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Emotions as signals of normative conduct

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Emotions as signals of normative conduct

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Social interactions are heavily norm-based and these norms need to be learned. For this, the emotional reactions of other's in response to a norm transgression can serve as signals. We were able to show that when a group responds with anger to a norm transgressing behaviour, participants were better able to correctly infer the norm than when the group responded with sadness or emotional neutrality. We further tested a process-model showing that this inference is based on the participants' understanding of the groups' appraisals of the behaviour. That is, participants who were able to reverse engineer the underlying appraisal of norm-incompatibility from the emotion expressions inferred the norm more readily. Humans as a social species, require efficient means to quickly adapt to new situations and to perform flawlessly in social contexts. Emotion information is one of the instruments that can be used in this quest.

Keywords: Norm inference; Social signals; Appraisals; Reverse engineering.

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One of the important forces guiding people's behaviour is social norms (Cialdini & Goldstein, 2004; Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007). Social norms serve this function because within a given social context they indicate what the right thing to do is (i.e., injunctive norm) and/or what people typically do in such a situation (i.e., descriptive norm). Much of what people know about the normative behaviour in a given situation comes from interpersonal knowledge and experience (Miller & Prentice, 1996). One important source of information is the observation of what others do as the behaviour of others often serves as an indication of normative behaviour making observers more likely to imitate it (Cialdini, 1988; Cialdini, Reno, & Kallgren, 1990). In fact, just by watching what a majority of people do, observers can infer how they should behave (Milgram, Bickman, & Berkowitz, 1969). Similar inferences can result from observing the outcome of others' behaviour (Cialdini et al., 1990).

A more direct way of inferring the correct way to behave in a given situation is provided by the signals of approval and/or disapproval from others in the situation (Reno, Cialdini, & Kallgren, 1993). Whereas social approval and disapproval of someone's behaviour can be signalled in various ways, it has been suggested that emotions can serve this purpose quite effectively. That is, one important function of emotions is to foster the learning of social norms and their adoption (Elster, 1996; Hareli & Hess, 2012; Keltner & Haidt, 1999). In line with this claim, Schultz et al.

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(2007) showed that people tended to align their gas consumption more to the norm when feedback about their monthly consumption relative to the norm was signalled by emoticons showing happy or sad faces than when such feedback was missing.

However, the question of *how* emotions serve as signals of normative behaviour remains open. The present research aimed to address this question from the perspective of appraisal theory (e.g., Frijda, 1986; Scherer, 1987). We propose that the emotional reactions of the interaction partners of a person who transgresses a norm serve as signals to observers about the normativeness of the behaviour in question. Further, we propose that emotions that are based on appraisals of norm-incompatibility, such as anger, are more effective signals. For this, we tested a process-model relating appraisal based information to norm inference. In what follows we will outline this process.

Emotion displays can be conceived of as containers of social information about the expresser and/or the situation in which the emotion was displayed (Hareli & Hess, 2012; Van Kleef, 2010; Weiner, 2006). Indeed, according to appraisal theories of emotion, emotions are elicited and differentiated through a series of appraisals of (internal or external) stimulus events based on the perceived nature of the event (Ellsworth & Scherer, 2003; Frijda, 1986). Appraisal theories generally propose that a change in the (internal or external) environment that captures a person's attention and hence is appraised as novel or unexpected (novelty) is then evaluated according to whether the event is pleasant or unpleasant (pleasantness) as well as to whether the change is congruent with the motivational state of the individual or obstructs the individual's goals (goal obstruction). Individuals may further evaluate what or who is responsible for the change (agency or responsibility) and their ability to cope with or adjust to the change (coping potential). While not all emotions are associated with all of these appraisals and different theories may vary in terms of describing the specific appraisals that map the realm of emotions, there is a relatively strong agreement on most of these appraisals and their link to specific emotions (Ellsworth & Scherer, 2003). As an example of the way appraisals operate, consider the following. The sight of a bear may elicit fear and terror in one person but pleasant anticipation in another one who is a hunter with the appropriate hunting license due to the difference in their motivational state and ability to cope with bears. A further set of evaluations, which is of specific interest in the present context, regards the correspondence of the event with the relevant social and personal norms, that is, how the event is to be judged in terms of ethical, moral or social norms (norm incompatibility).

People are aware of the typical relations between perceived features of a situation and resulting emotions (Parkinson, 2001; Scherer, 1997). If the situation requires this, people can reconstruct appraisals as they apply to a situation (Robinson & Clore, 2002). This means that observers can "reverse engineer" or reconstruct the relationship between the person and the event based on the emotion expressed (Frijda, 1986; Hareli & Hess, 2010, 2012). This information then can provide observers with insight into the person's perceptions of the given situation and thereby inform them about appraised aspects of that situation. A related idea was suggested by Manstead and Fischer (2001), who coined the notion of social appraisal. Social appraisal is a process by which observers appraise or analyse the thoughts, actions and feelings of others in response to an emotional event.

Hence, we suggest that when an emotional display is shown in reaction to someone else's behaviour, it can signal whether that behaviour was perceived to be in accordance with prevailing norms or not. Two types of appraisals can serve as such signals. First, as described above, certain emotions reflect the extent to which the situation obstructs one's goals. For example, negative emotions such as sadness and anger are associated with situations that are appraised as obstructing one's goals (Roseman, Spindel, & Jose, 1990; Scherer, 1999). Thus, expressions of anger or sadness in response to someone else's behaviour reflect that the expresser evaluates that behaviour as goal

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obstructing. Yet, an appraisal of goal obstruction does not necessarily reflect a norm violation. Rather it reflects the blockage or hampering of any goal without that goal being necessarily related to norms (Scherer, 2001). Thus, the appraisal of goal obstruction is an indirect and non-specific sign of non-normative behaviour.

An appraisal that is more directly related to normative behaviour is that of norm incompatibility. Emotions based on an appraisal of norm-incompatibility, such as anger, contempt, or guilt, directly reflect whether the emotion-eliciting event is in accordance with norms or not. In other words, such emotions are expected to be more effective in flagging a certain behaviour as norm-inconsistent than emotions that do not include an appraisal of norm-incompatibility.

In sum, a third party observing one or several people reacting to a protagonist in a situation should be able to infer the normativeness of the protagonist's behaviour based on the emotional reactions of the others in the group. An observer can do this by reverse-engineering the appraisals on which the emotions shown by the group are based. In particular, when the group shows emotions that signal norm incompatibility the observer can conclude that the protagonist has transgressed a norm. In other words, that the behaviour enacted is prohibited by the group's norms. To some extent this conclusion can also be drawn when the emotions shown by the group simply reflect goal obstruction. However, as outlined above, norm transgressions are only one form of goal-obstruction and simply knowing that a goal has been obstructed may not lead the observer to conclude that this was due to a norm-transgression.

Miller and Prentice (1996) noted that observers are able to assume what a group's norm is just by witnessing uniform behaviour of its members (see also Milgram et al., 1969). But even though the uniformity of the behaviour as such is a sufficient cue to the norm it is frequently not used as such. As Miller and Prentice (1996) put it "norm-congruent behaviours are both unremarkable and unlikely to be remarked on" (p. 808).

People are more likely to become aware of the existence of a norm in situations where a minority of the group diverges from what others do. This divergent behaviour elicits interest and the feedback from others is then likely to play an important role in enabling others to capture the norm. Yet, the reaction to the divergent behaviour needs to come from someone who is known to be familiar with the norms such as another in-group member. In sum, it is more likely that observers will learn a norm from witnessing a reaction of members of a group to a norm violation and at the same time have also seen examples of norm-congruent behaviours, which were not reacted to at all, as is common for proper behaviour in general.

Building on this analysis, we conducted a study that tested the differential effectiveness of displays of sadness and anger for the understanding of norms and the role of appraisals in this process. We predicted that both sadness and anger can potentially signal norm transgressions, but that anger will be more effective because, unlike sadness, it implies not only an appraisal of goal obstruction but also that of norm incompatibility. Accordingly, individuals who witness a behaviour that diverges from other group members' behaviour and that is responded to by a display of anger on the part of an in-group observer, are more likely to infer the existence of a norm than an observer who witnesses a sad reaction in response to the same behaviour. We also included a condition in which the group reacted to both norm-congruent and norm-incongruent behaviours with emotional neutrality. This served as a control condition, where only statistical information about the frequency of the behaviours was provided.

Specifically, participants saw a series of three photos depicting four individuals (two men and two women) engaged in a fictitious ceremony. In the first picture one group member is shown to drink tea in a certain way, in the second photo a second group member does the same thing. By contrast in the third picture a group member now drinks the tea in a different way. The other group members were shown to react to the behaviour of

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the first two individuals with emotional neutrality but expressed either anger or sadness in reaction to the divergent behaviour. In a control condition, emotional neutrality was shown in all three pictures. Participants had to report what another person about to take part in that ceremony would do if they wanted to behave according to the "spirit of the group". This question was asked to make sure that the participants' personal inclination to be a member of this specific group or not, was not pertinent to their response.

METHOD

Participants

Participants were 119 (81 women and 38 men; $M_{age} = 36$ years, $SD = 9.7$) graduate and undergraduate students at the University of Haifa who were recruited from an introductory class.[1] Participants received academic credit for participating in the study.

Procedure

Groups of between 10 to 15 students were randomly selected from each class. Their classmates were requested to leave the room for a few minutes. Each group watched one of two versions of a PowerPoint™ presentation played on the classroom screen via a DLP projector. The first screen welcomed participants and thanked them for their willingness to take part in the experiment. It also included an explanation that the subject of the study was social perception and that they would see three photos that documented part of an event. The next slide described the event. Participants were told that recently four members of a group that belong to a social order named "the purple fraternity" had a meeting. This fraternity was described as a social organisation engaged with various activities contributing to the community. The organisation was further described as having an old tradition that includes different ceremonies. Participants had to assume that they were invited to participate in a traditional tea drinking ceremony of that fraternity and that in addition to them four members of that group (two men and two women) participated in the ceremony. During the ceremony, one after the other, each member has to drink tea from his or her cup. Then participants were told that they would see three photos showing the actions of three group members and the other members' reaction to these actions. They were further told that the photos would be presented in the order in which the actions occurred. Participants were warned that the photos would appear for a brief time only. Then three photos were presented for 8 s each.

Stimulus material

The actions shown in the stimulus slides were posed by paid actors who were instructed by the researchers on the behaviour expected of them in each condition. The slides showed one of three group members drinking the tea and the others watching and reacting to this behaviour. The first two slides each showed a different group member holding the tea cup close to the mouth with two hands raised away from the body. The third group member was shown as holding the tea cup only with the right hand raised. Non drinking group members were always shown looking at the acting person while expressing emotional neutrality when the member held the tea with two hands.

In a second condition, the norm was to drink the tea one handed and the norm violation was two handed drinking. This enabled us to control for the possibility that raising a cup with two hands is already less normative than doing so with one hand. Depending on the experimental condition, group members showed facial expressions of anger, sadness, or emotional neutrality to the non-normative behaviour of the group member (see Figure 1 for an example of the stimulus

[1] Students in Israel are generally older since most start University studies after army service. Also, since we used MBA students and since the graduate school of business accepts only students with work experience, our graduate students were also older than elsewhere.

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Figure 1. *Example of the series of photos shown to the participants.*

material, the upper photo is an example of group anger and the lower one an example of sadness). Each scene was video-taped several times. Photos were extracted from the videos. The first two authors picked the photos that seemed to best represent the desired expression in each condition. The final selection was based on a pilot test with 62 participants who rated the emotions shown. The photo with the highest ratings of the desired emotion was chosen for each condition. This resulted in a 3 (Emotion Expression of Group Members to Non-normative Behaviour: sadness vs. anger vs. emotional neutrality) $\times$ 2 (Type of Normative Behaviour: cup held by one hand vs. cup held by two hands) between–subjects factorial design.

Dependent measures

Following the last photo, participants were requested to answer an open question asking them to report how the participants would expect someone who wanted to behave according to the "group spirit" would have behaved. Participants' responses to the open question were categorised by two independent judges blind to the hypotheses of the study. Answers were classified into two categories. One category included answers that reflected a clear understanding of the norm, such as, "S/he will drink the tea holding the cup with two hands". The other category included answers that reflected that the participants did not understand the norm, such as, "S/he will sit and look and even drink tea". Judges agreed on the classification for all the answers.

Once they had completed their answer, participants were referred to the last photo and asked to rate to what extent the group members had expressed sadness or anger or seemed emotionally neutral. These latter questions served as manipulation checks. Participants were also asked to rate in two separate questions the extent to which group members saw the behaviour of the person holding the cup as violating conventions and to what extent they saw it as violating social laws or norms. These questions tapped the appraisal of norm incompatibility. To tap goal conduciveness, participants were asked to rate the extent to which group members viewed the behaviour of the person holding the cup as an obstacle to achieving the group's goals. It should be noted that goal conduciveness typically represent an individual goal. However, keeping a group's spirit or norm is often the goal of individuals belonging to a certain group and in this sense norm violation may seem to be an obstacle to the group's goal, which is also the goal of individual members of this group. These questions were embedded in a series of questions on other appraisals and emotions. These were filler items, which we included so as to make the purpose of the study less obvious and hence reduce the possible effect of demands characteristics on our results. The questions were based on appraisal questionnaires by Fontaine,

Scherer, Roesch, and Ellsworth (2007) and Smith and Ellsworth (1985). All ratings were made on 7-point scales anchored at the extremes, ranging from 0 = "*Not at all*" to 6 = "*Very much*".

RESULTS AND DISCUSSION

Manipulation check

Because no significant main effect or interaction involving the type of non-normative behaviour emerged, the data were collapsed over this factor for all following analyses. Hence three one-way analyses of variance (ANOVAs) were conducted on the emotion ratings. Significant main effects emerged for all emotion ratings. For Sadness, $F(2, 116) = 10.16$, $p < .001$, $\eta^2 = .15$, Anger, $F(2, 116) = 52.36$, $p < .001$, $\eta^2 = .47$, and Emotional Neutrality, $F(2, 116) = 58.85$, $p < .001$, $\eta^2 = .50$. Post hoc analyses (Fisher LSD, $p < .05$) revealed that participants perceived the group as expressing significantly higher levels of sadness in the sadness condition than in the anger and emotionally neutral conditions, which did not differ significantly ($M = 2.71$, $SD = 2.14$; $M = 1.10$, $SD = 1.34$; and $M = 1.35$, $SD = 1.55$, for sadness, anger and emotional neutrality, respectively). For anger, all conditions differed significantly from one another such that the highest level of anger was found for the anger condition followed by sadness and neutrality ($M = 4.54$, $SD = 1.63$; $M = 1.95$, $SD = 1.51$; and $M = 1.13$, $SD = 1.56$, for anger, sadness and emotional neutrality, respectively). Finally, participants in the emotional neutrality condition rated the emotional neutrality as significantly higher in emotional neutrality than in the other two conditions, for which no significant difference emerged ($M = 3.68$, $SD = 0.24$; $M = 0.84$, $SD = 0.24$; and $M = 0.29$, $SD = 0.23$, for emotional neutrality, sadness and anger, respectively). Overall the manipulation checks confirmed that the emotional reaction of the group members in the last photo was perceived as intended.

Hypothesis testing

To test the effect of the groups' emotional reactions on the appraisals of interest, two separate one-way ANOVAs were conducted with the Type of Emotion that the group expressed as independent variable. For norm-incompatibility we averaged the answers to the questions regarding the extent to which group members saw the behaviour of the person holding the cup as violating conventions and the extent to which they saw it as violating social laws or norms ($\alpha = .89$). Significant main effects emerged for both Goal Obstruction, $F(2, 107) = 16.96$, $p < .001$, $\eta^2 = .24$, and Norm-incompatibility, $F(2, 116) = 34.63$, $p < .001$, $\eta^2 = .37$. Post hoc analyses revealed, as expected, that both anger ($M = 4.18$, $SD = 1.82$) and sadness ($M = 3.12$, $SD = 1.82$) on the part of group members was perceived as signalling higher levels of goal obstruction than did emotional neutrality ($M = 1.67$, $SD = 1.97$). However, anger also led to higher levels of perceived goal-obstruction than sadness did. The same pattern of results was found for perceptions of norm-incompatibility ($M = 4.91$, $SD = 1.28$; $M = 3.41$, $SD = 1.82$; and $M = 1.85$, $SD = 1.83$, for anger, sadness and emotional neutrality, respectively). Thus, both anger and sadness were seen as signalling goal-obstruction and norm-incompatibility. For both, anger was perceived to be a stronger signal. We predicted that the signalling of norm-incompatibility should have a greater impact on norm understanding and that anger, being a stronger signal of this appraisal, would have a greater role in this case as well. The following analyses were conducted to show that this was indeed the case.

A two-way contingency analysis revealed that, in accordance with our hypothesis, more participants correctly inferred the norm in the anger condition (26 out of 41; 63%) than in either the sadness (11 out of 38; 29%) or the emotional neutrality conditions (10 out of 39; 26%), Pearson $\chi^2(2, N = 118) = 1.12$, $p = .01$. Further, one-sample z-tests for proportions corroborated this conclusion. Specifically, we compared whether the proportion of participants who inferred the norm

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in each condition in which the group expressed an emotion was significantly greater than the proportion of participants who achieved this goal under the neutral emotion condition. Whereas in the anger condition this was the case, $z = 4.80$, $p < .001$; this was not true for sadness, $z = 0.42$, $p = .67$.

To further evaluate the role of appraisal for the learning of the norm, a mediation analysis using path-analysis was performed with ratings of perceived emotion for sadness, anger and neutrality serving as exogenous variables predicting understanding of norms with appraisals of goal obstruction and norm incompatibility as mediating variables. Preconditions for mediation were met only for norm-incompatibility mediating the effect of anger on understanding of group norm as the correlations between these three variables were all significant ($r > .39$; $p < .001$). For sadness and indifference these criteria were not met. However, this model still showed a reasonably acceptable fit, $\chi^2(3) = 7.13$, $p = .07$; $CFI = .98$; $RMSEA = .10$. To further assess the mediation we ran another model in which the three direct paths from emotion perception to understanding of norms were also included to evaluate the extent to which the perceived appraisals fully mediated the effect of the emotions on the understanding of the norms. This is a saturated model. As can be seen in Figure 2, perceived group anger was positively related to the appraisal of norm incompatibility. Norm incompatibility further positively predicted whether the norm was correctly inferred. A Sobel test ($z = 1.94$, $p < .05$) further corroborated the significance of this mediation. By contrast, goal obstruction, which was positively related only to anger, failed to predict whether the norm was correctly inferred. There was also a direct effect of anger, indicating that norm-incompatibility only partially mediated the effect of anger on norm inference. Sadness and emotional neutrality failed to have any effect on the appraisals or on norm inference. Overall, the results suggest that, as expected, anger is a more effective signal of non-normative behaviour in that it enables observers more readily to infer a new norm. Anger serves this purpose because it is based on an appraisal of norm-incompatibility.

Specifically, observers who saw an angry reaction assumed that a norm-incompatible behaviour had taken place and used this knowledge to figure out that this must have been the deviant behaviour of the group member.

One should note that simply being exposed to a couple of exemplars of normative behaviours versus one non-normative behaviour allowed a certain number of participants to deduce the norm, because of the simple contingency of the events. That is, the statistical information about the more common behaviour sufficed to inform some observers about the norms.

Importantly, however, this information was notably less effective for the norm inference than when information about norm-incompatibility was directly conveyed through the groups' emotional reaction. This is why sadness, which provides emotional information about an undesirable event, but does not convey norm-incompatibility information, is not superior to statistical information when it comes to correctly inferring the norm. Hence, relevance or goal obstruction appraisals which are both signalled by the sadness displays of the group members are alone not informative about norm violations.[2]

Future research should therefore address other emotions that are based on appraisals of norm incompatibility. These include contempt or disgust by the observers (Rozin, Lowery, Imada, &

[2] It should be noted that there was a significant difference in perceived intensity between the emotions, $F(2, 116) = 8.61$, $p < .001$, $\eta^2 = .13$. Post hoc analyses revealed that whereas anger ($M = 4.54$, $SD = 1.63$) and emotional neutrality ($M = 3.68$, $SD = 2.07$) were perceived as equally intense, sadness was rated as less intense than both ($M = 2.71$, $SD = 2.14$). Considering this alternative explanation, we conducted all the analyses while excluding all the participants who rated the intensity of the groups' emotion in the condition to which they were assigned as 0. This left us with 102 participants and most of those who were dropped were in the sadness condition (11 out of the 17 dropped). However, whereas sadness ratings were now comparable to anger and emotional neutrality ratings ($M = 3.81$, $SD = 1.47$; $M = 4.65$, $SD = 1.48$; $M = 4.20$, $SD = 1.62$, for sadness, anger and neutrality, respectively), the results with regard to the level of understanding of the norm and the associated appraisals remained unchanged.

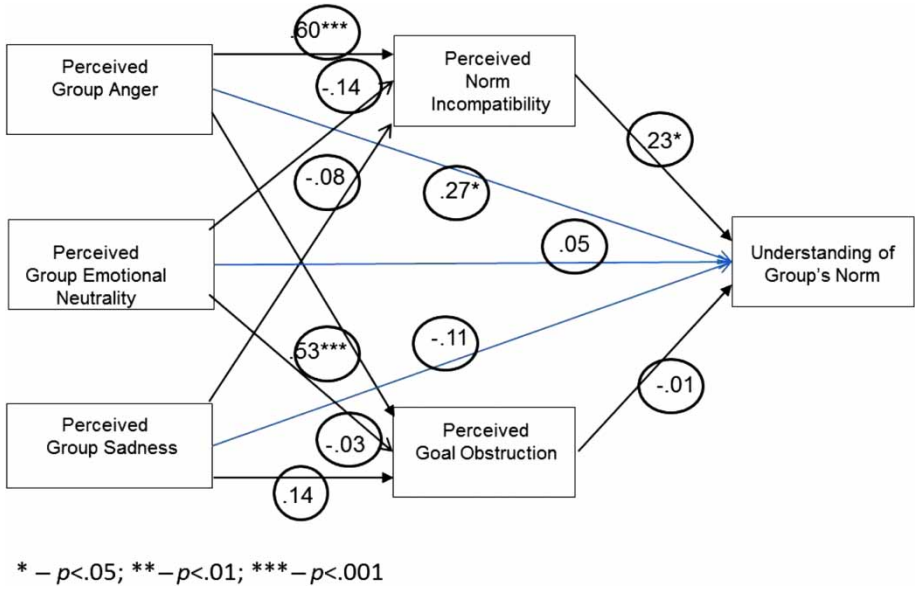

Figure 2. *Mediation analysis. Note: *p < .05; **p < .01; ***p < .001.*

Haidt, 1999) or guilt on the part of the tea drinker who deviates from the norm (Haidt, 2003).

We have suggested that observers decipher the signal contained in the emotion with the help of a reverse-engineering process in which they reconstruct the appraisals associated with an emotion to make sense of the way the emoter viewed the situation. However, common appraisal patterns, like those congruent with model emotions (Scherer, 1987), may not demand the application of the full reverse engineering process as described above, but just an abbreviated modular association process which will be the result of over learning of the characteristic relations between emotions and appraisals. This process would then allow for the very rapid identification of behavioural intentions as well as other signals from emotion expressions without necessarily engaging the reverse engineering process (Hess, Hareli, Adams, Stevenson, & Lasalle, 2013). However, it is still the understanding that anger signals norm violation that causes anger to be more effective in enabling observers to grasp that such an event occurred and from this to deduce what the norm may be based on analysing the whole sequence of events and reactions.

In our study the norm violator was always a man. However, it is reasonable to assume that the gender of the protagonist may also play a role in the way observers react to signals indicating that this person violated a norm. It has been suggested the high powered people tend to violate norms more than low powered ones (Keltner, Gruenfeld, & Anderson, 2003). Given that gender stereotypes associate women with less power than men (Eagly & Wood, 1982), it may also be the case that such stereotypes sensitise observers differently to norm violations as a function of a violator's gender. Relatedly, gender stereotypes also set expectations concerning who should express which emotion. For example, in response to a negative situation, men are expected to express anger and women sadness (Hess, Adams, & Kleck, 2005). Such expectations may change the effectiveness of emotion signals as a function of the gender composition of group members reacting to the norm violator. Future research should explore these possibilities.

In sum, the present research demonstrates the function of emotion information when people attempt to infer a norm. Even though it is quite possible to infer norms without taking into

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account the emotional reactions of others, this process is notably less efficient. That is, the reverse engineering of emotions—which alerts the observer to a norm-incompatibility—contributes importantly to people's ability to infer a norm correctly. Given that social norm transgressions are often perceived as a moral fault (Hall, 1959) and hence sanctioned in excess of the real damage they may do, humans, as a social species, require efficient means to quickly adapt to new situations and to perform flawlessly in social contexts. Emotion information is one of the instruments that can be used in this quest.

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