

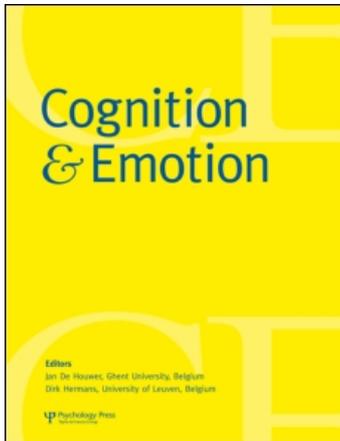
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Access details: Access Details: [subscription number 933489187]

Publisher Psychology Press

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Cognition & Emotion

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713682755>

What emotional reactions can tell us about the nature of others: An appraisal perspective on person perception

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First published on: 05 January 2009

To cite this Article Hareli, Shlomo and Hess, Ursula(2010) 'What emotional reactions can tell us about the nature of others: An appraisal perspective on person perception', *Cognition & Emotion*, 24: 1, 128 — 140, First published on: 05 January 2009 (iFirst)

To link to this Article: DOI: 10.1080/02699930802613828

URL: <http://dx.doi.org/10.1080/02699930802613828>

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What emotional reactions can tell us about the nature of others: An appraisal perspective on person perception

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The present research aimed to assess how people use knowledge about the emotional reactions of others to make inferences about their character. Specifically, we postulate that people can reconstruct or “reverse engineer” the appraisals underlying an emotional reaction and use this appraisal information to draw person perception inferences. As predicted, a person who reacted with anger to blame was perceived as more aggressive, and self-confident, but also as less warm and gentle than a person who reacted with sadness (Study 1). A person who reacted with a smile (Study 1) or remained neutral (Study 2) was perceived as self-confident but also as unemotional. These perceptions were mediated by perceived appraisals.

Keywords: Emotions; Person perception; Appraisal.

... since those who do not get angry at things at which it is right to be angry are considered foolish, and so are those who do not get angry in the right manner, at the right time, and with the right people. It is thought that they do not feel or resent an injury, and that if a man is never angry he will not stand up for himself; and it is considered servile to put up with an insult to oneself or suffer one's friends to be insulted.

(Aristotle, *Nicomachean Ethics*, 1934)

When we encounter others we rapidly and spontaneously make judgements about their personality (see, e.g., Kenny, 2004; Todorov & Uleman, 2002, 2003). These judgements are often made on the basis of very little information

(Ambady, Hallahan, & Rosenthal, 1995; Ambady & Rosenthal, 1992). People base these judgements on a variety of sources (see Kenny, 2004, for an overview), such as stereotypical information based on race, gender, age, or appearance (e.g., attractiveness, height), but also information about how a person behaved in a certain situation (Trope, 1986; Uleman, 1987). One such behavioural source of information is a person's emotional reactions. Specifically, perceivers not only use information concerning others' emotional reactions to infer their feeling state but also as a source of person perception inferences. Even though the assertion that emotional reactions convey more than just information concerning the emotional state of another has appeared in the

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writings of many, an empirical examination of this idea has until recently largely been absent from the person perception literature.

Several studies have investigated perceptions of behavioural intent, especially with regard to dominance and affiliation (Hess, Blairy, & Kleck, 2000; Knutson, 1996; Zebrowitz, Fellous, Mignault, & Andreoletti, 2003; Zebrowitz, Kikuchi, & Fellous, 2007), as well as such characteristics of a person as social status (Tiedens, 2001) and competence (Lewis, 2000), but less is known about the impact of knowledge about a person's emotional reactions on perceptions of that person's character (see also Cornelius, Nussbaum, Warner, & Moeller, 2000; Hendriks & Vingerhoets, 2006) and the process that underlies such perceptions.

The notion that knowledge about a person's emotional reactions in a given situation should inform us about the person's character is congruent with other theories on dispositional judgements (i.e., Schneider, 1973; Trope, 1986). The common ground for these theories, as in fact for our approach, is that information provided by behaviours or emotions is conceived of by the observer as diagnostic of another person's dispositions and that this information can and will be used to infer dispositions. In particular, these theories share the idea that people use general notions or naïve theories about the links between the different attributes that characterise a specific situation to infer a person's personality from these attributes. These may be notions regarding typical relationships between different traits and the likelihood of showing certain emotions (Schneider, 1973) or regarding the conditions under which a certain behaviour or emotion is more likely to be diagnostic of a person's disposition. That is, the cause of a behaviour or emotion is understood in light of other information at hand such as the context in which these behaviours or emotions were enacted (Trope, 1986).

In line with this general approach, we suggest that people use their knowledge about the typical relationships between perceived features of a situation and specific emotions to infer traits based on the specific emotion that a target person

expressed in a certain situation. That is, we assume that the emotional reaction of the target person is used by perceivers to infer how that individual sees the situation and that inference is further used to infer aspects of that individual's personality.

Hence the present research aimed to expand on the theoretical positions mentioned above, by trying to elucidate the information that specific emotions, such as anger, convey and which leads, for example, to the conclusion that the angry person is aggressive. Our approach is grounded in appraisal theory of emotion.

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 (e.g., Frijda, 1986; Scherer, 1987). Appraisal theory posits that a change in the (internal or external) environment is evaluated according to whether the event is pleasant or unpleasant (pleasantness) as well as whether the change is in line with the motivational state of the individual or obstructs the individual's goals (goal obstruction). Individuals further evaluate their ability to cope with or adjust to the change (coping potential). For example, the sight of a bear may elicit fear and terror in me but pleasant anticipation in a hunter with the appropriate hunting licence due to the difference in our motivational state and ability to cope with bears. A further set of evaluations regards the correspondence 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). Importantly, the outcome of these appraisals is partially determined by the personality of the person (Scherer, 1987, 1999).

In line with previous research, we assert that perceivers seem to be aware of these general types of relationships between emotions and the "stories" they tell (Parkinson, 1999, 2001) and hence can "reverse engineer" or reconstruct the relationship between the person and the event based on the emotion expressed (Frijda, 1986; Weiner, 2006). This information then can serve to inform the observer on the person's perceptions of the

given situation and thereby inform about their personality. Thus, sadness communicates a sense of loss, whereas anger communicates the presence of an obstacle that can be redressed. Given a certain event, the way one reacts to it emotionally can serve as information for others regarding one's character.

The studies mentioned above largely used a paradigm where observers were shown visual stimuli depicting a person's facial emotional reactions. However, facial (or vocal) expressions are not the only source of information about someone's emotional reactions. Specifically, people often tell us about their emotions (i.e., Rimé, 1995; see also Trope, 1986). In fact, research by Rimé and colleagues on emotional sharing (see, e.g., Rimé, 1995) suggests that people who experience an emotional event almost invariably will tell other people about the event and their emotional reactions to it. Also, people are often asked to relate certain types of events and their reactions to them.

The present research aimed to investigate the effect of verbal information about a protagonist's emotional reactions in a specific situation on other's perception of the protagonist's personality. For this, we chose the ecologically valid context of reporting on a failure event in the framework of a job interview. In fact, it is a standard feature of job interviews to ask the candidate to relate an event where they failed and describe how they reacted to it. The impact of different emotional reactions to identical events on perceptions of the candidate's personality was assessed. Specifically, the candidate reported to have reacted to the failure event either with anger, sadness or with a smile (Study 1) or neutrally (Study 2). The goal of Study 1 was to serve as a preliminary test of the idea that observers infer personality traits from emotional reactions. Study 2 further assessed the predicted mediating role of appraisals.

Hypotheses

Anger. According to appraisal theory (Scherer, 1987, 1999), an angry person experiences a motivation incongruent (low goal conduciveness),

unpleasant state, but considers the situation to be potentially under their control (high coping potential). Anger also usually implies a certain need for rapid action (urgency). In the present context, this implies that a person who shows anger should be perceived as more aggressive (i.e., more likely to assertively address problems; see also Trope, 1986) and as having more self-confidence than someone who shows sadness.

Sadness. By contrast, sadness is characterised by goal obstruction combined with lack of power potential, that is, the person experiences a motivation incongruent state but does not see a possibility of redress. A sad person should therefore be perceived as less aggressive and confident than an angry person. As nothing can be done, there is also no need for immediate action (low urgency). Yet, a person who reacts with sadness reveals lack of coping potential, which is congruent with perceptions of gentleness. Finally, sadness signals affiliative tendencies (Hess et al., 2000; Knutson, 1996) and hence should lead to greater perceptions of warmth.

Positive affect. Positive affective states, in contrast, are all characterised by an absence of perceived goal obstruction. Hence a person who smiles when encountering a goal obstruction, may be perceived as self-confident and high in self-esteem, as obviously the goal obstruction is negligible to them compared to someone who reacts with sadness. As these two characteristics are strongly linked to the male stereotype (Eagly, 1987) we would expect the same for judgements of masculinity. Smiling also signals affiliative tendencies, whereas anger does not (Hess et al., 2000; Knutson, 1996), hence, a smiling person may also be perceived as more warm and gentle than one who reacts with anger. However, the lack of a negative response to a negative event such as a failure at work may not be perceived as a sign of warmth, but rather as a sign of confidence or even arrogance. The predictions concerning inferences of confidence are in line with the findings of Tiedens (2001) who found that compared to sadness, expressions of positive

affect, like those of anger, are perceived as signs of competence

Finally, reacting with negative affect to being blamed is a typical emotional reaction (e.g., Hareli & Hess, 2008). However, a person who smiles or remains neutral shows sangfroid by seeming to ignore the goal obstructive nature of the event. Hence we expect an individual who shows anger or sadness to be perceived as more emotionally reactive than one who reacts with a smile or neutrally.

STUDY 1

Method

Participants. A total of 243 students (141 women, 101 men, and 1 gender unknown) from the University of Haifa with a mean age of 26 years ($SD = 6.1$) participated.

Material and procedure. Participants were told to imagine themselves in the role of a human resources employee. They were provided with a vignette describing the candidate's narrative of a failure event in their previous job. Specifically, the candidate recounts a situation where they invested a lot of hard work into a project, which nonetheless failed at the end. Other colleagues then blamed the candidate for the failure. The final statement contained the emotional reaction of the candidate and was either, "... to this I reacted with anger", "... to this I reacted with sadness", or "... to this I reacted with a smile". In addition, we varied the sex of the candidate. To allow generalisability across jobs, different jobs were used: lab assistant and technician, jobs were nested within conditions. All factors were manipulated in a complete between-subjects design.

Dependent measures. Participants rated the personality of the candidate on 6 single-item scales: aggressive, self-confident, masculine, emotional, warm, and gentle. The scales were anchored at 0 = *not at all* and 6 = *very much*. In addition, questions regarding the candidate's suitability for

the job and the proposed starting salary were asked in keeping with the participants' presumed role as a human resource employee, but will not be discussed in the present framework.

RESULTS

Several of the dependent variables were found to correlate highly ($r_s > .50$). We therefore conducted an initial principal components analysis, which revealed two factors, explaining 63% of the variance. Factor one comprised the variables aggressive, self-confident, and masculine, the second factor the variables emotional, warm, and gentle. As the alpha for the three items aggressive, self-confident, masculine was relatively low ($\alpha = .60$), we did not combine these variables into a single scale but rather conducted multivariate analyses of variance. The alpha for the three variables emotional, warm, and gentle was .78 and these variables were combined into a composite score.

Aggressive, self-confident, masculine. A 2 (Candidate Sex) \times 3 (Emotion) multivariate analysis of variance (MANOVA) on the three dependent variables aggressive, self-confident, and masculine was conducted. Significant main effects of Emotion, $F(6, 472) = 20.67, p < .001, \eta^2 = .21$, and Candidate Sex, $F(3, 235) = 22.33, p < .001, \eta^2 = .22$, emerged. The main effect of Candidate Sex was univariately significant for masculinity, $F(1, 237) = 66.16, p < .001, \eta^2 = .22$, such that men ($M = 4.30, SD = 1.07$) were rated as more masculine than woman ($M = 3.22, SD = 1.15$). The main effect of Emotion was univariately significant for all three variables, aggressiveness: $F(2, 237) = 39.20, p < .001, \eta^2 = .25$, self-confidence: $F(2, 237) = 19.31, p < .001, \eta^2 = .14$, and masculinity: $F(2, 237) = 20.63, p < .001, \eta^2 = .15$ (see Table 1 for means and standard deviations). No further significant effects emerged. Post hoc tests confirmed that, as expected, a candidate who reacted with anger was perceived as more aggressive than one who reacted with either a smile or sadness. Also

Table 1. Means and standard deviations as a function of type of emotional reaction—Study 1

Emotion	Anger		Smile		Sadness	
	Mean	SD	Mean	SD	Mean	SD
Aggressive	3.45 ^a	1.35	2.04 ^b	1.23	1.93 ^b	1.05
Self-confident	3.70 ^a	1.31	3.67 ^a	1.37	2.56 ^b	1.31
Masculinity	4.16 ^a	1.23	3.96 ^a	1.10	3.17 ^b	1.16
Emotional/warm/gentle	3.74 ^a	0.93	3.22 ^b	1.04	4.35 ^c	0.86

Note: Subscripts are based on LSD <.05. Different subscripts denote a significant difference.

as predicted, a candidate who reacted with either anger or a smile was perceived as more self-confident than one who reacted with sadness. The same pattern emerged for masculinity.

Emotionality/warmth/gentleness. A 2 (Candidate Sex) \times 3 (Emotion) analysis of variance (ANOVA) was conducted on the composite score of the three dependent variables emotionality, warmth and gentleness. Only a significant main effect of Emotion, $F(2, 237) = 29.24$, $p < .001$, $\eta^2 = .20$, emerged (see lower part of Table 1 for means and standard deviations). No further significant effects emerged. Post hoc tests showed that a candidate who reacted with sadness was perceived as more emotional/warm/gentle than one who reacted with anger and both were perceived as more emotional/warm/gentle than the candidate who reacted with a smile.

DISCUSSION

Study 1 confirmed the notion that information about a person's emotional reactions to an event is perceived as diagnostic for the person's personality. Specifically, a person who reacts with anger to blame is perceived as more aggressive, self-confident, and masculine but also as less emotional/warm/gentle than a person who reacts with sadness. A person who reacts with a smile is perceived as equally self-confident and masculine as the angry person, but as less emotional/warm/gentle. These findings are congruent with the relevant appraisals for anger, sadness, and positive emotions in this specific context. Specifically, as

anger requires an appraisal of urgency to act and of power to redress the situation (coping potential), an angry person can be expected to react assertively and have the confidence to deal with the situation—characteristics which fit with the personality traits of aggressiveness and self-confidence but are largely incongruent with being warm and gentle. This constellation contrasts with what can be expected from a person who reacts with sadness, which requires an appraisal of powerlessness (low coping potential). By contrast, positive affect is elicited by events that are goal congruent. To smile in the face of adversity signals that the adversity is considered to be minor and easily overcome. Hence a smiling person would be perceived as self-confident, but also as someone who brushes off the emotional impact of the situation and hence is less emotional. In a wider sense these findings also fit the observation that smiling when confronted with negative emotional events is perceived as less socially appropriate and reduces likeability and hence presumably warmth (Ansfield, 2007).

Interestingly, even though smiling is a signal of affiliative intent, in the present context a smiling person was rated as less emotional/warm/gentle than one who reacted with anger or sadness. This latter finding strongly suggests that it is the appraisal information, not other signal functions of emotion expressions, which drives the person perception inferences. Specifically, smiling is a reaction that is typically associated with happiness (Ekman, Davidson, & Friesen, 1990) and in the context in question (reaction to failure) happiness may seem odd and thus smiling may be interpreted by observers not necessarily as reflecting happiness

but rather as a sign of arrogance, contempt or indifference. This finding also underlines the importance of context for the interpretation of emotion expressions (i.e., Trope, 1986).

In sum, Study 1 supported the notion that observers reach inferences concerning the person's personality based on what they know about the emotional reaction of that person. Also, the findings are congruent with the notion that these inferences are based on a mechanism that "reverse engineers" appraisal information from information on a person's emotional reactions. However, it is not entirely clear that the inferences in question were indeed based on such a mechanism as observer's perceived appraisals were not assessed directly. This was the goal of study 2.

STUDY 2

Study 2 used the same material and general procedure as was used in Study 1. However, two changes were made. First, the sentence "... to this I reacted with a smile" was replaced by the description of a neutral reaction "... to this I reacted calmly". This was done, because smiling in this context may seem an extreme reaction as suggested by the findings of Study 1. The inclusion of the neutral condition also allowed us to contrast the effects of anger and sadness directly with this condition. Second, participants were asked to rate the likely appraisal of the situation by the candidate in terms of the appraisal categories: urgency, unpleasantness, goal conduciveness, coping potential, norm incompatibility. These appraisal categories were selected based on Ellsworth and Scherer (2003) as covering the appraisals posited by most appraisal theories. Novelty was not included as the text explicitly describes this aspect of the situation.

These appraisals were expected to mediate the links between emotional reaction and perceived personality. Based on Ellsworth and Scherer (2003), we predicted that an angry reaction would signal that the situation was perceived as motivationally incongruent and hence goal obstructive as well as requiring immediate action

(urgency), yet also as potentially under the candidate's control (high coping potential). Because anger is elicited by events that are perceived as incompatible with norms and ideals (Averill, 1982; Ortony, Clore, & Collins, 1988; Roseman, 1991; Scherer, 1984; Smith & Ellsworth, 1985), we predicted that participants would assume that the angry candidate appraised the situation as more norm incompatible than did the candidates who reacted with sadness or remained emotionally neutral.

By contrast, a sad reaction would signal that the situation was perceived as obstructing the candidate's goals without a possibility of redress, that is, we predicted lower levels of perceived coping potential for this candidate. Since no redress is possible, urgent action is not required. Ellsworth and Scherer (2003) reported no predictions for norm incompatibility as both compatible and incompatible events can elicit sadness. These perceptions were then expected to explain the specific personality judgements made by participants as a function of the candidate's emotion expression.

Method

Participants. A total of 183 students (153 women, 25 men, and 5 gender unknown) from the University of Haifa with a mean age of 25 years ($SD = 3.7$) participated.

Material and procedure. The same procedure as in Study 1 was employed. However the sentence "... to this I reacted with a smile" was replaced by "... to this I reacted calmly". This served as an emotionally neutral condition (i.e., Trope, 1986).

Dependent measures. Participants rated the personality of the candidate on the same 6 single-item scales used in Study 1. In addition participants were asked to rate how they thought the candidate appraised the situation in terms of urgency, unpleasantness, goal conduciveness, coping potential, norm incompatibility of the situation as well as a display rule norm for the

emotional reaction.¹ These ratings were made on 6-point Likert scales anchored at 1 = *not at all* and 6 = *very much*. Again, in keeping with the participants' presumed role as a human resource employee, questions regarding the candidate's suitability for the job and the proposed starting salary were asked, but will not be discussed in the present framework.

Results

A PCA on the personality variables explained 63% of the variance and confirmed the factors found in Study 1. Hence, multivariate analyses of variance were conducted on the variables aggressive, self-confident, and masculine and an univariate ANOVA on composite score for emotional/warm/gentle.

In addition, several of the appraisal variables were found to correlate highly with each other with correlations ranging up to .69. This may be expected as, according to appraisal theory, emotions are defined as patterns of appraisals (e.g., Scherer, 1984)—hence appraisals have to cohere to some degree. Therefore a PCA was conducted on the appraisal components, which explained 66% of the variance and yielded two factors comprising appraisals of urgency, unpleasantness, norm incompatibility on one hand, and appraisals of goal conduciveness and coping potential on the other. The first factor was labelled negative urgency and the second was labelled outcome confidence. The first factor represented the appraisal that a negative event was about to happen and action should be taken, whereas the second suggested that the event would turn out well either because it was goal congruent or because it could be dealt with.

Following the logic from Study 1, multivariate analyses of variance (MANOVAs) were conducted on the variables aggressive, self-confident, and masculine, which were retained as their alpha was too low ($\alpha = .43$) for a composite score to be calculated as well as for the two groups of appraisal variables. The variables emotionality, warmth, and gentleness were combined ($\alpha = .81$).

Mediation analyses were conducted to follow up on the specific results of the MANOVAs. In line with this logic, multiple mediation models (Preacher & Hayes, 2008) in which all mediators are entered concurrently and hence their unique contributions can be evaluated were assessed. Following the logic employed for the MANOVAs, we evaluated the goal conduciveness and coping potential variables together in one analysis and the remaining variables in a second analysis.

Aggressive, self-confident, masculine. A 2 (Candidate Sex) \times 3 (Emotion) MANOVA was conducted on the three dependent variables aggressive, self-confident, and masculine. Significant main effects of Emotion, $F(6, 352) = 15.00$, $p < .001$, $\eta^2 = .20$, and Candidate Sex, $F(3, 175) = 16.72$, $p < .001$, $\eta^2 = .22$, emerged. The main effect of Candidate Sex was univariately significant for masculinity, $F(1, 177) = 43.28$, $p < .001$, $\eta^2 = .20$, such that men ($M = 3.72$, $SD = 1.02$) were rated as more masculine than women ($M = 2.68$, $SD = 1.21$). The main effect of emotion was univariately significant for all three variables, aggressiveness: $F(2, 177) = 27.46$, $p < .001$, $\eta^2 = .24$, self-confidence: $F(2, 177) = 13.53$, $p < .001$, $\eta^2 = .13$, and masculinity: $F(2, 177) = 10.62$, $p < .001$, $\eta^2 = .11$ (see Table 2 for means and standard deviations). No further significant effects emerged. Post hoc tests confirmed that, as in Study 1, a candidate who reacted with anger was perceived as more aggressive than one who reacted with either sadness or a neutral expression, who did not differ. Also in line with Study 1, the candidate who reacted with either anger or a neutral expression was perceived as more masculine than the one who reacted with sadness. Interestingly, a candidate who reacted neutrally was perceived as more self-confident than one who reacted with either sadness or anger. This pattern is similar to the observation by Lewis (2000) that female managers who react with a neutral rather than an angry or sad demeanour to bad business news were perceived as more competent. This

¹ Data from this variable will not be discussed in the framework of the present article.

Table 2. Means and standard deviations as a function of type of emotional reaction—Study 2

Emotional reaction	Angry		Neutral		Sadness	
	Mean	SD	Mean	SD	Mean	SD
<i>Personality characteristics</i>						
Aggressive	3.03 ^a	1.40	1.74 ^b	1.37	1.42 ^b	1.09
Self-confident	3.38 ^a	1.25	4.33 ^b	1.41	3.03 ^a	1.61
Masculine	3.38 ^a	1.21	3.56 ^a	1.15	2.71 ^b	1.18
Emotional/warm/gentle	4.27 ^a	1.38	1.65 ^b	1.41	4.71 ^c	1.14
<i>Appraisals</i>						
Urgency	4.00 ^a	1.52	1.98 ^b	1.51	3.48 ^c	1.44
Unpleasantness	4.97 ^a	1.27	2.30 ^b	1.35	5.29 ^a	0.86
Norm incompatibility	4.84 ^a	1.17	2.19 ^b	1.47	4.34 ^c	1.47
Coping potential	3.17	1.57	2.56	1.40	2.93	1.73
Goal conduciveness	2.29	1.78	2.23	1.11	2.34	1.92

Note: Subscripts are based on LSD <.05. Different subscripts denote a significant difference.

finding may be suggestive of a still strong work display rule that demands emotional neutrality in the face of adversity.

Emotionality, warmth, gentleness. A 2 (Candidate Sex) × 3 (Emotion) analysis of variance (ANOVA) on the composite score for the three variables emotional, warm, and gentle was conducted. Only a significant main effect of Emotion, $F(2, 177) = 77.76$, $p < .001$, $\eta^2 = .47$, emerged (see Table 2 for means and standard deviations). Post hoc tests showed that a candidate who reacted with either anger or sadness was perceived as more emotional/warm/gentle than one who reacted with a neutral expression. Also, as predicted, a candidate who showed anger was rated as less emotional/warm/gentle than a candidate who showed sadness.

In sum, a candidate who reacted with anger compared to a neutral expression was perceived as more aggressive as well as more emotional/warm/gentle but less self-confident. By contrast, a candidate who reacted with sadness compared to a neutral expression was perceived as less self-confident and more emotional/warm/gentle but not less aggressive. Thus, showing a neutral expression when reporting a failure leads to a relatively more negative assessment compared to either emotion expression.

Appraisals

Urgency, unpleasantness, norm incompatibility. A 2 (Candidate Sex) × 3 (Emotion) MANOVA was conducted on the three dependent variables urgency, unpleasantness and norm incompatibility. A significant main effect of Emotion, $F(6, 350) = 31.25$, $p < .001$, $\eta^2 = .35$, as well as an Emotion × Candidate Sex interaction, $F(6, 348) = 2.09$, $p = .054$, $\eta^2 = .04$, emerged. The latter was univariately significant only for unpleasantness, $F(2, 176) = 5.54$, $p = .017$, $\eta^2 = .05$. The main effect of emotion was univariately significant for all three variables, urgency: $F(2, 176) = 29.10$, $p < .001$, $\eta^2 = .25$, unpleasantness: $F(2, 176) = 119.67$, $p < .001$, $\eta^2 = .58$, and norm incompatibility: $F(2, 176) = 62.41$, $p < .001$, $\eta^2 = .42$ (see Table 2 for means and standard deviations).

Post hoc tests showed that participants concluded that the candidate perceived the situation as less unpleasant or urgent when a neutral expression rather than sadness or anger was reported. The emotion by gender interaction for unpleasantness was due to the fact that men ($M = 5.38$; $SD = .89$) but not women ($M = 4.50$; $SD = 1.48$) who reacted with anger were perceived as evaluating the situation as more unpleasant than did individuals who reacted with sadness. Finally, the situation was perceived as less norm incompatible when the

candidate showed a neutral rather than a sad expression with anger expressions leading to the strongest level of inferred norm incompatibility.

Goal conduciveness and coping potential. A 2 (Candidate Sex) \times 3 (Emotion) MANOVA was conducted on the two dependent variables goal conduciveness and coping potential. No significant main effects or interactions emerged. It is possible that the choice of a failure situation for which the candidate was blamed led to a restriction of variance. In fact, as Table 2 shows, the means for these variables are rather low suggesting that regardless of how the candidate reacted emotionally he or she was perceived as not well able to handle a situation that was highly goal incongruent.

Mediation

According to Baron and Kenny (1986), to show a mediation effect it is first necessary to show that the independent variable (IV) (emotion) is significantly related to the dependent variable (DV) (personality trait) and that the mediation variable (appraisal) is also significantly related to the DV when controlling for the direct effect of the IV. These initial verifications showed that perceptions of masculinity were not influenced by appraisal attributions once the direct effect of emotion was controlled for. Further, the direct effect of sadness on aggression was not significant ($\beta = -.19, p = .164$). These variables were therefore not included in the mediation model. Sobel tests were conducted to assess the significance of the indirect effects for the multiple mediation models. For the purpose of the mediation analysis emotion was coded as a contrast comparing anger and sadness respectively with neutral.

Anger

Aggression. As mentioned above, a candidate who reacted with anger compared to a neutral expression was perceived as more aggressive. The mediation analysis showed that anger was significantly related to urgency, $\beta = .56, p < .001$, and urgency to aggression, $\beta = .31, p = .001$. The indirect effect

was significant, $\beta = .17, z = 2.97, p = .003$, and fully mediated the direct effect, which dropped from $\beta = .48, p < .001$ to $\beta = .21, p = .166$. None of the other appraisals was significantly linked to aggression. That is, as predicted, the perception of aggressiveness was based on the perception of someone who rapidly takes charge of the situation.

Self-confidence. A candidate who showed a neutral expression was perceived as more self-confident than one who reacted with anger. The mediation analysis showed that this perception was driven by the indirect effect of unpleasantness. To the degree that the candidate was perceived as someone who considers the situation to be more unpleasant, $\beta = .72, p < .001$, the candidate was perceived as less self-confident, $\beta = -.26, p = .032$. The indirect effect was significant, $\beta = -.19, z = 2.11, p = .035$, and fully mediated the direct effect which dropped from $\beta = -.34, p < .001$ to $\beta = -.04, p = .818$. No other appraisal was significantly related to self-confidence. This suggests a naïve theory, which presumes that a person who feels in charge and is confident about their ability should perceive negative events as less unpleasant.

Emotional/warm/gentle. An angry candidate was perceived as more emotional/warm/gentle than one who reacted neutrally. The mediation analysis revealed two significant indirect effects. Anger was related to unpleasantness, $\beta = .72, p < .001$, as well as to norm incompatibility, $\beta = .71, p < .001$. These in turn were related to emotional/gentle/warm (unpleasantness: $\beta = .39, p < .001$; norm incompatibility: $\beta = .30, p < .001$). The two indirect effects were significant (unpleasant: $\beta = .28, z = 4.08, p < .001$; norm incompatible: $\beta = .21, z = 3.14, p = .002$). The indirect effects fully mediated the direct effect, which dropped from $\beta = .62, p < .001$ to $\beta = .10, p = .380$. No other appraisal was significantly related to emotional/warm/gentle. This suggests a naïve theory according to which a person who is more emotional/warm/gentle suffers more from an emotional situation.

Sadness

Self-confidence. A candidate who reacted with sadness compared to a neutral expression was perceived as less self-confident. Specifically, sadness was related to perceptions of unpleasantness, $\beta = .80$, $p < .001$, which in turn was negatively related to self-confidence, $\beta = -.38$, $p = .005$. The significant indirect effect, $\beta = -.34$, $p = .002$, was counteracted by a smaller indirect effect of urgency, $\beta = .09$, $z = 1.94$, $p = .052$, such that, contrary to predictions, a sad candidate was perceived as seeing need for urgent action, $\beta = .45$, $p < .001$, which in turn was associated with perceptions of higher self-confidence, $\beta = .19$, $p = .038$. This latter finding may be explained by the fact that the neutral candidate was perceived as particularly remote and unmoved and hence even the expression of sadness seemed to suggest more need for urgent action. The two indirect effects fully mediated the direct effect, which dropped from $\beta = -.40$, $p < .001$ to $\beta = -.21$, $p = .177$. No further appraisals were significantly related to self-confidence.

Emotional/warm/gentle. A candidate who showed sadness was rated as more emotional/warm/gentle than a candidate who showed a neutral reaction. Replicating the findings for anger, a candidate who showed sadness was perceived as more emotional/warm/gentle than the one who reacted neutrally to the degree that the candidate was perceived as appraising the situation as more unpleasant, $\beta = .80$, $p < .001$, and more norm incompatible, $\beta = .59$, $p < .001$. These in turn were related to perceptions of emotional/warm/gentle (unpleasantness: $\beta = .23$, $p < .021$; norm incompatible: $\beta = .22$, $p = .002$). The two indirect effects were significant (unpleasantness: $\beta = .19$, $z = 2.27$, $p = .023$; norm incompatibility, $\beta = .13$, $z = 2.85$, $p = .004$). However, for this model, the direct effect remained significant, with a reduction in β from $.73$, $p < .001$ to $.41$, $p < .001$.

Overall, the mediation models confirm that emotional reactions signal the individual's appraisal of the situation and that these perceived

appraisals mediate observers' perceptions of an individual's personality as a function of their emotional reaction to an event. Also, the replication of findings for the anger/neutral and sad/neutral contrast show that it is the appraisals not the emotions per se that lead to specific personality judgements as for different emotions the same appraisals were found to have the same effect on these judgements.

GENERAL DISCUSSION

The present research confirmed that information about a person's emotional reactions to an event can be used to draw conclusions about the person's personality. Specifically, in two studies, a person who reacted with anger to blame was perceived as more aggressive, self-confident, and masculine (Study 1) but also as less gentle and warm than a person who reacted with sadness. A person who reacted with a smile (Study 1) or neutrally (Study 2) was also perceived as self-confident but at the same time as least emotional, gentle, and warm.

We postulated that participants draw inferences about personality from emotional reactions by "reverse engineering" the underlying appraisals. That is, people infer from the way an individual reacted in a given situation how that individual must have perceived the situation and use this inference to reach conclusions about that person's character.

The present findings are congruent with this notion. Specifically, we found that appraisals mediated the associations between emotional reactions and personality perceptions. Thus, as anger is associated with the appraisal of a situation as unpleasant, norm incongruent and requiring immediate action an angry person can be expected to react assertively and confidently. Congruent with this notion, appraisals of urgency mediated perceptions of aggressiveness and appraisals of unpleasantness mediated perceptions of self-confidence. A person showing a smile (Study 1) or staying neutral (Study 2) in a negative situation can be perceived as "above the situation" and hence unemotional and cold. In fact, an individual

who showed a neutral reaction was perceived as less likely to assess the situation as norm incompatible and unpleasant and these appraisals mediated the perception of the person as less emotional/warm/gentle.

Interestingly, even though smiling is generally considered a signal of affiliative intent (Hess et al., 2000; Knutson, 1996), in the present context a smiling person (Study 1) was rated as less emotional/warm/gentle than one who reacted with anger—an antagonistic emotion. This latter finding confirms that it is the appraisal information, not other signal functions of emotion expressions, that drives the person perception inferences as in the present context the smile led observers to infer that the person managed to brush off the non-goal-conducive nature of the situation because they were less impacted by it as shown by the lower unpleasantness and norm incompatibility appraisals attributed to the neutral person.

We had expected that appraisals related to goal conduciveness and coping potential would also mediate between emotions and person perception. However, no effect of emotion reaction on these appraisals was found. This is likely to be due to our choice of situation. The events presented were so clearly not goal conducive and so little could be done about them that this evaluation did not vary irrespective of the presumed emotional reaction.

Also, not all associations between emotion reactions and person perceptions were fully mediated by the appraisals we assessed. This suggests that other appraisals not assessed in this study may also contribute to this process. As suggested by Ellsworth (1994) appraisal research probably does not capture the full range of appraisals associated with emotions and this may be true in the present context as well.

The present research employed the context of a job interview. That is, participants were put in a role in which they had to explicitly judge a candidate's qualifications. This may have resulted in increased attention to the information presented. Yet, research reported by Rimé (1995) on the social sharing of emotions suggests that in general people pay close attention to other's

reports of their emotional experiences. Further, it is possible that participants were striving to give as objective an assessment of the person as possible using all available information. The experiment was designed, in fact, not to provide any other information and the data do not suggest that sex was used for more than the obvious assessment of masculinity. Hence, although it is possible that non-diagnostic information such as the candidate's choice of words, was used by some individuals, this would only add noise and hence reduce the effect of appraisal information.

As mentioned in the introduction, appraisal theory is not the only theory that allows the derivation of the prediction that people draw conclusions regarding a person's personality from situational or emotional information. A number of theories predict that behaviour, including emotional behaviour, is interpreted in dispositional terms (e.g., Schneider, 1973; Trope, 1986). In this limited sense our research does not contribute anything new. However, the present research could show what *exactly* it is about a specific emotional behaviour that drives the dispositional judgements. For example, both anger and sadness reactions in the present context led to stronger attributions of emotionality/warmth/gentleness than did a neutral reaction. This was the case because both emotions signalled that the person was affected by the situation to a larger degree and hence was seen as perceiving the situation as more unpleasant and norm incongruent.

In line with the notion that it is the information provided by the underlying appraisals, rather than a more global aspect of the emotion per se, that leads to personality attributions, we could show that, depending on the situation, different sets of personality traits can be inferred. Thus, participants not only made the rather obvious inference that an angry person may be aggressive but also concluded that a person who is angry in the face of adversity is more emotional, warm and gentle than a person who reacts neutrally.

That is, the personality inferences do not seem to result from a learned association between an emotion and a trait but are indeed based on a

consideration of the underlying appraisal. Thus, the present research allows us to refine our predictions over and above the level afforded by the emotion label alone.

In sum, the present research supports the notion that not only do people tend to “reverse engineer” appraisal information from information on a person’s emotional reactions, but this information is then used to draw inferences about the person’s personality. Thus, as Aristotle knew long ago, to make the right impression it is important to show the right emotion at the right time.

Manuscript received 9 August 2007

Revised manuscript received 27 October 2008

Manuscript accepted 7 November 2008

First published online 5 January 2009

REFERENCES

- Ambady, N., Hallahan, M., & Rosenthal, R. (1995). On judging and being judged accurately in zero-acquaintance situations. *Journal of Personality and Social Psychology*, *69*, 518–529.
- Ambady, N., & Rosenthal, R. (1992). Thin slices of expressive behavior as predictors of interpersonal consequences: A meta-analysis. *Psychological Bulletin*, *111*, 256–274.
- Ansfield, M. E. (2007). Smiling when distressed: When a smile is a frown turned upside down. *Personality and Social Psychological Bulletin*, *33*, 763–775.
- Aristotle. (1934). *Nicomachean Ethics*. (H. Rackham, Trans.). Cambridge, MA: Harvard University Press.
- Averill, J. R. (1982). *Anger and aggression*. New York: Springer Verlag.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182.
- Cornelius, R. R., Nussbaum, R., Warner, L., & Moeller, C. (2000). “An action full of meaning and of real service”: The social and emotional messages of crying. Paper presented at the XIth Conference of the International Society for Research on Emotions.
- Eagly, A. H. (1987). *Sex differences in social behavior: A social-role interpretation*. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Ekman, P., Davidson, R. J., & Friesen, W. V. (1990). The Duchenne smile: Emotional expression and brain physiology II. *Journal of Personality and Social Psychology*, *58*, 342–353.
- Ellsworth, P. C. (1994). Sense, culture, and sensibility. In S. Kitayama & H. R. Markus (Eds.), *Emotion and culture: Empirical studies of mutual influence* (pp. 23–50). Washington, DC: American Psychological Association.
- Ellsworth, P. C., & Scherer, K. R. (2003). Appraisal processes in emotion. In R. J. Davidson, H. Goldsmith, & K. R. Scherer (Eds.), *Handbook of the affective sciences* (pp. 572–595). New York: Oxford University Press.
- Frijda, N. (1986). *The emotions*. Cambridge, UK: Cambridge University Press.
- Hareli, S., & Hess, U. (2008). The role of causal attribution in hurt feelings and related social emotions elicited in reaction to other’s feedback about failure. *Cognition and Emotion*, *22*, 862–880.
- Hendriks, M. C. P., & Vingerhoets, A. J. J. M. (2006). Social messages of crying faces: Their influence on anticipated person perception, emotions and behavioural responses. *Cognition and Emotion*, *20*, 878–886.
- Hess, U., Blairy, S., & Kleck, R. E. (2000). The influence of expression intensity, gender, and ethnicity on judgments of dominance and affiliation. *Journal of Nonverbal Behavior*, *24*, 265–283.
- Kenny, D. A. (2004). PERSON: A general model of interpersonal perception. *Personality and Social Psychology Review*, *8*, 265–280.
- Knutson, B. (1996). Facial expressions of emotion influence interpersonal trait inferences. *Journal of Nonverbal Behavior*, *20*, 165–182.
- Lewis, K. M. (2000). When leaders display emotion: How followers respond to negative emotional expression of male and female leaders. *Journal of Organizational Behavior*, *21*, 221–234.
- Ortony, A., Clore, G. L., & Collins, A. (1988). *The cognitive structure of emotions*. New York: Cambridge University Press.
- Parkinson, B. (1999). Relations and dissociations between appraisal and emotion ratings of reasonable and unreasonable anger and guilt. *Cognition and Emotion*, *13*, 347–385.
- Parkinson, B. (2001). Putting appraisal in context. In K. R. Scherer, A. Schorr, & T. Johnstone (Eds.),

- Appraisal processes in emotion: Theory, methods, research* (pp. 173–186). New York: Oxford University Press.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, Instruments & Computers, 40*, 879–891.
- Rimé, B. (1995). The social sharing of emotion as a source for the social knowledge of emotion. In J. A. Russell, J. M. Fernandez-Dols, A. S. R. Manstead, & J. C. Wellenkamp (Eds.), *Everyday conceptions of emotion: An introduction to the psychology, anthropology, and linguistics of emotion* (pp. 475–490). New York: Springer.
- Roseman, I. J. (1991). Appraisal determinants of discrete emotions. *Cognition and Emotion, 5*, 161–200.
- Scherer, K. R. (1984). Emotion as a multicomponent process: A model and some cross-cultural data. In P. Shaver (Ed.), *Review of personality and social psychology. Vol. 5: Emotions, relationships, and health* (pp. 37–63). Beverly Hills, CA: Sage.
- Scherer, K. R. (1987). Towards a dynamic theory of emotion: The component process model of affective states. *Geneva studies in emotion and communication, 1*, 1–98. (Available from: http://www.unige.ch/fapse/emotion/publications/pdf/tdte_1987.pdf)
- Scherer, K. R. (1999). Appraisal theory. In T. Dalgleish & M. J. Power (Eds.), *Handbook of cognition and emotion* (pp. 637–663). Chichester, UK: Wiley.
- Schneider, D. J. (1973). Implicit personality theory: A review. *Psychological Bulletin, 79*, 294–309.
- Smith, C., & Ellsworth, P. (1985). Dimensions of cognitive appraisal in emotion. *Journal of Personality and Social Psychology, 48*, 813–838.
- Tiedens, L. Z. (2001). Anger and advancement versus sadness and subjugation: The effect of negative emotion expressions on social status conferral. *Journal of Personality and Social Psychology, 80*, 86–94.
- Todorov, A., & Uleman, J. S. (2002). Spontaneous trait inferences are bound to actors' faces: Evidence from a false recognition paradigm. *Journal of Personality and Social Psychology, 83*, 1051–1065.
- Todorov, A., & Uleman, J. S. (2003). The efficiency of binding spontaneous trait inferences to actors' faces. *Journal of Experimental Social Psychology, 39*, 549–562.
- Trope, Y. (1986). Identification and inferential processes in dispositional attribution. *Psychological Review, 93*, 239–257.
- Uleman, J. S. (1987). Consciousness and control: The case of spontaneous trait inferences. *Personality and Social Psychology Bulletin, 13*, 337–354.
- Weiner, B. (2006). *Social motivation, justice, and the moral emotions: An attributional approach*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Zebrowitz, L. A., Fellous, J., Mignault, A., & Andreoletti, C. (2003). Trait impressions as overgeneralized responses to adaptively significant facial qualities: Evidence from connectionist modeling. *Personality and Social Psychology Review, 7*, 194–215.
- Zebrowitz, L. A., Kikuchi, M., & Fellous, J.-M. (2007). Are effects of emotion expression on trait impressions mediated by babyfacedness? Evidence from connectionist modeling. *Personality and Social Psychological Bulletin, 33*, 648–662.