simply be asked to spontaneously answer a set of questions after the presentation phase.

In the conditioning phase, participants saw six CS–US pairs appearing on the computer screen. The pairs consisted of a presentation of one CS (Mr. X or Mr. Z's face), at the top of the screen, and one US (one of six words of which three were positive and three were negative) at the bottom of the screen. Each of the six CS–US pairs was displayed on the computer screen for 2 s. Each pair was presented twice, resulting in a total of 12 presentations appearing in a random order. Importantly, one CS was only paired with positive words (i.e., CS+), whereas the other CS was only paired with negative words (i.e., CS–). CS–US assignments (i.e., face-valence assignments) were counterbalanced across participants.

To ensure that our EC procedure was powerful enough to induce valence in a priori neutral faces, we conducted a pretest. The manipulation check was separated from the assessment of the dependent variable to prevent possible interference effects flowing from the global evaluative rating of the target (i.e., manipulation check) to the rating of the target on the traits (or interference effects flowing in the opposite direction if the order of these measures had been changed). In the pretest, participants underwent the same EC procedure as described above and were then asked to answer a forced choice question (“Do you prefer Mr. X or Mr. Z's face?”). Data showed that 16 out of 22 participants preferred the face that had been conditioned to be positive, $\chi^2 = 4.54$, $p < .05$, allowing us to conclude that our EC procedure

successfully influenced the valence of the faces in the expected direction.

Following the conditioning phase, experimental participants were asked to spontaneously judge the two targets. Specifically, participants saw one face in the center of the screen and a rating scale ranging from 1 (*agree not at all*) to 9 (*agree completely*) at the bottom of the screen. After 1,000 ms, a personality trait appeared between the face and the rating scale. This screen remained until participants entered their judgment by using the numerical pad of the keyboard, at which time a new trait appeared on the screen. After all trait ratings for the first face had been made, the same procedure followed for the second face. The order of presentation of Mr. X and Mr. Z's faces was counterbalanced across participants.

Materials. We used two Caucasian male photos (called Mr. X and Mr. Z) generated with FaceGen 3.1 software as the neutral CSs. Past research has reported similar face representation effects using realistic faces or faces generated through this software (e.g., Corneille, Hugenberg, & Potter, 2007). These faces were pretested to be neutral with regard to their attractiveness. The words love, freedom, and friend were used as US+ and the words murder, hardship, and war served as US–. To measure social projection, we assessed target ratings on the same 20 traits that were used to assess self-perception in the beginning of the experiment.

Results and Discussion

Model building. Social projection is typically assessed as the covariation between self and target ratings. The data structure suggests a multilevel analysis with self and target ratings clustered within participants and traits. We thus tested our hypotheses with a cross-classified hierarchical linear model (R software, lme4 package) because such a model accounts for the nonindependent structure of the data. Our hypothesis predicts that the covariation of self and target ratings within participants and traits is influenced by target valence, which was varied within participants. Furthermore, the within-participant design allowed not only estimating random effects of self-ratings and trait valence but also estimating a random effect of target valence reflecting possible variations of the effect across participants. We expected the interaction between self-ratings and target valence to remain significant after controlling for trait valence. Such a pattern of results implies that the expected effect cannot simply be attributed to a mere valence overlap between the self and the positive target as proposed by the consistency framework. It should be noted that, although we are testing for a significant interaction, we are investigating determinants of social projection in that we expect more social projection (i.e., self–target covariation) to positive compared with negative targets.

We implemented the following basic model²:

$$\begin{aligned}
\text{Target Rating} = & \beta_0 + \beta_1 \times \text{Self-Rating} \\
& + \beta_2 \times \text{Target Valence} \\
& + \beta_3 \times \text{Trait Valence} + \beta_4 \\
& \times \text{Self-Rating} \times \text{Target Valence} \\
& + \beta_{0|\text{Participant}} + \beta_{1|\text{Participant}} \\
& \times \text{Self-Rating} + \beta_{2|\text{Participant}} \\
& \times \text{Target Valence} + \beta_{3|\text{Participant}} \\
& \times \text{Trait Valence} + \beta_{0|\text{Trait}} + e,
\end{aligned}$$

with β_0 as fixed intercept, β_1 to β_4 as fixed regression weights, $\beta_{0|\text{Participant}}$ to $\beta_{3|\text{Participant}}$ as by-participant random effects, $\beta_{0|\text{Trait}}$ as by-trait random effect and e as residual. Target valence was coded -1 for negative targets and $+1$ for positive targets. We coded trait valence -1 for negative traits and $+1$ for positive traits. β_1 denotes the overall extent to which the self is used to judge the target, β_2 refers to the extent to which the positive target is judged differently than the negative one, and β_3 refers to the extent to which trait valence affects target ratings. The critical parameter for our hypothesis is β_4 because it denotes the extent to which the tendency of the self-ratings to predict the target ratings varies as a function of target valence. It is important to note that parameters in this model (especially β_1 and β_4) reflect self–target covariance, not correspondence. In other words, these coefficients gauge the similarity in the distribution of the traits when participants rate the self and when they rate the target. The more similar these distributions are, the more there is evidence of projection.

The basic model served as a basis to test our main hypothesis that positive targets elicit more social projection than negative targets. Subsequently, we will extend this basic model by stepwise inclusion of further predictors to test for moderators of the anticipated effect of target valence. Self-ratings and additional continuous variables were grand mean centered and the method of estimation is restricted maximum likelihood.

Analysis of the stimulus materials. We first tested whether the stimulus materials had an effect on the focal interaction between self-ratings and target valence. The stimulus faces (i.e., Mr. X and Mr. Z) were contrast coded and entered as an additional factor to the analysis. The results indicate that the stimulus material did not affect the focal cross-level interaction, $b = .04$, $SE = .03$, $t = 1.22$, $p = .22$, while the focal interaction between target valence and self-ratings remained significant, $b = .16$, $SE = .02$, $t = 8.18$, $p < .001$. Therefore, we aggregated the data across stimulus conditions.

Main analysis. The analysis yielded a number of significant effects (see Table 2; random components are summarized in the appendix). First, the intercept differed significantly from

Table 2. Fixed Effects of the Multilevel Analysis Experiment 1.

	Fixed effect	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>
β_0	Intercept	4.81	0.1	49.94	<.001
β_1	Self-rating	0.05	0.09	0.51	.611
β_2	Target valence	0.002	0.05	0.04	.965
β_3	Trait valence	0.62	0.15	4.06	<.001
β_4	Self-Rating \times Target Valence	0.16	0.02	8.31	<.001

0. Second, the significant β_3 -parameter indicates that participants assigned significantly higher ratings when traits were positive as opposed to negative. Next and most important, the covariation between self and target ratings depended on target valence as suggested by the significant β_4 -parameter. Decomposing the Self-Ratings \times Target Valence interaction with a simple slope analysis revealed that the effect of self-ratings on target ratings was positive and significant when the target was positive, $b = .21$, $SE = .04$, $t = 5.5$, $p < .001$, 95% confidence interval (CI) = [0.13, 0.29], and negative and significant when the target was negative, $b = -.10$, $SE = .04$, $t = -2.68$, $p = .007$, 95% CI = [-0.18, -0.02]. In other words, participants projected their personality traits onto the positive target and counterprojected onto the negative target and these effects emerged even after statistically controlling for trait valence.

Trait valence as a moderator. In a next step, we tested whether the effect of target valence on social projection is moderated by trait valence. Adding all two- and three-way interactions with trait valence as predictors to the basic model revealed a nonsignificant three-way interaction, $b = -.04$, $SE = .03$, $t = -1.31$, $p = .19$, indicating that participants projected more onto positive compared with negative targets on positive and negative traits alike. Importantly, the focal two-way interaction between self-ratings and target valence remained significant, $b = .13$, $SE = .03$, $t = 4.69$, $p < .001$.

The role of a positive self-view. From a cognitive perspective one would expect the pattern of results to be stronger for participants with positive self-views. We therefore also analyzed whether the critical two-way interaction between self-ratings and target valence was further qualified by people's self-concept. The model was thus extended with a variable that was computed by summing self-ascriptions on positive traits minus self-ascriptions on negative traits. We found no support for the claim that the target valence by self-ratings interaction was qualified by the tendency to ascribe positive rather than negative traits to the self as indicated by a nonsignificant three-way interaction between the aforementioned tendency, target valence, and self-ratings, $|b| < .01$, $SE = .002$, $t = -0.28$, $p = .78$. Again, the critical two-way interaction remained significant, $b = .12$, $SE = .03$, $t = 4.16$, $p < .001$.

Discussion. In line with predictions, we found more projection toward the face conditioned to be positive than toward the face conditioned to be negative. Remarkably, we found assimilative as well as contrastive effects and these effects were not moderated by trait valence or by a positive self-perception. As a matter of fact, no differences in the stimuli can be invoked to account for the obtained pattern as the EC procedure allowed for a counterbalancing of the target valence assignment.

Although the present endeavor addresses a series of interpretational problems encountered in earlier research on this issue (LaPrelle et al., 1990; Sherman et al., 1984), a major concern remains. To test whether self–other similarity is substantial for positive but not for negative targets beyond any tendencies that can be attributed to a consistent response behavior (see Sherman et al., 1984), we controlled for trait valence coded +1 for positive traits and –1 for negative traits (Otten & Wentura, 2001). Admittedly, this procedure neglects the fact that trait valence may vary from one individual to another and even covaries with self-assignment (Krueger, 1998). Hence, it is possible that individual differences in the evaluation of trait valence accounts for the effects in Experiment 1 so that the reported effects may still be attributed to some form of consistent response behavior.

Experiment 2

In Experiment 2, we assessed participants' evaluations of trait valence of each of the 20 traits. If the focal self-rating by target valence interaction remains significant when controlling for individual differences in trait evaluation, this would constitute even more conclusive evidence for the hypothesis that target valence influences social projection beyond consistent response behavior.

Using a German version of the Rosenberg Scales (von Collani & Herzberg, 2003), we also included a more direct measure of self-positivity (i.e., self-esteem). With this measure of self-esteem we aimed at providing a stronger test of the hypothesis that self–other similarity increases for positive rather than negative targets because positive targets are more ingroup-like or holistically more similar to a generally positive self.

Method

Participants and design. A total of 61 participants (17 males) took part and were paid 6 Euro for their service. The design of the experiment included target valence (positively vs. negatively CS) as a two-level factor varying within participants.

Procedure. The procedure was identical to Experiment 1 with the only difference that we assessed the evaluation of trait valence and self-esteem after participants finished the target ratings (i.e., social projection measures). In Experiment 2,

we also assessed participants' target evaluation at the end of the experimental procedure. That is, participants indicated their preference for either Mr. X or Mr. Z. This measure may serve as evidence for a successful manipulation of target valence. However, as mentioned earlier, results should be interpreted with caution as we cannot exclude interference effects such that measuring projection influences target evaluation.

Materials. We used the same stimulus materials as in Experiment 1. To measure trait valence, participants were asked to judge the valence of each of the 20 personality traits on a scale ranging from 1 (*negative*) to 9 (*positive*). A German version of the Rosenberg scale (von Collani & Herzberg, 2003) was used to assess self-esteem ($\alpha = .86$). Specifically, 10 items (e.g., "On the whole, I am satisfied with myself.") were answered on a scale ranging from 1 (*agree not at all*) to 9 (*agree completely*). Target valence was assessed in a relative format so that participants were asked to indicate whether they preferred Mr. X over Mr. Z or vice versa.

Results and Discussion

Model building. We implemented the same basic model as in Experiment 1. The only difference was that the effect-coded variable trait valence was replaced by the continuous, grand mean centered individual difference measure of trait valence.

Analysis of stimulus materials. The test of stimulus materials revealed that the particular face that was conditioned to be positive or negative did not influence the focal cross-level interaction between target valence and self-ratings, $b = -.08$, $SE = .11$, $t = -0.75$, $p = .45$. The focal interaction between target valence and self-ratings remained significant, $b = .19$, $SE = .02$, $t = 11.38$, $p < .001$. Therefore, we aggregated the data across stimulus materials.

Main analysis. The multilevel analysis yielded an intercept of 4.98 (β_0) corresponding to the grand mean of the target ratings (see Table 3). The significant β_3 -parameter means that people were more likely to make trait attributions with more positive trait valence. Importantly, the significant β_4 -parameter of .19 reflects the tendency of self-characteristics to influence ratings of positive targets more strongly than ratings of negative targets. Corresponding simple slope analyses showed that the self–target relation is positive in the case of a positive target, $b = 0.23$, $SE = .03$, $t = 7.0$, $p < .001$, 95% CI = [0.17, 0.29], and negative in the case of a negative target, $b = -0.15$, $SE = .03$, $t = -4.28$, $p < .001$, 95% CI = [-0.21, -0.09].

For comparison, we also calculated the basic model with a dichotomous trait valence variable in which we coded negative traits with –1 and positive traits with +1 (as in Experiment 1). The analysis revealed a Target Valence \times Self-Ratings interaction that was virtually of the same size as

Table 3. Fixed Effects of the Multilevel Analysis Experiment 2.

	Fixed effect	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>
β_0	Intercept	4.98	0.13	37.63	<.001
β_1	Self-rating	0.04	0.33	0.13	.9
β_2	Target valence	0.01	0.05	0.24	.81
β_3	Trait valence	0.11	0.04	3.09	.002
β_4	Self-Rating \times Target Valence	0.19	0.02	11.79	<.001

in the model with the continuous difference measure, $b = .19$, $SE = .02$, $t = 11.75$, $p < .001$, 95% CI = [0.15, 0.23]. However, in contrast to the analysis using measured trait valence, a priori defined trait valence was not a significant predictor of target ratings, $b = .5$, $SE = .92$, $t = .54$, $p = .59$. To conclude, with regard to the focal interaction between target valence and self-ratings, the difference between a continuous trait valence measure and a dichotomous a priori coded trait valence variable was negligible. This may be attributable to the fact that the traits were clearly positive and negative.

Trait valence as a moderator. As in Experiment 1, we further tested whether the tendency to project own characteristics more strongly onto positive than negative others is equally pronounced on positive and negative characteristics. To do so, we added all two- and three-way interactions with trait valence to test whether the significant interaction between target valence and self-ratings was further moderated by trait valence. The analysis yielded a nonsignificant three-way interaction between self-ratings, target valence, and trait valence $b = -.001$, $SE = .01$, $t = -0.09$, $p = .93$, whereas the focal two-way interaction between self-ratings and target valence remained significant, $b = .05$, $SE = .02$, $t = 1.99$, $p = .046$. Hence, the tendency to project more onto positive compared with negative targets was equally strong on positive and negative traits.

The role of self-esteem. Finally, we analyzed whether the focal interaction between self-ratings and target valence was moderated by self-esteem. The model was therefore further extended by introducing the grand mean centered self-esteem index and all possible interaction terms as predictors. The three-way interaction was not significant, $b = -.002$, $SE = .002$, $t = -1.54$, $p = .124$, whereas the focal two-way interaction between self-ratings and target valence remained significant, $b = .06$, $SE = .02$, $t = 2.61$, $p = .009$.

One may argue that the level of self-esteem was too homogeneous in our sample for this variable to represent a potent predictor. To test whether the self-esteem measure had sufficient variance to significantly predict an outcome variable, we specified a two-level model with self-ratings as outcome variable, trait valence as Level 1 predictor and self-esteem as Level 2 predictor. The rationale was that participants should attribute positive but not negative attributes to the self and this general tendency should be more pronounced among high self-esteem participants. As expected,

trait valence was a significant predictor of self-ratings, $b = .26$, $SE = .02$, $t = 10.71$, $p < .001$, and this relation was significantly moderated by self-esteem, $b = .013$, $SE = .001$, $t = 18.19$, $p < .001$. This finding confirms that the self-esteem variable definitely had the potential to be a significant moderator in our data set. This also suggests that the absence of a three-way interaction between target valence, self-ratings, and self-esteem cannot be attributed to psychometric shortcomings of the self-esteem index.

Discussion. In sum, the critical self-ratings by target valence interaction remains significant even after controlling for individual variations in trait valence suggesting that consistency is unable to explain the effect. As in Experiment 1, we found not only assimilative effect for positive targets but also contrastive effect for negative targets. Furthermore, the effect does not seem to be driven by self-target similarity on the valence dimension because a reliable measure of self-esteem failed to affect the critical interaction. Although this series of experiments represents converging evidence for our hypothesis that target valence affects social projection above and beyond consistency effects, we wanted to test whether our findings are being replicated with more realistic stimulus materials.

Experiment 3

This third experiment was conducted to replicate the patterns obtained in Experiments 1 and 2 with stimulus materials that represent real target persons. To gain control of the specific features of the target persons, we used exactly the same stimulus persons once with a smiling and once with a neutral facial expression. Furthermore, we also wanted to test whether our claim that target valence predicts social projection also holds if some of the characteristics were neutral in terms of valence. Therefore, we increased the number of traits with the same proportion of positive, negative, and also rather neutral traits. This modification enables us not only to estimate social projection more reliably but also to test whether our assumptions hold if the full spectrum of trait valence is included in the design.

Method

Participants and design. A total of 89 participants (19 males) took part in this experiment as well as in an unrelated memory experiment and were paid 5 Euro for their service. The design of the experiment included target valence (friendly vs. neutral target persons) as a two-level factor varying between participants.

Procedure. Participants were first asked to rate themselves on a number of personality traits. Directly afterwards they were presented a target person that they did not know and for whom they had no further information. Participants were then requested to rate this target person on the same list of

traits. In the final part of the experiment, we assessed trait valence, self-esteem, and demographic variables, just as in Experiment 2.

Materials. To gain more control over the specific features of the target persons, we used stimuli from the Radboud face database (Langner et al., 2010). In particular, this face database provides pictures of stimulus persons that display various emotional expressions and, thus, allows selecting target persons that are presented once with a smiling and once with a neutral facial expression. After the inspection of mean valence ratings for the stimulus persons that are provided by Langner et al. (2010), we selected Rafd090_01, Rafd090_14, Rafd090_31, and Rafd090_37 as target persons. The average valence ratings of the pictures with the neutral facial expressions differed significantly from the average valence ratings of the pictures with the smiling expression, $M = 3.18$ and $M = 4.38$, respectively, on a 5-point scale, $t(3) = 8.74$, $p = .003$. Furthermore, the mean attractiveness of the four target persons was close to the midpoint of the scale, $M = 2.9$, $SD = .48$. All target persons were Caucasian female adults with a frontal gaze direction and with a frontal view image (i.e., camera angle 90°).

In contrast to Experiments 1 and 2, we used a set of 45 traits to assess self-target covariation. We increased the number of traits for two reasons. First, a higher number of traits allows measuring social projection more reliably. Second, we also wanted to include a number of neutral traits to incorporate the full range of the valence dimension. As a basis for the selection process, we used the 90 traits of the Otten and Epstude (2006) studies and consulted German word norms (Hager & Hasselhorn, 1994) to identify the 15 most negative, the 15 most neutral, and the 15 most positive traits (all traits are listed in the appendix). Self-ratings, target ratings, and trait valence ratings with regard to the 45 traits were made on the same 9-point scales as in Experiment 1 and 2 (i.e., 1 = *negative/agree not at all* to 9 = *positive/agree completely*).

Results and Discussion

Model building. As a basic model, we specified a comparable cross-classified hierarchical model as in Experiment 1 and 2 with the important modification that the between-participants design did not allow for random slopes on target valence. We thus implemented the following basic model:

$$\begin{aligned} \text{Target Rating} = & \beta_0 + \beta_1 \times \text{Self-Rating} \\ & + \beta_2 \times \text{Target Valence} \\ & + \beta_3 \times \text{Trait Valence} \\ & + \beta_4 \times \text{Self-Rating} \\ & \times \text{Target Valence} + \beta_{0|\text{Participant}} \\ & + \beta_{1|\text{Participant}} \times \text{Self-Rating} + \beta_{3|\text{Participant}} \\ & \times \text{Trait Valence} + \beta_{0|\text{Trait}} + e. \end{aligned}$$

Table 4. Fixed Effects of the Multilevel Analysis Experiment 3.

	Fixed effect	Estimate	SE	t	p
β_0	Intercept	5.26	0.13	41.97	<.001
β_1	Self-rating	0.06	0.02	2.53	.011
β_2	Target valence	0.08	0.05	1.43	.152
β_3	Trait valence	0.15	0.04	3.94	<.001
β_4	Self-Rating \times Target Valence	0.06	0.02	2.66	.008

All variables were grand mean centered and we used restricted maximum likelihood estimations.

Analysis of stimulus materials. In a first analysis, we also included the material factor target face (i.e., Rafd090_01, Rafd090_14, Rafd090_31, and Rafd090_37) with three dummy coded variables using the first Radboud face (i.e., Rafd090_01) as baseline. The focal two-way interaction between self-ratings and target valence was significant, $\beta_4 = .11$, $SE = .04$, $t = 2.42$, $p = .015$. However, the analysis also revealed that this effect was marginally moderated by the dummy variable that contrasts the first (i.e., Rafd090_01) and the second (i.e., Rafd090_14) Radboud face, $b = -.11$, $SE = .06$, $t = -1.72$, $p = .085$. Further inspection of the results showed that the other two dummy variables did not significantly moderate the focal two-way interaction between self-ratings and target valence, $|\beta|s < .09$, $ps > .146$. This result was not expected and any account of this effect is necessarily post hoc. One interesting peculiarity is the slightly lower attractiveness of the Rafd090_14 face with a mean attractiveness rating of $M = 2.4$ (see online material of the Radboud face database at www.socsci.ru.nl/rafd/CEM_136.09R_support.pdf). Due to the unexpected effect of the stimulus materials, we conducted the analysis without the Rafd090_14 face.

Main analysis. The β_1 -parameter was significant indicating that overall there was a significant level of social projection (see Table 4 for all fixed effects). The significant β_3 -parameter means that trait attribution was stronger for positive compared with negative traits. Most important, the significant β_4 -parameter reflects increased social projection to positive compared with neutral targets and, therefore, supports our hypothesis that target valence is an important determinant of social projection. Simple slope analysis revealed that self-ratings significantly predicted target ratings in the positive target condition, $b = .12$, $SE = 0.03$, $t = 3.60$, $p < .001$, 95% CI = [0.06, 0.18], whereas this covariation was not significant in the neutral target condition, $b = .001$, $SE = 0.03$, $t = 0.05$, $p = .962$, 95% CI = [-0.06, 0.06].³

For comparison, we conducted the same analysis with a categorical trait valence variable instead of the continuous trait valence variable. We coded the negative, neutral, and positive traits as two orthogonal Helmert contrasts with contrasts weights of 2, -1, -1, and 0, 1, -1, respectively. The

analysis revealed a similar effect of the Target Valence \times Self-Ratings interaction when trait valence was entered as a categorical variable, $b = .06$, $SE = .02$, $t = 2.56$, $p = .01$, 95% CI = [0.02, 0.10]. Hence, as in Experiment 2, the parameter estimates for the two-way interaction in the model with the continuous compared with the categorical trait valence variable did not differ significantly from one another.

Trait valence as a moderator. As in Experiments 1 and 2, we tested whether participants projected more strongly to positive than negative targets on positive and negative traits alike. Therefore, we extended the basic model by adding all two- and three-way interactions with trait valence as predictors. As in Experiments 1 and 2, the three-way interaction between self-ratings, targets valence, and trait valence was not significant, $b = .001$, $SE = .01$, $t = 0.16$, $p = .876$. The analysis thus revealed that trait valence did not moderate the focal effect of target valence on social projection, which remained significant in this analysis, $b = .05$, $SE = .02$, $t = 2.11$, $p = .035$. Hence, the tendency to project more strongly on positive compared with negative targets was equally pronounced for positive and negative traits.

The role of self-esteem. The model was further extended by adding self-esteem as well as all possible interactions as further predictors to the model. This analysis revealed that the focal interaction between self-ratings and target valence was not moderated by self-esteem, $b = -.004$, $SE = 0.02$, $t = -0.18$, $p = .858$, while the focal interaction remained significant, $b = .05$, $SE = 0.02$, $t = 2.18$, $p = .029$.

As in Experiment 2, we tested whether the nonsignificant moderation by self-esteem could be attributed to a lack of variance in the self-esteem variable. We specified a model with trait valence ratings as dependent variable and self-ratings, self-esteem, and the cross-level interaction between self-ratings and self-esteem as fixed effects and with by-participant and by-trait random intercepts and random slopes on self-ratings. This analysis revealed a significant effect of self-ratings, $b = .27$, $SE = 0.02$, $t = 11.58$, $p < .001$, and a significant interaction between self-ratings and self-esteem, $b = .03$, $SE = 0.01$, $t = 2.63$, $p = .009$, indicating that the general tendency to assess self-descriptive traits as more positive than non-self-descriptive traits is more pronounced for participants with high levels of self-esteem compared with low levels of self-esteem. In other words, trait valence varies with self-assignment and this especially applies for self-assured individuals. In the present context, this finding suggests sufficient variance in self-esteem to serve as a reliable moderator. This may be considered as further evidence that initial self-target similarity in terms of valence was not driving the effect of target valence.

Discussion. Overall, the third experiment replicates the effect of target valence and extends Experiments 1 and 2 in that the effect of target valence also emerged when the targets

represent real persons. As in Experiment 2, trait valence was thoroughly controlled at the individual level by means of a continuous measure. Furthermore, this experiment also included traits that were a priori classified as neutral. As in the other experiments, trait valence and self-esteem did not moderate the focal interaction between self-ratings and target valence. One minor limitation of Experiment 3 is the unexpected effect of the stimulus materials. At the same time, a set of three experiments with increasing control of relevant variables provided converging evidence that target valence influences social projection above and beyond consistency effects.

General Discussion

The aim of the present research was to provide evidence for the hypothesis that target valence influences social projection. More specifically, we wanted to test whether the anticipated effect of target valence on self-other similarity ought to be attributed only to a valence overlap between the self and a positive compared with a negative target and, thus, to a consistent response behavior or whether a substantial amount of variance remains above and beyond consistency. In addition, we aimed at exploring possible mechanisms of an effect of target valence on social projection.

To test the hypothesis that target valence shapes social projection, Experiments 1 and 2 manipulated target valence in a within-participant experimental design by changing the valence of the target in the context of an EC procedure. In Experiment 3 we used photos of real target persons and manipulated their emotional expression to manipulate target valence. All three experiments revealed that participants projected more strongly to targets conditioned to be positive or to targets with smiling expressions compared with targets conditioned to be negative or to targets with neutral expressions. Importantly, the effects remained significant even after controlling for trait valence. Furthermore, the effect of target valence was not moderated by trait valence or by self-esteem indicating that participants projected more strongly to positive than to negative targets on positive and negative traits alike and irrespective of their own level of self-esteem.

Social Projection Versus Consistency Principle

All three experiments clearly support the hypothesis that target valence influences social projection above and beyond mere consistency effects. The effects reported here can thus not be explained in terms of consistency principles (LaPrelle et al., 1990; Sherman et al., 1984) and point to social projection processes as the origin of perceived self-other similarity. An interesting and unexpected finding was that the control of interindividually rated, continuous trait valence as compared with a priori, categorical trait valence did not lead to different results. This leads to the question in how far the control of traits valence affected the interaction between self-ratings and

target valence at all. In other words, the question that remains is whether we found any evidence for a consistent response behavior in our data sets. To answer this question, we reanalyzed the data without any control of trait valence. For Experiments 1 and 2, the analyses revealed that the parameters for the focal interaction were of approximately the same size when estimated with and without trait valence as a covariate, $b = 0.16$, $SE = 0.02$, $t = 7.98$, $p < .001$, 95% CI = [0.12, 0.20], in Experiment 1, and $b = .19$, $SE = 0.02$, $t = 11.31$, $p < .001$, 95% CI = [0.15, 0.23], in Experiment 2 for the analyses without trait valence as a covariate. However, in Experiment 3, we found a considerably larger parameter estimate for the focal interaction when trait valence was not controlled, $b = .16$, $SE = 0.03$, $t = 5.06$, $p < .001$, 95% CI = [0.10, 0.22]. This considerably larger interaction between self-ratings and target valence without trait valence as a covariate indicates that a substantial amount of variance in target ratings can be attributed to a consistent response behavior. This pattern is in line with the expectation that both a consistent response behavior and increased social projection to positive targets boosts measures of perceived self–other similarity. Less clear is why consistency was less relevant for measures of self–other similarity in Experiment 1 and 2. The experiments differed in a number of ways with differences in design, different target persons as stimuli, and different traits to assess self–other similarity and any of these factors may have caused differences in the interaction between projection and consistency. However, these results do not limit our conclusion that social projection depends on target valence. The question that remains is under which conditions we can expect an influence of consistency on measures of self–other similarity. This research was not set out to investigate this question and, accordingly, does not allow any conclusions with regard to this question. Nevertheless, the suggestion that measures of social projection should thoroughly control for trait valence is still warranted because it is still unclear when and to what extent consistency inflates self–other covariance.

A related issue is that, despite the converging evidence from three experiments, one may argue that we have only provided evidence for one particular form of social projection, namely, projection of personality traits, and this limits the generality of the present findings. We believe that social projection processes can and have been also observed in other fields as for instance attitude or preference projection (e.g., Ames, 2004b). However, these other forms of projection are less suitable for our specific research question as they render a control of item valence far more difficult. In particular, own attitudes or preferences are almost always positive so that self-ratings and item (i.e., attitudes or preference) valence are highly correlated. This is why we decided to restrict our studies to trait projection even though this may be seen as a limitation of our findings. In general, however, our suggestion that trait valence should be controlled as long as it is unclear when and to what extent consistency inflates self–other covariance is somewhat difficult to realize if many

characteristics do not allow for a meaningful assessment of valence. A pragmatic answer may be that the control of valence is not necessary as long as the targets do not differ in valence. However, studies that deal with targets varying in valence may need to use characteristics that allow for the assessment of valence to make sure that the independent variable did in fact influence social projection and not a consistent response behavior.

Relation to Current Models of Projection

Turning toward the theoretical interpretation of our findings, we suggested that the present research may be informative for current models of social projection. As outlined before, the social projection literature can be classified into cognitive and motivational accounts. Cognitive models claim that social projection results from inductive reasoning or a heuristic process that follows a holistic similarity judgment (Ames, 2004a, 2004b; Krueger, 2007). According to these models, the effect of target valence on social projection should be especially pronounced for people with high self-esteem because it is particularly plausible to assume that these people are similar to the positive target or belong to the same category as the target. Our findings show that the critical two-way interaction between self-ratings and target valence was not moderated by the tendency to preferentially ascribe positive traits to the self (Experiment 1) or by a self-esteem measure (Experiments 2 and 3). Although this does not constitute definitive evidence against cognitive accounts of social projection, it seems to be somewhat more difficult to integrate the particular effect of target valence into cognitive models of social projection.

A motivational account of social projection that holds that social projection serves connectedness to others (Pyszczynski et al., 1996) and cooperation (Toma & Wolpin, 2012) is more generally in line with our results. If one assumes that people, irrespective of their current motivational status, prefer connectedness to positive others, a motivational account is compatible with the fact that self-esteem (or positive self-evaluation) failed to play a role in our experiments. Because null effects cannot be used to confirm a particular account, what we can conclude from the present research is that target valence represents a substantial determinant of social projection, that a consistent response behavior is not (entirely) responsible for the effects reported here, and that the specific pattern of results is generally compatible with a motivational account.

A Motivational Account of Social Projection

The social projection research of the last decades has been dominated by a cognitive perspective. This may be due to the fact that a precise theoretical model for a motivational account has yet to be formulated. In the remainder of this contribution, we would like to suggest a motivational model of social projection that allows for a more refined deduction

of hypotheses. Still, it should be pointed out that we neither directly tested this model nor do we have any other evidence for the underlying processes of the reported effects. By suggesting this model, we simply aim at initiating a new perspective on the phenomenon of social projection, which may stimulate future research in this domain.

Our motivational approach shares the idea that social projection serves regulating people's connectedness to others (Locke et al., 2012; Pyszczynski et al., 1996). Moreover, we suggest that social projection can be conceptualized as an approach motion on the social dimension of psychological distance. Approach-avoidance behavior has typically been considered on the spatial dimension of psychological distance. Yet, spatial distance represents only one dimension of psychological distance (Lewin, 1951) and some authors have discussed the possibility that psychological distance is also regulated on the social and temporal dimensions (Seibt, Neumann, Nussinson, & Strack, 2008). Focusing on the social dimension, it has been claimed that similarity between the self and a social target (whether a social group or an individual) is considered as one form of social closeness. Heider (1958), for instance, argued that similarity promotes belongingness and closeness (which is the opposite of distance) and Tesser and colleagues varied closeness by manipulating similarity between participants and targets with regard to personality profiles (Tesser & Campbell, 1980; Tesser & Paulhus, 1983). Also, in the context of the more recent Construal Level Theory (Trope, 2004), it has been argued that similarity encompasses distance on the social dimension (Liviatan, Trope, & Liberman, 2008; Stephan, Liberman, & Trope, 2011). Because the *process* of social projection leads to an increase in self-target similarity, engaging in social projection decreases social distance. Therefore, social projection may serve distance regulation and the feeling of connectedness. In this sense, social projection represents an approach behavior. Conversely, by decreasing self-other similarity in the sense of a contrast effect, it is also possible to represent avoidance behavior on the social dimension of psychological distance.

Understanding social projection as a process that creates connectedness to others via distance regulation suggests interesting new perspectives on this phenomenon. First, the general notion that people approach positive stimuli and avoid negative stimuli is directly compatible with the present research showing that people project more strongly to positive compared with negative targets. It is also remarkable that the analyses did not only yield assimilative effects to positive targets (i.e., social projection) but also contrastive effects to negative targets in Experiments 1 and 2 (note that only neutral targets were used in Experiment 3 so that we may not expect contrast effects in this condition). The latter effects seem difficult to explain for other perspectives on social projection. However, we would like to emphasize again that though our results are compatible with the suggested model of social projection, they do not represent a direct test of it.

Second, the earlier finding by Pyszczynski and colleagues (1996) that mortality salience increases social projection can also be integrated into this motivational approach. In particular, given that mortality is threatening and that threat increases affiliation needs (see Schachter, 1959; Wisman & Koole, 2003), mortality salience is expected to elicit approach behavior. If social projection indeed represents an approach behavior on the social dimension of psychological distance, it becomes straightforward enough to expect more social projection under mortality salience.

Third, the motivational model suggested here is not restricted to projection at the personal level. Just as individuals, social groups may be approached on the social dimension of psychological distance and preliminary evidence that target valence operates also at the group level comes from an experiment by Clement and Krueger (2002, Experiment 3). Admittedly, their findings remain somewhat inconclusive as they were not consistent across the two phases of the experiment. It would therefore be an interesting avenue for future research to test whether the effects shown in the present studies generalize to the group level. This may also raise new questions concerning the role of social categorization for social projection as the vast majority of ingroups are evaluated more favorably than outgroups (e.g., Brewer & Kramer, 1985).

Finally, conceptualizing social projection as approach behavior raises a number of questions concerning the interrelation between spatial and social approach/avoidance behaviors. One option is that spatial and social approach/avoidance behaviors go together such that approaching a target on one dimension results in approach on the other dimension. A study of Nussinson, Seibt, Häfner, and Strack (2010) may be interpreted as an indication of such a positively correlated relation between social and spatial approach. These authors found that executing approach (avoidance) motor actions was related to the perception of (dis)similarity. Likewise, research by Fayant, Muller, Nurra, Alexopoulos, and Palluel-Germain (2011) has shown that physically walking toward or away from a target person leads to assimilative versus contrastive comparative effects in which not the target is perceived as being more (dis)similar to the self but the self is perceived as being more (dis)similar to the target. Alternatively, there may also be reasons to assume that people balance self-other distance by compensating approach on one dimension with avoidance on another dimension.

To be sure, the motivational account of social projection outlined here is only a beginning in rethinking the phenomenon of self-other similarity. Our empirical findings cannot be understood as evidence for such a motivational perspective as they are equally compatible with existing cognitive models of social projection. Having said this, we also note that there are some specifics in the pattern of results such as contrast effects to negative targets or the irrelevance of self-esteem for the impact of target valence that are less germane to a cognitive than a motivational approach.

Concluding Thoughts

To sum up, we provided consistent evidence for the role of target valence in social projection. Our findings clearly show that social projection varies as a function of target valence even when trait valence is thoroughly controlled for. Such a pattern leads us to question consistency approaches whereby social projection effects are attributed merely to a consistent response behavior. Our results are compatible with current cognitive models of social projection but perhaps even more so with a motivational account of social projection. Our discussion builds on the obtained pattern to submit a new conceptualization of social projection as an approach/avoidance motion on the social dimension of psychological distance. In this view, and going back to the introductory example, you perceive your own characteristics in Thomas but not in John because you intend to deepen your contact with Thomas but not with John.

Appendix

Traits from Otten and Wentura (2001) used in Experiments 1 and 2:

Friendly, passive, sociable, creative, unfair, confident, cold, hectic, open-minded, intolerant, reliable, cowardly, happy, boring, energetic, unfriendly, empathic, sad, strong, and pessimistic.

Selection of traits from Otten and Epstude (2006) used in Experiment 3:

Arrogant, greedy, raw, cold, boring, selfish, dependent, stubborn, aggressive, petty, passive, primitive, coarse, anxious, lazy, obstinate, silly, ambitious, sensitive, curious, sentimental, properly, vulnerable, economical, rational, exactly, careful, concerned, modern, objectively, sociable, intelligent, funny, flexible, just, faithful, cordially, self-conscious, helpful, open, tolerant, patient, creative, warm, and honest.

Table A1. Random Effects of the Multilevel Analysis Experiment 1.

	SD
By-participant random effects	
$\beta_{0 Participant}$ Intercept	0.246
$\beta_{1 Participant}$ Self-ratings	0.484
$\beta_{2 Participant}$ Target valence	0.145
$\beta_{3 Participant}$ Trait valence	0.637
By-trait random effect	
$\beta_{0 Trait}$ Intercept	0.317
Residual	
e	1.685

Table A2. Random Effects of the Multilevel Analysis Experiment 2.

	SD
By-participant random effects	
$\beta_{0 Participant}$ Intercept	0.56
$\beta_{1 Participant}$ Self-ratings	2.56
$\beta_{2 Participant}$ Target valence	0.28
$\beta_{3 Participant}$ Trait valence	0.14
By-trait random effect	
$\beta_{0 Trait}$ Intercept	0.46
Residual	
e	2.0

Table A3. Random Effects of the Multilevel Analysis Experiment 3.

	SD
By-participant random effects	
$\beta_{0 Participant}$ Intercept	0.38
$\beta_{1 Participant}$ Self-ratings	0.09
$\beta_{3 Participant}$ Trait valence	0.25
By-trait random effects	
$\beta_{0 Trait}$ Intercept	0.76
Residual	
e	1.61

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The research reported in this article was supported by a scholarship of the German Academic Exchange Service (DAAD) and by a grant from the Deutsche Forschungsgemeinschaft (DFG; MA 5173/1-1) awarded to the first author and by Grant ARC06/11-337 awarded to the third and fourth authors.

Notes

- As a matter of fact, Sherman, Chassin, Presson, and Agostinelli (1984) distinguished between so-called "variably evaluated" and "universally evaluated" characteristics with the former referring to characteristics that are judged as positive by some people and as negative by others (e.g., capital punishment) and the latter referring to characteristics that are consensually judged as positive or negative (e.g., being brave). Importantly, "variably evaluated" characteristics are neutral in valence if evaluation is averaged across people. However, according to Sherman et al. (1984) these characteristics obtain valence by self-association at the individual level: Given an association between the self and a certain characteristic, this characteristic becomes positive. Hence, according to consistency principles people should

attribute variably evaluated self-characteristics to positive targets, which is expected to lead to self–other similarity. Sherman et al.'s (1984) studies revealed that, indeed, positive self–target correlations emerged on variably evaluated characteristics. In contrast, the authors did not find correlations on universally evaluated characteristics. Interesting as these results may be, they remain inconclusive for the following reason: Because people generally hold positive self-concepts, people should tend to attribute universally evaluated positive but not negative characteristics to the self and to the positive target leading to a positive correlation between the self and the positive target. Thus, from a consistency perspective, and contrary to what the authors obtained, one should expect also a positive correlation on universally evaluated items.

2. Our model building strategy for Experiment 1 as well as for the following experiments was to include random effects to the point where the model did not converge within 2,000 iterations or where random effects correlations became approximately 1 indicating redundant variance (Barr, Levy, Scheepers, & Tily, 2013).
3. Conducting the data analysis with the full data set (i.e., including all four stimulus faces) basically leads to the same results. In particular, trait valence was a significant predictor of target ratings, $b = 0.18$, $SE = .03$, $t = 5.29$, $p < .001$, indicating that participants used more positive than negative traits to characterize the targets. Furthermore, self–target covariation as the indicator of social projection was marginally significant across conditions, $b = 0.04$, $SE = .02$, $t = 1.76$, $p = .079$, and participants tended to attribute more traits to the positive compared with the neutral targets, $b = 0.08$, $SE = .05$, $t = 1.8$, $p = .073$. Importantly and in line with our hypothesis, self–target covariation was significantly larger for positive compared with neutral targets, $b = 0.05$, $SE = .02$, $t = 2.55$, $p = .011$.

References

- Ames, D. R. (2004a). Inside the mind reader's tool kit: Projection and stereotyping in mental state inference. *Journal of Personality and Social Psychology*, *87*, 340-353. doi:10.1037/0022-3514.87.3.340
- Ames, D. R. (2004b). Strategies for social inference: A similarity contingency model of projection and stereotyping in attribute prevalence estimates. *Journal of Personality and Social Psychology*, *87*, 573-585. doi:10.1037/0022-3514.87.5.573
- Arndt, J., Greenberg, J., Solomon, S., Pyszczynski, T., & Schimel, J. (1999). Creativity and terror management: Evidence that creative activity increases guilt and social projection following mortality salience. *Journal of Personality and Social Psychology*, *77*, 19-32. doi:10.1037/0022-3514.77.1.19
- Barr, D. J., Levy, R., Scheepers, C., & Tily, H. J. (2013). Random effects structure for confirmatory hypothesis testing: Keep it maximal. *Journal of Memory and Language*, *68*, 255-278. doi:10.1016/j.jml.2012.11.001
- Brewer, M. B., & Kramer, R. M. (1985). The psychology of intergroup attitudes and behavior. *Annual Review of Psychology*, *36*, 219-243. doi:10.1146/annurev.ps.36.020185.001251
- Cadinu, M. R., & Rothbart, M. (1996). Self-anchoring and differentiation processes in the minimal group setting. *Journal of Personality and Social Psychology*, *70*, 661-677. doi:10.1037/0022-3514.70.4.661
- Castelli, L., Arcuri, L., & Carraro, L. (2009). Projection processes in the perception of political leaders. *Basic and Applied Social Psychology*, *31*, 189-196. doi:10.1080/01973530903058151
- Clement, R. W., & Krueger, J. (2002). Social categorization moderates social projection. *Journal of Experimental Social Psychology*, *38*, 219-231. doi:10.1006/jesp.2001.1503
- Corneille, O., Hugenberg, K., & Potter, T. (2007). Applying the attractor field model to social cognition: Perceptual discrimination is facilitated but memory is impaired for faces displaying evaluatively-congruent expressions. *Journal of Personality and Social Psychology*, *93*, 335-352. doi:10.1037/0022-3514.93.3.335
- Dawes, R. M. (1989). Statistical criteria for establishing a truly false consensus effect. *Journal of Experimental Social Psychology*, *25*, 1-17. doi:10.1016/0022-1031(89)90036-X
- DiDonato, T. E., Ullrich, J., & Krueger, J. I. (2011). Social perception as induction and inference: An integrative model of intergroup differentiation, ingroup favoritism, and differential accuracy. *Journal of Personality and Social Psychology*, *100*, 66-83. doi:10.1037/a0021051
- Fayant, M. P., Muller, D., Nurra, C., Alexopoulos, T., & Palluel-Germain, R. (2011). Moving forward is not only a metaphor: Approach and avoidance lead to self-evaluative assimilation and contrast. *Journal of Experimental Social Psychology*, *47*, 241-245. doi:10.1016/j.jesp.2010.07.013
- Fiske, S. T., & Ruscher, J. B. (1993). Negative interdependence and prejudice: Whence the affect? In D. M. Mackie, D. L. Hamilton, D. M. Mackie, & D. L. Hamilton (Eds.), *Affect, cognition, and stereotyping: Interactive processes in group perception* (pp. 239-268). San Diego, CA: Academic Press.
- Greenwald, A. G., & Banaji, M. R. (1995). Implicit social cognition: Attitudes, self-esteem, and stereotypes. *Psychological Review*, *102*, 4-27. doi:10.1037/0033-295X.102.1.4
- Hager, W., & Hasselhorn, M. (1994). *Handbuch deutschsprachiger Wortnormen* [Handbook of German word norms]. Göttingen, Germany: Hogrefe.
- Heider, F. (1958). *The psychology of interpersonal relations*. Oxford, UK: Wiley.
- Hofmann, W., De Houwer, J., Perugini, M., Baeyens, F., & Crombez, G. (2010). Evaluative conditioning in humans: A meta-analysis. *Psychological Bulletin*, *136*, 390-421. doi:10.1037/a0018916
- Jones, J. T., Pelham, B. W., Mirenberg, M. C., & Hetts, J. J. (2002). Name letter preferences are not merely mere exposure: Implicit egotism as self-regulation. *Journal of Experimental Social Psychology*, *38*, 170-177. doi:10.1006/jesp.2001.1497
- Krueger, J. I. (1998). Enhancement bias in descriptions of self and others. *Personality and Social Psychology Bulletin*, *24*, 505-516. doi:10.1177/0146167298245006
- Krueger, J. I. (2007). From social projection to social behavior. *European Review of Social Psychology*, *18*, 1-35. doi:10.1080/10463280701284645
- Krueger, J. I. (2013). Social projection as a source of cooperation. *Current Directions in Psychological Science*, *22*, 289-294. doi:10.1177/0963721413481352
- Krueger, J. I., Acevedo, M., & Robbins, J. M. (2006). Self as a sample. In K. Fiedler & P. Juslin (Eds.), *Information sampling and adaptive cognition* (pp. 353-377). Cambridge, UK: Cambridge University Press.

- Krueger, J. I., & Clement, R. W. (1996). Inferring category characteristics from sample characteristics: Inductive reasoning and social projection. *Journal of Experimental Psychology: General, 125*, 52-68. doi:10.1037/0096-3445.125.1.52
- Langner, O., Dotsch, R., Bijlstra, G., Wigboldus, D. H. J., Hawk, S. T., & van Knippenberg, A. (2010). Presentation and validation of the Radboud Faces Database. *Cognition & Emotion, 24*, 1377-1388. doi:10.1080/02699930903485076
- LaPrelle, J., Hoyle, R. H., Insko, C. A., & Bernthal, P. (1990). Interpersonal attraction and descriptions of the traits of others: Ideal similarity, self similarity, and liking. *Journal of Research in Personality, 24*, 216-240. doi:10.1016/0092-6566(90)90018-2
- Lewin, K. (1951). *Field theory in social science*. New York, NY: Harper.
- Liviatan, I., Trope, Y., & Liberman, N. (2008). Interpersonal similarity as a social distance dimension: Implications for perception of others' actions. *Journal of Experimental Social Psychology, 44*, 1256-1269. doi:10.1016/j.jesp.2008.04.007
- Locke, K. D., Craig, T., Baik, K. D., & Gohil, K. (2012). Binds and bounds of communion: Effects of interpersonal values on assumed similarity of self and others. *Journal of Personality and Social Psychology, 103*, 879-897.
- Marks, G., & Miller, N. (1982). Target attractiveness as a mediator of assumed attitudes similarity. *Personality and Social Psychology Bulletin, 8*, 728-735. doi:10.1177/0146167282084020
- Marks, G., Miller, N., & Maruyama, G. (1981). Effect of targets' physical attractiveness on assumptions of similarity. *Journal of Personality and Social Psychology, 41*, 198-206. doi:10.1037/0022-3514.41.1.198
- Miyake, K., & Zuckerman, M. (1993). Beyond personality impressions: Effects of physical and vocal attractiveness on false consensus, social comparison, affiliation, and assumed and perceived similarity. *Journal of Personality, 61*, 411-437. doi:10.1111/j.1467-6494.1993.tb00287.x
- Nussinson, R., Seibt, B., Häfner, M., & Strack, F. (2010). Come a bit closer: Approach motor actions lead to feeling similar and behavioral assimilation. *Social Cognition, 28*, 40-58. doi:10.1521/soco.2010.28.1.40
- Otten, S., & Epstude, K. (2006). Overlapping mental representations of self, ingroup and outgroup: Unraveling self-stereotyping and self-anchoring. *Personality and Social Psychology Bulletin, 32*, 957-969. doi:10.1177/0146167206287254
- Otten, S., & Wentura, D. (2001). Self-anchoring and in-group favoritism: An individual profiles analysis. *Journal of Experimental Social Psychology, 37*, 525-532. doi:10.1006/jesp.2001.1479
- Pyszczynski, T., Wicklund, R. A., Floresku, S., Koch, H., Gauch, G., Solomon, S., & Greenberg, J. (1996). Whistling in the dark: Exaggerating consensus estimates in response to incidental reminders of mortality. *Psychological Science, 7*, 332-336. doi:10.1111/j.1467-9280.1996.tb00384.x
- Riketta, M., & Sacramento, C. A. (2008). "They cooperate with us, so they are like me": Perceived intergroup relationship moderates projection from self to outgroups. *Group Processes & Intergroup Relations, 11*, 115-131. doi:10.1177/1368430207084849
- Robbins, J. M., & Krueger, J. I. (2005). Social projection to ingroups and outgroups: A review and meta-analysis. *Personality and Social Psychology Review, 9*, 32-47. doi:10.1207/s15327957pspr0901_3
- Schachter, S. (1959). *The psychology of affiliation*. Stanford, CA: Stanford University Press.
- Seibt, B., Neumann, R., Nussinson, R., & Strack, F. (2008). Movement direction or change in distance? Self- and object-related approach-avoidance motions. *Journal of Experimental Social Psychology, 44*, 713-720. doi:10.1016/j.jesp.2007.04.013
- Sherman, S. J., Chassin, L., Presson, C. C., & Agostinelli, G. (1984). The role of the evaluation and similarity principles in false consensus effect. *Journal of Personality and Social Psychology, 47*, 1244-1262. doi:10.1037/0022-3514.47.6.1244
- Simon, L., Greenberg, J., Arndt, J., Pyszczynski, T., Clement, R., & Solomon, S. (1997). Perceived consensus, uniqueness, and terror management: Compensatory responses to threat to inclusion and distinctiveness following mortality salience. *Personality and Social Psychology Bulletin, 23*, 1055-1065.
- Slotter, E. B., & Gardner, W. L. (2009). Where do "you" end and "I" begin? Pre-emptive self-other inclusion as a motivated process. *Journal of Personality and Social Psychology, 96*, 1137-1151.
- Stephan, E., Liberman, N., & Trope, Y. (2011). The effects of time perspective and level of construal on social distance. *Journal of Experimental Social Psychology, 47*, 397-402. doi:10.1016/j.jesp.2010.11.001
- Tesser, A., & Campbell, J. (1980). Self-definition: The impact of the relative performance and similarity of others. *Social Psychology Quarterly, 43*, 341-346. doi:10.2307/3033737
- Tesser, A., & Paulhus, D. (1983). The definition of self: Private and public self-evaluation management strategies. *Journal of Personality and Social Psychology, 44*, 672-682. doi:10.1037/0022-3514.44.4.672
- Toma, C., Corneille, O., & Yzerbyt, V. (2012). Holding a mirror up to the self: Egocentric similarity beliefs underlie social projection in cooperation. *Personality and Social Psychology Bulletin, 38*, 1259-1271. doi:10.1177/0146167212449022
- Toma, C., & Wolfin, K. A. (2012). Motivational and contextual considerations concerning the social projection hypothesis. *Psychological Inquiry, 23*, 69-74. doi:10.1080/1047840X.2012.659651
- Toma, C., Yzerbyt, V., & Corneille, O. (2010). Anticipated cooperation vs. competition moderates interpersonal projection. *Journal of Experimental Social Psychology, 46*, 375-381. doi:10.1016/j.jesp.2009.11.005
- Trope, Y. (2004). Theory in social psychology: Seeing the forest and the trees. *Personality and Social Psychology Review, 8*, 193-200. doi:10.1207/s15327957pspr0802_13
- Van Boven, L., Dunning, D., & Loewenstein, G. (2000). Egocentric empathy gaps between owners and buyers: Misperceptions of the endowment effect. *Journal of Personality and Social Psychology, 79*, 66-76. doi:10.1037/0022-3514.79.1.66
- Van Boven, L., & Loewenstein, G. (2005). Empathy gaps in emotional perspective taking. In S. Hodges & B. Malle (Eds.), *Other minds: How human bridge the divide between self and others* (pp. 285-297). New York, NY: Guilford Press.
- von Collani, G., & Herzberg, P. Y. (2003). Eine revidierte Fassung der deutschsprachigen Skala zum Selbstwert von Rosenberg [A revised version of the German adaptation of Rosenberg's Self-Esteem Scale]. *Zeitschrift für Differentielle und Diagnostische Psychologie, 24*, 3-7. doi:10.1024//0170-1789.24.1.3
- Wisman, A., & Koole, S. L. (2003). Hiding in the crowd: Can mortality salience promote affiliation with others who oppose one's worldviews? *Journal of Personality and Social Psychology, 84*, 511-526. doi:10.1037/0022-3514.84.3.511