What Do I Think You're Doing?
Action Identification and Mind Attribution

Megan N. Kozak
Harvard University

Abigail A. Marsh
National Institute of Mental Health

Daniel M. Wegner
Harvard University

The authors examined how a perceiver's identification of a target person's actions covaries with attributions of mind to the target. The authors found in Study 1 that the attribution of intentionality and cognition to a target was associated with identifying the target's action in terms of high-level effects rather than low-level details. In Study 2, both action identification and mind attribution were greater for a liked target, and in Study 3, they were reduced for a target suffering misfortune. In Study 4, it was again found that action identification and mind attribution were greater for a liked target, but like that for the self or a liked other, positive actions were identified at higher levels than negative actions, with the reverse being true for disliked others. In Study 5, the authors found that instructing participants to adopt the target's perspective did not affect mind attribution but did lead to higher level identifications of the target's actions.

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To say that a person is "moving a finger" does not give the person much credit. The action identified in this low-level description fails to distinguish the person from any other moving object. To say that the person is "flipping a switch" or "turning on a light," however, seems to imbue the person with the capacity to think and to have at least a modest goal. To describe the person as "signaling the hidden guests to jump out and shout 'Happy Birthday'" carries even more information about the person's capacities of mind. All of these descriptions could in principle be applied to the same action but reveal varying appreciations of the mind behind the action. What factors might influence a person's preference for one of these action identifications over another? We examined how a perceiver's identifications of another person's actions might covary with attributions of mind and with how these variables may be affected by liking for the person.

Action Identification

Human observers are attuned to actions and can rapidly and easily identify them on the basis of meager cues of motion (Heider & Simmel, 1944; Johansson, 1973)—this identification process occurs early in life (Johnson, 2003) and reliably across cultures (Barrett, Todd, Miller, & Blythe, 2005). The first step in understanding an action is identifying what was done. Identifying a movement as an action usually entails the presumption that there is more to the event than mere motion, that is, that the actor has a mind that was responsible for generating the action. Objects do not perform actions, whereas sentient beings, intelligent machines, and other agents do.

Actions can be identified at different levels, from low-level details that indicate how the action is done to high-level consequences that indicate why or with what effect the action is done (e.g., Austin, 1961; Goldman, 1970). The lowest level of identification (Danto, 1963) provides no reference to circumstances or events outside the action itself (e.g., "moving a finger"), whereas identities at higher levels emerge when the basic act is performed under certain conditions. For example, the basic act of "moving a finger" can generate the higher level act of "turning on a light" when the finger is poised appropriately on the light switch. Higher level identities of an act take into account the causal effects, conventional interpretations, and special circumstances of lower level identities (Vallacher & Wegner, 1985). In this sense, the higher the level at which an action is identified, the more that an actor's mental representation of the action is revealed. Higher level identities imply that a mind capable of understanding causal effects, conventional interpretations, or special circumstances produced the action.

Levels of identification can be measured using the Behavior Identification Form (BIF), a 25-item scale in which midlevel neutral actions are listed along with alternative lower and higher level identifications. Participants choose, for example, whether to identify painting a room as "applying brush strokes" (lower level) or "making the room look fresh" (higher level). Action identification may be influenced by factors such as the communicative purpose of an action. In some situations, a basic identification may seem uninformative to an audience (e.g., "I moved that same darn finger"), and a communicator may opt instead for a higher level identification that conveys a critical effect ("I shot the sheriff"). Action identification may also vary in relation to perceived motivation, with lower levels prevailing when an action is done for its own sake but higher levels prevailing when the action is driven by extrinsic goals (Kruglanski, 1975).

Research has demonstrated that people vary reliably in how they identify their own actions (Vallacher & Wegner, 1985, 1987, 1989; Wegner & Vallacher, 1986). Vallacher and Wegner (1989) examined such variations in levels of personal agency, distinguishing between low-level agents, who view their actions in terms of details, and high-level agents, who focus more on the meaning and consequences of their actions. High-level agents perceive their behavior to be influenced more by mental factors, such as motivation, than by situational forces. Compared with low-level agents, high-level agents express a more internal locus of control, report more stability and consistency in their actions across contexts, and have clearer and more stable self-concepts. By contrast, low-level agents report acting more impulsively and describe their actions with less reference to mental states. The tendency to identify one's actions at higher levels then may be indicative of an awareness of one's own mind as a cause of behavior.

Identification of one's own actions may constitute a particular application of a more general principle: that action identification tracks the inference of mental states. This principle may be applied to one's own mental states or to the mental states of others. In line with this possibility, the tendency to identify own actions at higher levels has been found to be related to the tendency to adopt the perspectives of others (Levy, Freitas, & Salovey, 2002). Perhaps action identification offers a tool for assessing whether a perceiver is recognizing the mental states underlying the actions of others. If action identification is tracking the attribution of mental states, individuals making higher level inferences about others' mental states will also identify those individuals' actions at higher levels. The validity of this hypothesis might be tested by comparing study participants' identifications for the actions of others with their more direct assessments about the others' cognitive processes. It is worth considering, then, how more global attributions of mind to another might arise and how such attributions might be assessed.

Mind Attribution

Individuals' direct assessments of the minds of others have been the focus of a body of prior research on attribution of mind or what has been called *mentalizing* (e.g., Frith & Frith, 2003). Mentalizing incorporates subprocesses whereby the perceiver infers the existence of mental states, internal events, and other features of agents from external cues or from a personal simulation of the other's experience (Ames, 2004; Carruthers & Smith, 1996). The tendency to mentalize in adults has been examined in studies of empathy

(e.g., Hodges & Wegner, 1997), perspective-taking (e.g., Keysar, Barr, Balin, & Brauner, 2000), emotion recognition and attribution (e.g., Leyens et al., 2000), and knowledge estimation (e.g., Nickerson, 1999).

Humans often use mentalistic explanations to describe the actions of people or other agents and mechanistic explanations to describe the movements of objects (Heider, 1958; Schneider, Hastorf, & Ellsworth, 1979). Mentalistic explanations include thoughts, emotions, and intentions, whereas mechanistic explanations focus on processes, properties, and effects. The dichotomy of mind and mechanism is reflected in the literature on the development of the ability to appreciate minds by animals (e.g., Premack & Woodruff, 1978) and humans (e.g., Baron-Cohen, 1995). Mental and mechanical modes of explanation may be understood then as alternative ways of apprehending the world (Carey, 1996; Wegner, 2002), and perceivers vary in the degree to which they use attributions of mind to understand both minds and nonminds.

In this sense, mentalization is a continuum. At the lowest end of the continuum is the failure to attribute mental states to an agent, which might be called *dementalizing*. Thought, emotion, and intention are not inferred or are ignored. A perceiver can dementalize a person by explaining the person's actions in terms of physical events, preexisting dispositions, or causal chains that do not require a mind. Although such explanation may be appropriate in some cases (e.g., when a person falls, simply succumbing to the law of gravity), it may be degrading when it overlooks a person's mental states. At a more global level, a person can dementalize another by failing to attribute even the capacity for mental states to this person.

Adopting another person's perspective allows one to merge one's self-awareness with another person and fosters the ability to imagine the internal experiences of that person (Mashek, Aron, & Boncimino, 2003; Wegner & Giuliano, 1982). By adopting another person's perspective, a perceiver does not have to rely on preexisting stereotypes or traits to interpret this person's behavior (Galinsky & Moskowitz, 2000; Idson & Mischel, 2001). Instead, the person's moment-to-moment internal state, including goals and intentions, becomes a means for understanding the person's past behavior and for predicting how this individual will behave in the future (Hoffman, Mischel, & Mazze, 1981).

It is perhaps not surprising that people are more willing to consider the mental states of people they like (McPherson-Frantz & Janoff-Bulman, 2000). This may result from both familiarity and positive attributions (Malle & Pearce, 2001). People may be more motivated to see those they like as having mental states. Research on the attribution of secondary emotions has found that people tend to attribute complex emotions more to in-group members than to out-group members, and this effect does not covary with familiarity (Leyens et al., 2000). The tendency to mentalize group members may be driven instead by a desire to view one's own group as possessing more human essence than other groups (Cortes, Demoulin, & Rodriguez, 2005). Failing to attribute mental states, in turn, may follow as part of the process of derogation that occurs when perceivers see a person suffering an unpleasant fate. Liking for victims may be reduced, and people may be motivated to perceive them as being driven less by mental processes and more by physical causes (e.g., Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Lerner, 2003)

The Present Research

Our studies examined the relationship between action identification and mind attribution by exploring how these constructs covary in response to circumstances that are likely to influence a perceiver's appreciation of the mind of another person. Two primary measures were employed in these studies. The first was a modified BIF (Vallacher & Wegner, 1989), revised to allow perceivers to report the levels at which they identified a target person's actions (rather than their own). The second measure was a 10-item Mind Attribution Scale, designed to assess a perceiver's global attributions about another person's capacity to act with intention, engage in complex cognition, and experience emotion.

In Study 1, we examined relationships among the modified BIF, the Mind Attribution Scale, and reports of positivity toward a fictitious target person to measure the predicted positive interrelations. The following studies then manipulated properties of the target to explore whether action identification and mind attribution would show similar patterns of influence. In Study 2, we manipulated positivity of the target by introducing positive and negative target characteristics to determine whether liking for a target would influence both action identification and mind attribution. In Study 3, we examined action identification and mind attribution as a function of the target person's misfortune, with the expectation that derogation of a victimized target might lead to decreased liking for a target. This decrease in liking was expected to result in both lower level identification and reduced mind attribution. In Study 4, we manipulated valence of the action and liking for the target to explore how action identification and attributions of mind would vary as a result. We explored in Study 5 whether instructions to take the perspective of a target person would lead perceivers to make higher level action identifications and greater mind attribution for that target. In all the studies, the degree to which action identification and mind attribution responded similarly to manipulations and the degree to which their levels were mediated by the perceiver's degree of positivity toward the target were assessed to allow an evaluation of how mind attribution and action identification are related.

Study 1: Action Identification and Mind Attribution

We investigated in this study the relationship between level of action identification and the attribution of mental states. We assessed action identification levels for a hypothetical target person, and perceivers also completed a measure of mind attribution, the Mind Attribution Scale, designed to tap three kinds of mind attribution to the target: the attribution of intention (e.g., goals, planning), higher order cognition (e.g., thought, memory), and capacity for emotion (e.g., ability to feel pleasure, pain).

Method

Participants. Fifty-one undergraduates (14 women, 37 men) at the University of Colorado in Boulder participated in exchange for candy. On preliminary analysis, one participant was determined to be an outlier, with a Cook's distance of 0.42. Data for this person were dropped prior to the main analysis.

Design and procedure. Participants were given a survey packet. Participants read a description of a fictitious undergraduate male named Mike.

The description that follows was designed not to arouse either a strong liking or disliking for the character.

> Mike is a 20-year-old student at a large state university. He majors in English, and he is also interested in political science. Outside of class, he enjoys playing intramural sports, but he considers himself more of a recreational player than a serious athlete. On weekends Mike likes to go to parties or hang out with friends. Mike hopes to either go to graduate school or work in journalism after he graduates.

After reading the vignette, participants completed an action identification task in reference to him. The task consisted of 25 items from the BIF (Vallacher & Wegner, 1989) and one added similar item. For all items, a neutral behavior was given along with two possible identifications: low level and high level. For example, "picking an apple" could be identified at a lower level as "pulling fruit off a branch" or at a higher level as "getting something to eat." Participants were instructed to imagine that the person in the vignette was performing the various actions and to choose the identification that they felt best described the action.

Participants also completed a Mind Attribution Scale to measure the degree to which a participant felt the person in the vignette was capable of acting with intention, engaging in higher order thought, and experiencing emotions. Participants made ratings on 7-point Likert-type scales, ranging from 1 (*strongly agree*) to 7 (*strongly disagree*). Items are shown in Table 1. Participants also rated Mike on three additional items, which tapped into their positive feelings for him (including "I like this person," "This person is a good person," and "I have a great deal of respect for this person"). The order in which surveys were completed was counterbalanced across participants, and no order effects were observed. After completing the packet, participants were debriefed and thanked for their participation.

Results and Discussion

Level of action identification. The action identification task was scored by assigning 1 to high-level identities and 0 to low-

Table 1
Factor Analysis of Mind Attribution Scale

Component	Eigenvalue	Rotated loadings by component		
		1	2	3
Emotion	4.076			
This person has complex feelings.		.84	.06	.13
This person can experience pain.		.83	.24	−.10
This person is capable of emotion.		.72	.21	.31
This person can experience pleasure.[a]		.49	.55	.10
Intention	1.491			
This person is capable of doing things on purpose.		.17	.81	.04
This person is capable of planned actions.		.17	.75	.28
This person has goals.		.10	.72	.34
Cognition	1.004			
This person is highly conscious.		−.04	.25	.77
This person has a good memory.		.10	.06	.76
This person can engage in a great deal of thought.		.32	.30	.64

[a] This item was assigned to the emotion factor because higher mean reliabilities were found for the emotion and intention factors with this assignment.

level identities. Scores for the 26 items were summed in a total action identification score (Cronbach's α = .82). The mean score was (M = 14.85, SD = 5.32).

Mind attribution. The 10 items formed a reliable scale (Cronbach's α = .83), and item total correlations were uniformly high, averaging .53 with a minimum of .38. Nonetheless, we also undertook a factor analysis to examine the internal structure of the scale. To maximize the stability of the solution, the analysis was performed on the combined sample of responses from this study and Study 4 (N = 140). A principal factors extraction with varimax rotation revealed three factors with eigenvalues greater than 1. These factors were consistent with our a priori conceptualization of mind on dimensions of emotion, intention, and cognition (see Table 1). Reliability analyses in the Study 1 sample performed on composite variables devised to reflect each component separately revealed modest internal consistencies (Cronbach's α = .79, .74, and .66, respectively), sufficient to justify further analyses using these factor composites in addition to the overall mind attribution index.

Correlations. The number of high-level identifications was significantly correlated with the overall mind attribution index, $r(48)$ = .30, p < .05, and was significantly correlated with two of the three component mind-attribution factors, intention, $r(48)$ = .32, p < .05, and cognition, $r(48)$ = .44, p < .01, but not emotion, $r(48)$ = .04 (*ns*). When perceivers identified actions at higher levels, they inferred an increased capacity for intention and higher thought processes but not necessarily emotion.

These observations involved a target person who was relatively neutral in terms of the 7-point scales of liking (M = 4.38, SD = 0.83), respect (M = 4.21, SD = 0.95) and goodness of character (M = 4.26, SD = 0.85). These ratings were summed to form a positivity index (Cronbach's α = .67), and this index was correlated with mind attribution, $r(48)$ = .40, p < .01, and action identification, $r(48)$ = .37, p < .01. These results suggest liking may be associated with higher levels of both action identification and mind attribution.

Examination of the potential causal paths among liking, action identification, and mind attribution is difficult in this study, given that liking for the target was measured rather than experimentally manipulated. Therefore, we manipulated liking in Study 2 to ascertain its influence on both levels of action identification and global attributions of mind.

Study 2: Action Identification for Liked and Disliked Hypothetical Persons

In this study, the degree to which perceivers felt positively or negatively toward an actor was manipulated using vignettes that described either a likable or unlikable fictitious person. Levels of action identification and degree of mind attribution were examined.

Method

Participants. Thirty-five Harvard undergraduates (16 men, 19 women) participated in exchange for research credit in their introductory psychology course.

Design and procedure. The procedure mirrored that of Study 1, except that the vignette described either a likable or an unlikable character. In the likable condition, the description was as follows:

David majors in biology, and he is also interested in political science. Outside of class, he enjoys playing intramural sports, but he considers himself more of a recreational player than a serious athlete. On weekends, David likes to go to parties, hang out with friends and spend time with his family who live nearby. One thing that is quite unique about David is his passion for helping animals. He devotes a great deal of time helping to raise money for local animal shelters as well as volunteering one day a week working at the local humane society. After graduation, David hopes to either pursue a career in veterinary medicine or public health.

In the unlikable condition, the description was as follows:

Mike majors in chemistry, and he is also interested in economics. Mike does not participate in extracurricular activities because he feels they are a waste of his time. He has few friends and prefers to spend most of his time by himself. Many people find Mike to be arrogant and unapproachable. Recently, Mike found himself in severe trouble at school. He stole a classmate's lab report and turned it in as his own. The professor found out and reported it to the college. Mike is now on academic probation. This is not the first time Mike has cheated. In high school, he was caught plagiarizing on a term paper and was suspended for three days.

Participants rated the target on liking, respect, goodness, and similarity. As in Study 1, participants completed the action identification measure and Mind Attribution Scale for the target.

Results

Manipulation check. A positivity index made up of the mean ratings for liking, respect, goodness, and similarity computed for both targets (Cronbach's α = .91) confirmed participants perceived the characters in the vignettes as likable and unlikable. Participants reported greater positivity toward the likable character (M = 5.32, SD = .81) than the unlikable character (M = 3.22, SD = .87), $F(1, 33)$ = 54.89, p < .001, η^2 = .63.

Level of action identification. Action identification scores, as computed in Study 1, were entered into a one-way analysis of variance (ANOVA). As hypothesized, participants made more high-level action identifications for the likable person (M = 17.21, SD = 4.92) than for the unlikable person (M = 11.00, SD = 7.17), $F(1, 33)$ = 9.16, p < .01, η^2 = .22. A series of regressions designed to test for mediation were conducted to assess whether a difference in positivity for the two people mediated the difference in action identification levels. This technique, as outlined by Baron and Kenny (1986), requires that the potential mediator is first regressed on the independent variable. In a second regression, the dependent variable is regressed on the potential mediator. Last, the dependent variable is regressed on both the independent variable and the potential mediator. A Sobel test is conducted to determine whether the influence of the independent variable has been significantly reduced when included with the potential mediator. In this particular analysis, the initial regression showed a significant positive relationship between condition and positivity (β = .790, p < .001). A significant relationship was also found when action identification was regressed on positivity (β = .428, p < .05); however, when action identification was regressed on both variables, no evidence of mediation was found, Sobel z = .62, p > .05. This suggests that although manipulated likability yielded higher levels of action identification, ratings of positivity did not mediate this effect.

Mind attribution. An overall index of mind attribution, and separate indices of attribution of intention, cognition, and emotion, were computed as in Study 1. ANOVAs on each index revealed that participants made higher attributions of mind overall to the likable person ($M = 5.78$, $SD = .55$) than to the unlikable person ($M = 4.89$, $SD = 1.08$), $F(1, 33) = 10.07$, $p < .01$, $\eta^2 = .23$. This pattern of results held true for the three subindices of mind attribution. Participants made higher attributions to the likable character than to the unlikable character for intention (likable: $M = 6.19$, $SD = .56$; unlikable: $M = 5.27$, $SD = 1.18$), $F(1, 33) = 9.18$, $p < .01$, $\eta^2 = .22$; for cognition (likable: $M = 5.26$, $SD = .76$; unlikable: $M = 4.42$, $SD = 1.33$), $F(1, 33) = 5.57$, $p < .05$, $\eta^2 = .14$; and for emotion (likable: $M = 5.83$, $SD = .81$; unlikable: $M = 4.95$, $SD = 1.46$), $F(1, 33) = 4.85$, $p < .05$, $\eta^2 = .13$.

To ascertain whether differences in positivity were mediating the differing degrees of mind attributed to the likable and unlikable person, a series of regressions were carried out. When positivity was regressed on condition, a significant relationship was found ($\beta = .790$, $p < .001$), as when mind attribution was regressed on positivity ($\beta = .762$, $p < .001$). However, when mind attribution was regressed on both variables, the influence of the likability manipulation was significantly reduced, Sobel $z = 4.51$, $p < .001$. The results demonstrated that the influence of the likability manipulation on overall mind attribution was fully mediated by positivity ratings, because the variable of condition was no longer significant when included in the regression with positivity ($\beta = -.316$, $p > .05$). Differences in positivity also fully mediated each subindex of mind attribution. When ratings of intention were regressed on both condition and positivity, the influence of the likability manipulation was significantly reduced, Sobel $z = 3.90$, $p < .001$, and was no longer significant ($\beta = -.229$, $p > .05$). When ratings of cognition were regressed on both condition and positivity, the influence of the likability manipulation was significantly reduced, Sobel $z = 3.75$, $p < .001$, and was no longer significant ($\beta = -.370$, $p > .05$). Finally, when ratings of emotion were regressed on both condition and positivity, the influence of the likability manipulation was significantly reduced, Sobel $z = 2.84$, $p < .01$, and was no longer significant ($\beta = -.206$, $p > .05$). These mediation analyses suggest that positivity for the target directly influenced whether a perceiver attributed mental states to the target. Feeling positively toward another person may induce a perceiver to consider this person's goals, thoughts, and emotions. Additional analyses were conducted to determine whether action identification mediated the influence of liking on mind attribution or whether mind attribution mediated the influence of liking on action identification. The results of separate analyses did not reveal mediation in either case, Sobel $z = .12$, $p > .05$; Sobel $z = 1.22$, $p > .05$, respectively.

Correlations. As in Study 1, a significant positive relationship was found between level of action identification and overall mind attribution and between action identification and attribution of intention and cognition. Higher level identifications were correlated with greater attributions of overall mind attribution, $r(35) = .40$, $p < .02$, as well as with intention attribution, $r(35) = .47$, $p < .01$, and cognition attribution, $r(35) = .34$, $p < .05$. As was also true in Study 1, the relationship between higher level action identifications and emotion attribution was not significant, $r(34) = .23$, $p = .20$.

A positive relationship was found between positivity and the level of action identification. The more positively participants felt about the individual being described, the higher their action identifications were, on average, $r(35) = .43$, $p = .01$. Positivity was also significantly correlated with overall degree of mind attribution and with each of the three components of mind. This again suggests that the more positively people felt toward the person in the vignette, the more readily they attributed mental states to him, $r(35) = .76$, $p < .001$, including attributions of intention, $r(35) = .70$, $p < .001$, cognition, $r(35) = .66$, $p < .001$, and emotion, $r(34) = .56$, $p < .01$.

Discussion

The results highlight the role that liking plays in action identification and mind attribution processes. Liking leads a perceiver to identify the person's actions at a higher level, one that takes the actor's goals and intentions into consideration. Liking also affects attributions of mind such that positive attributions lead to increased consideration of the target's mental states and capacities: capacity for acting with purpose and intention, engaging in cognitive processes, and experiencing emotions. Although this study reveals a strong association between positivity and level of action identification, positivity did not mediate the influence of liking on level of action identification. This suggests that although people may identify the actions of liked others at higher levels than disliked others, there may be a mechanism not measured in this study that is directly responsible for the differences in action identification prompted by the variation in likability. This mechanism could be related to the perceiver's tendency to take the perspective of the target.

The results again show the relationship between action identification and mind attribution. As was true in Study 1, the level at which a person identifies another's actions is related to greater attributions of mind overall and specifically to attributions of intention and cognition but not emotion. This is perhaps not surprising, as intention and cognition more directly pertain to a person's ability to plan ahead and think about actions prior to completing them. Emotion may function differently and therefore may be further removed from the action identification process. Attributions of emotion processes may flow from processes distinct from those underlying the attribution of intention and cognition in the perception of other minds (cf. Malle & Pearce, 2001).

In this study, liking was manipulated by giving participants information about a person's disposition. For example, the target David was described as "arrogant and unapproachable," but what if information about a person's disposition remained neutral while the situation surrounding a person was manipulated? Could situational factors influence the manner in which a perceiver forms attributions about another's mind? This question was explored in the next study, in which varying degrees of victim derogation (and thus disliking) were induced in participants by presenting them with targets who experienced differing degrees of suffering.

Study 3: Action Identification and Mind Attribution as a Result of Victim Derogation

When people are aware that another person is suffering, they often derogate this person. Many find comfort in believing that bad

things only happen to bad people, because it provides them with a sense of control in an often unpredictable world. Rather than give up this belief in a just world, many people transform victims into bad people even when such derogation is unwarranted (Lerner, 2003). This may be particularly true if an observer initially feels similar to the victim (Lerner & Miller, 1978). This study explored whether victim derogation would result in dementalization through changes in mind attribution and action identification.

Method

Participants. Sixty-one Harvard undergraduates (34 men, 27 women) participated in the study in exchange for research credit in their introductory psychology course.

Design and procedure. The design of this study was similar to those of the prior studies. Participants read a vignette describing a fictitious person, which always began as follows:

> Mike is a 20-year-old undergraduate at the University of Michigan. For the past year he has been living off campus in a studio apartment. Mike receives some financial help from his parents but pays most of his bills with the money he makes in a work–study job. Two months ago the university cut down on the budget allotted for student employment.

In the suffering condition, the vignette continued as follows:

> Mike was let go from his job. Mike's boss made it clear that he had done nothing wrong and that he would try to help him find other means of employment. Needless to say, Mike has had an extremely difficult time finding a new job and it has become increasingly difficult to pay the monthly bills. As a result, Mike is only able to afford enough food for one meal per day and it consists of very meager portions. The electricity has been shut off and Mike sleeps with layers of blankets so as to keep warm despite the fact that there is no heat in his tiny apartment. The situation is extremely bad and if Mike does not find work soon, the conditions will continue to worsen and he will continue to suffer.

In the nonsuffering condition, the vignette continued as follows:

> Fortunately Mike was able to keep his job. Although Mike's budget is tight, he is always able to make ends meet.

After reading the vignette, participants completed the same measures for the target person used in the prior studies.

Results

Ratings of positivity. A positivity index comprised of mean ratings for liking, respect, goodness, and similarity computed for both vignette characters (Cronbach's $\alpha = .79$) revealed that participants reported less positivity for the suffering target ($M = 4.12$, $SD = .77$) than for the target who was not suffering ($M = 5.29$, $SD = .84$), $F(1, 37) = 19.41$, $p < .001$, $\eta^2 = .34$.

Action identification. Participants made significantly fewer high-level identifications for the actions of the suffering person ($M = 13.36$, $SD = 4.36$) than of the nonsuffering person ($M = 15.61$, $SD = 4.36$), $F(1, 59) = 3.93$, $p = .05$, $\eta^2 = .06$. To test whether differences in positivity mediated differences in action identification, a series of regressions were conducted in the same manner as described in Study 2. The initial regression showed a significant relationship between condition and positivity ($\beta = -.587$, $p < .001$). A significant relationship was also found when action identification was regressed on positivity ($\beta = .390$, $p < .05$); however, when action identification was regressed on both variables, no evidence of mediation was found, Sobel $z = -1.11$, $p > .05$ These results indicate that positivity did not mediate the influence of perceived suffering on action identification.

Mind attribution. Participants made lower attributions of mind to the suffering person ($M = 4.73$, $SD = .77$) than to the nonsuffering person ($M = 5.13$, $SD = .65$), $F(1, 57) = 4.42$, $p < .05$, $\eta^2 = .07$. This pattern was found for two of the three subindices of mind attribution, with lower attributions of intention made to the suffering target ($M = 4.72$, $SD = 1.13$) than to the nonsuffering target ($M = 5.66$, $SD = .93$), $F(1, 59) = 12.56$, $p < .01$, $\eta^2 = .18$, and lower attributions of cognition made to the suffering target ($M = 4.05$, $SD = .78$) than to the nonsuffering target ($M = 4.59$, $SD = .58$), $F(1, 59) = 9.43$, $p < .01$, $\eta^2 = .14$. No differences in attribution of emotion were found between targets.

A series of regressions was performed to examine whether positivity mediated the influence of perceived suffering on mind attribution. When positivity was regressed on condition, we found a significant relationship ($\beta = -.587$, $p < .001$), and when mind attribution was regressed on positivity, a significant relationship also was found ($\beta = .647$, $p < .001$). However, when mind attribution was regressed on both variables, the influence of the suffering manipulation was significantly reduced, Sobel $z = -3.13$, $p < .01$. The results demonstrated that the influence of the suffering manipulation on overall mind attribution was fully mediated by positivity ratings, because the variable of condition was no longer significant when included in the regression with positivity ($\beta = .084$, $p > .05$). Differences in positivity also fully mediated two of the subindices of mind attribution. When ratings of intention were regressed on both condition and positivity, the influence of the suffering manipulation was significantly reduced, Sobel $z = -3.12$, $p < .01$, and was no longer significant ($\beta = -.105$, $p > .05$). When ratings of cognition were regressed on both condition and positivity, the influence of the suffering manipulation was significantly reduced, Sobel $z = -2.90$, $p < .01$, and was no longer significant ($\beta = .130$, $p > .05$). Taken together, these results suggest that the influence of the suffering manipulation on mind attribution was fully mediated by positivity ratings.

We conducted additional analyses to determine whether action identification mediated the influence of liking on mind attribution or whether mind attribution mediated the influence of liking on action identification. The results of separate analyses did not reveal mediation in either case, Sobel $z = -.08$, $p > .05$; Sobel $z = -1.68$, $p > .05$, respectively.

Correlations. As in the prior studies, a positive relationship was found between action identification and overall mind attribution, as well as between the intention and cognition subindices. Higher level identifications were correlated with higher attributions of mind, $r(59) = .31$, $p < .05$, intention, $r(61) = .32$, $p < .05$, and on a marginal level, cognition, $r(61) = .25$, $p < .06$. In addition, positivity and higher action identification levels were correlated, $r(39) = .39$, $p = .01$. Positivity was also significantly correlated with mind attribution, $r(37) = .63$, $p < .001$, as well as with the mind attribution subscales of intention, $r(39) = .71$, $p < .001$, and cognition, $r(39) = .57$, $p < .001$.

Discussion

Past research has indicated that people may derogate victims, and the present results suggest that one aspect of such derogation may be dementalization. Participants felt less positively toward the suffering person than toward the nonsuffering person, and they identified the actions of the suffering person at lower levels and attributed mental properties to him to a lesser extent. It seems that as a result of the perceived suffering of the targets, perceivers fail to appreciate the target person's mind, viewing the person as somehow less likely to have goals, thoughts, and feelings. Some commentators have suggested that a kind of infrahumanization occurs to relieve the distress that arises when a perceiver is aware that another person or group of people is suffering in some way (Bandura et al., 1996; Leyens et al., 2000). The present study suggests that a rudimentary form of such infrahumanization may occur when reduced positivity toward a target engenders reduced levels of mind attribution to the target.

In Studies 1, 2, and 3, the actions identified by perceivers were consistently neutral or slightly positive in valence. The hypothesis has been that to mentalize another's action is to humanize that person, which is generally a positive thing; however, it is conceivable that this pattern would not hold for negative actions. To infer a negative action, for example, knocking someone down, to have resulted from thought and planning would perhaps be more negative than to attribute the action to purely physical causes. In other words, when is mentalizing not positive? Do the likability of action and actor interact when a perceiver identifies an action? Study 4 was designed to explore these questions.

Study 4: Action Identification by Valence of Actor and Action

The aforementioned studies found that for neutral or mildly positive actions, high-level action identifications are associated with positive evaluations of the actor. However, perhaps this association is limited to neutral or positive actions, and the patterns seen thus far result from a tendency for perceivers to give higher identification levels when actor and action valence are consistent. This actor–action consistency hypothesis holds that the positive actions of a liked person are seen as consistent with such a person's intentions and thoughts and thus would be identified at a higher level than negative (undesirable) actions. A disliked person, in turn, might be perceived as harboring undesirable intentions or antisocial thoughts, and this person's negative actions might be identified at higher levels. In short, high-level action identification for liked actors may occur for neutral and positive actions, whereas high-level action identification for disliked actors might be found for negative actions. To gauge this possibility, we examined action identification as a function both of actor valence and action valence in Study 4.

Method

Participants. Ninety Harvard undergraduates (53 men, 37 women) participated in the study in exchange for credit in their introductory psychology course.

Design and procedure. This study had a 3 × 3 factorial design, which varied target person (fictional likable other, self, or fictional unlikable other) among participants and action valence (positive, neutral, negative) within participants. There were three versions of the experimental packet, which required participants to identify, respectively, the actions of a likable other, the self, or an unlikable other. The vignettes adapted those used in Study 3 to include slightly more information about the fictional protagonist. The vignette describing the likable person was as follows:

> David is a 20-year-old student at a large state university. He majors in biology, and he is also interested in political science. Outside class, he participates in intramural sports, because he enjoys getting exercise and being part of a team. On weekends, David likes to go to parties and spend time with friends or with his family. Most people find David to be friendly and easygoing. Recently, David received an award from his school. He tutored several classmates in a biology class and helped them improve their grades. The professor learned that David was helping classmates without asking for any pay in return and told the university. David received a service award from the university. This is not the first time David has been recognized for helping others. In high school, David's volunteer work helping children with their reading earned him a small scholarship prize.

The vignette describing the unlikable person was as follows:

> David is a 20-year-old student at a large state university. He majors in biology, and is also interested in political science. Outside class, he doesn't participate in any intramural activities, because he considers them boring and a waste of time. On weekends, David prefers to spend time alone instead of with friends or with his family. Most people find David to be arrogant and unapproachable. Recently, David was in severe trouble at school. He stole a classmate's lab report in a biology class and turned it in as his own. The professor found out and reported it to the university. David is now on academic probation. This is not the first time David has been caught cheating. In high school, he plagiarized on a term paper and was suspended for three days.

Next, participants completed 30 action identification items while imagining that the target described in the vignette was the actor performing the actions. In the version of the packet with self as target, participants were asked to imagine themselves performing the actions.

The action identification items in all three versions of the packet included 10 for positive actions, 10 for neutral actions, and 10 for negative actions. These 30 items were pretested on a 7-point scale for valence. The 10 positive items had a mean rating of 5.74, the 10 neutral items had a mean rating of 4.21, and the 10 negative items had a mean rating of 2.00.

As in the BIF, each action item was supplied along with a low- and high-level identity. For example, the positive action, "tipping generously," could be identified at lower level as "adding extra money to a bill" or at higher level as "rewarding good service." Similarly, the negative action of "hitting someone" could be identified at the low level of "swinging a fist" or the high level of "hurting someone." After finishing the action identification task, participants completed the Mind Attribution Scale and positivity scales in reference to the target.

Results

Manipulation check. To verify that the likable actor was evaluated more positively than the unlikable actor, the rating of liking was entered into a between-participants ANOVA. Ratings made in the condition in which participants imagined themselves were also included in the analysis. The three conditions differed significantly in liking, $F(2, 89) = 83.53$, $p < .001$. Newman–Keuls analysis showed that the unlikable actor ($M = 2.23$, $SD = .94$) was liked significantly less than in both the likable actor ($M = 5.14$, $SD = 1.06$) and the self conditions ($M = 5.55$, $SD = 1.23$, $p < .05$).

Ratings in the likable other and self conditions did not differ significantly.

Action identification. Scores for positive, neutral, and negative items were combined to create three separate action identification indices (with higher scores indicating higher level identifications). The overall identification level was highly reliable (Cronbach's $\alpha = .88$). Reliabilities of the identification level indices were somewhat reduced for positive actions (.85), neutral actions (.75), and negative actions (.49). Although these reliabilities were lower than what was expected, the pretest data indicated that these actions fit together with regard to valence. Scores for these indices were examined in a 3 (likable actor, self, or unlikable actor) × 3 (good, neutral, and bad actions) ANOVA with repeated measures on the second variable.

As in the prior studies, the results revealed a main effect of target valence, $F(2, 87) = 53.87$, $p < .001$, $\eta^2 = .55$. Across action valences, actions performed by the likable actor were identified at a higher level ($M = 7.64$) than were the actions of the self ($M = 5.55$), which were in turn identified at a higher level than actions performed by the unlikable actor ($M = 3.61$). Newman–Keuls analysis showed that all pairwise differences were significant ($p < .05$) in each case. We examined the consistency of this effect across action valence by testing the simple main effect of actor valence at each level of action valence. This effect was significant for positive actions, $F(2, 87) = 56.88$, $p < .001$, for neutral actions, $F(2, 87) = 38.30$, $p < .001$, and for negative actions, $F(2, 87) = 12.76$, $p < .001$. To examine whether positivity mediated action identification across all action subsets, we conducted a series of regressions. When positivity was regressed on condition, we found a significant relationship ($\beta = -.757$, $p < .001$). When action identification was regressed on positivity, we found a significant relationship ($\beta = .560$, $p < .001$); however, when action identification was regressed on both variables, the influence of the likability manipulation was significantly reduced, Sobel $z = -4.58$, $p < .001$. The results suggest that full mediation as the variable of condition was no longer significant when included in the regression with positivity ($\beta = .157$, $p > .05$). These results diverged from those of Studies 2 and 3 in which positivity was not shown to mediate action identification. This inconsistency may be due to the requirement to identify a wide range of actions for people ranging from very negative to very positive. The inclusion of a "self" condition may also have contributed to this result.

The data also indicate that the self takes a place not at the highest level of identification but rather at a level below that of a highly likable fictional person. This suggests a potential self–other difference in action identification that could be worthy of further investigation. However, the relatively impoverished stimulus representing the other in this study—a brief vignette—might also be responsible for the observed effect.

The results also reveal a significant main effect of action valence, $F(2, 174) = 4.96$, $p < .01$, $\eta^2 = .054$. A within-participants contrast ($<112s$: 2, -1, -1) revealed that, across actors, positive actions ($M = 6.01$, $SD = 3.12$) were identified at a significantly higher level than both neutral ($M = 5.41$, $SD = 2.69$) and negative actions ($M = 5.33$, $SD = 1.93$), $F(1, 87) = 7.64$, $p < .01$, $\eta^2 = .08$. The levels at which negative and neutral actions were identified did not differ significantly. This effect suggests that regardless of the actor's valence, socially desirable actions are identified at higher levels than undesirable ones.

Finally, as predicted, a significant interaction between actor valence and action valence was found, $F(4, 174) = 16.38$, $p < .001$, $\eta^2 = .27$ (see Figure 1). Three linear contrasts were performed, one for each actor, to assess interaction between actor and action valence. For each contrast, weights of 1, 0, and -1 were used, with "1" indicating a positive action, "0" a neutral action, and "–1" a negative action. For likable actors, the results indicated that positive actions were identified at a higher level than were negative actions, $t(28) = 4.55$, $p < .001$. For the self, positive actions were also identified at higher levels than were negative actions, $t(30) = 4.72$, $p < .001$. The reverse pattern, however, was found for unlikable actors. For these actors, negative actions were identified at a significantly higher level than positive actions, $t(29) = -3.38$, $p < .005$.

Mind attribution. Overall mind attribution varied significantly by actor valence, $F(2, 87) = 31.64$, $p < .001$, $\eta^2 = .42$. Polynomial contrast analysis indicated that mind attribution for self ($M = 5.92$, $SD = .64$) was significantly greater than the combined mind attribution for liked and disliked other ($M = 4.87$, $SD = .63$), $F(1, 87) = 54.34$, $p < .001$. This analysis also showed that mind attribution for the liked other ($M = 5.11$, $SD = .52$) was significantly greater than mind attribution for the disliked other ($M = 4.63$, $SD = .75$), $F(1, 87) = 8.50$, $p < .005$. To examine whether positivity mediated overall mind attribution, we conducted a series of regressions. When positivity was regressed on condition, we found a significant relationship ($\beta = -.757$, $p < .001$). When mind attribution was regressed on positivity, we found a significant relationship ($\beta = .615$, $p < .001$). However, when mind attribution was regressed on both variables, the influence of the likability manipulation was significantly reduced, Sobel $z = -2.08$, $p < .05$, yet the results only suggest partial mediation as the variable of condition remained significant when included in the regression with positivity ($\beta = -.481$, $p < .001$). These results are consistent with those of the prior two studies in which the likability manipulation influenced mind attribution via positivity for the target person. Unlike the previous studies however, a factor(s) other than positivity also influenced mind attribution. This inconsistency could be due to the complex experimental design and deserves further exploration in future studies.

We also explored the subscales of the Mind Attribution Scale. Intention attribution was shown to vary significantly by actor valence, $F(2, 87) = 16.77$, $p < .001$, $\eta^2 = .28$. Polynomial contrasts indicated that intention attribution for self ($M = 6.28$,
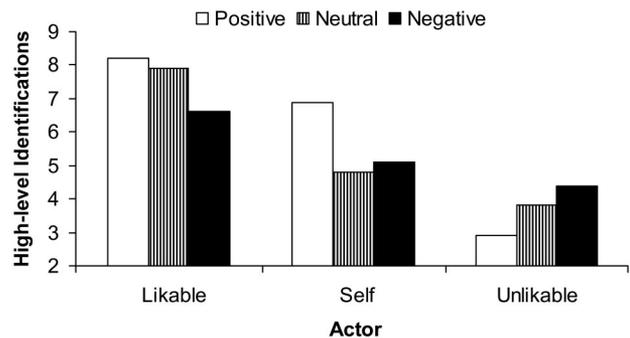

Figure 1. Level of action identification as a function of actor and action valence in Study 4.

$SD = .63$) was significantly greater than the combined intention attribution for liked and disliked other ($M = 5.31$, $SD = .90$), $F(1, 87) = 28.19$, $p < .001$. This analysis also showed that intention attribution for the liked other ($M = 5.55$, $SD = .82$) was significantly greater than intention attribution for the disliked other ($M = 5.07$, $SD = .99$), $F(1, 87) = 5.11$, $p < .03$.

Cognition attribution also varied significantly by actor valence, $F(2, 87) = 17.25$, $p < .001$, $\eta^2 = .28$. Polynomial contrasts indicated that cognition attribution for self ($M = 5.43$, $SD = 1.07$) was significantly greater than the combined cognition attribution for liked and disliked other ($M = 4.48$, $SD = .78$), $F(1, 87) = 21.23$, $p < .001$. Cognition attribution for the liked other ($M = 4.92$, $SD = .75$), in turn, was significantly greater than cognition attribution for the disliked other ($M = 4.06$, $SD = .91$), $F(1, 87) = 12.94$, $p < .01$.

In the case of emotion attribution, the significant effect of actor valence, $F(2, 87) = 16.28$, $p < .001$, $\eta^2 = .28$, was entirely due to differences in emotion attribution to self versus others. Polynomial contrasts indicated that emotion attribution for self ($M = 6.04$, $SD = .91$) was significantly greater than the combined emotion attribution for liked and disliked other ($M = 4.82$, $SD = .99$), $F(1, 87) = 31.76$, $p < .001$. Emotion attribution for the liked other ($M = 4.93$, $SD = .94$) was not different from emotion attribution for the disliked other ($M = 4.72$, $SD = 1.04$), $F(1, 87) < 1$. Thus, as in Study 3, emotion attribution did not function in the same way as the other mind attribution components. As in the previous study, there was no observed tendency for emotion attribution to be related to positivity toward the actor. In general, then, people accorded greater capacity for mind to self than to the fictional others they encountered in vignettes, but among fictional others, they attributed mind, specifically intention and cognition, more often to the positive target person.

Correlations. Correlational analyses indicated that overall mind attribution was significantly correlated with overall action identification level, $r(88) = .26$, $p < .02$. Correlations between each of the three subscales of the Mind Attribution Scale and action identification scores for the three action valences revealed significant positive correlations between the identification of positive actions and attributions of intention and cognition, respectively, $r(88) = .35$, $p < .001$, and $r(88) = .34$, $p < .001$. The remaining seven correlations were positive but nonsignificant.

Across all conditions, liking for the target was related to overall mind attribution, $r(88) = .57$, $p < .001$, and to each of the components of mind attribution (all rs $> .40$, $p < .001$, in each case). Liking for the target was similarly related to overall action identification level, $r(88) = .54$, $p < .001$, and was also significantly related in a positive direction to level of identification for positive, neutral, and negative actions (all rs $> .29$, $p < .005$, in each case).

Discussion

The findings show that, across actions of all valences, people are likely to identify the actions of those they like at a higher level than those they dislike, with identification of the actions performed by self falling in between. Thus, the correlation between positivity and action identification is not perfect—

positivity ratings for self were very high, but action identifications for self were more moderate. It may be that the identification of one's own actions is subject to the pressures involved in achieving an understanding of the action that will facilitate its performance. It may also be the case that when people identify their own actions, they focus on the level of identification consistent with their expertise in the action (Vallacher & Wegner, 1987; Wegner & Vallacher, 1986). The expertise factor may reduce the influence of variables like positivity and mind attribution that were measured in this study.

The results also suggest that the action valence affects action identification. In general, positive actions are identified more at higher levels than are neutral or negative actions. Moreover, these main effects are moderated by an interaction between actor and action valence: Actions are identified at higher levels when their valence is the same as the valence of the actor. For liked actors, positive actions are identified at higher levels than are negative actions, whereas for disliked actors, negative actions are identified at higher levels. This pattern resembles the pattern of action descriptions associated with the linguistic intergroup bias (Maass, Milesi, Zabbini, & Stahlberg, 1995; Maass, Salvi, & Arcuri, 1989). This research finds that people describe the positive behaviors of in-group members at more abstract levels than they do the positive behaviors of out-group members and describe the negative behaviors of in-group members in more concrete terms than they do the negative behaviors of out-group members. The resemblance between the linguistic intergroup bias and the actor–action consistency prediction may be superficial, though, because action identification levels involve means–ends distinctions rather than levels of abstraction (Vallacher & Wegner, 1985). One might "push a button" (higher level) by "moving a finger" (lower level), for example, with no clear difference in abstractness or concreteness between these act identities.

In Studies 2 and 3, differences in action identification levels were associated with, but not mediated by, positivity. In Study 4, we found evidence of mediation. This inconsistency suggests that further research is needed to clarify the relationship between positivity and action identification. The results of Studies 2 and 3 suggest that positivity may not be the mechanism directly underlying differences in action identification. Perhaps a more direct mediator of action identification could be perspective-taking. Research on perspective-taking suggests that people are more willing to adopt the perspective of a person they like (McPherson-Frantz & Janoff-Bulman, 2000). By adopting another's perspective, one is able to better appreciate a person's mental states, goals, thoughts, and feelings. Perhaps, then, this is the mechanism through which liking leads to higher levels of action identification. In the next study, the degree to which a person adopted another's perspective was manipulated in an attempt to isolate the mechanism that leads people to form high-level identifications for another person.

Study 5: Perspective-Taking as a Mechanism in Action Identification and Mind Attribution

In the prior studies, the degree of positivity felt for a person by a perceiver was manipulated, because prior evidence suggests that people are more inclined to take the perspective of those they like (e.g., Idson & Mischel, 2001; McPherson-Frantz & Janoff-

Bulman, 2000). In Study 5, perspective-taking was actively manipulated to gain a clearer sense of its role in action identification and mind attribution. As in Studies 1–3, the actions included in the action identification measure were neutral.

Method

Participants.   Forty-three Harvard undergraduates (23 men, 20 women) participated in exchange for research credit in their introductory psychology course.

Design and procedure.   Participants read a vignette that described a neutral target. After reading the vignette, participants were given one of two sets of instructions. One set of instructions advised participants to take the perspective of the fictitious person (cf. Stotland, 1969) as follows:

> Please read the following description and really try to put yourself in the shoes of the person described. Imagine yourself as actually taking on the role of this person. Think about what this person might be thinking or feeling.

The second set of instructions asked participants to take a more objective external view:

> Please read the following description and imagine yourself in the same room as this person. Imagine you are observing this person from across the room, attempting to learn what you can about him. Pay attention to his mannerisms and physical traits.

Participants then took a few minutes to write down their observations about this person. The purpose of this was to allow participants to imagine either this person's perspective or some of his external characteristics. Participants then completed the action identification task, Mind Attribution Scale, and the positivity scales.

Results

Ratings of positivity.   The positivity index made up of the mean ratings for liking, respect, goodness, and similarity (Cronbach's $\alpha = .77$) revealed no significant difference in positivity between the two conditions.

Level of action identification.   Participants who adopted the person's perspective made significantly more high-level identifications for his actions ($M = 15.91$, $SD = 4.95$) than did those in the objective condition ($M = 13.14$, $SD = 3.69$), $F(1, 41) = 4.29$, $p < .05$, $\eta^2 = .10$.

Mind attribution.   Mind Attribution Scale scores and indices for cognition, motivation, and emotion that were entered into separate ANOVAs indicated no significant differences between targets.

Correlations.   Although there were no differences across conditions in either positivity or mind attribution, a significant correlation was found between positivity and degree of mind attribution: The more positively participants felt toward the target, the higher the degree of mind attribution they made for him, $r(43) = .39$, $p = .01$. In contrast to prior studies, significant relationships were not observed between level of action identification and mind attribution or between action identification and positivity ratings.

Discussion

The results of mediation analyses in Studies 2 and 3 indicated that positivity did not mediate the influence of manipulated variables on action identification scores. The results of Study 5 suggest that a mediating factor might instead be perspective-taking. Those participants who took the target's perspective identified his actions at higher levels than did participants who did not take the target's perspective. In adopting another person's perspective, a perceiver may be more likely to consider the goals and purposes underlying the person's behavior than to focus on external attributes. Previous studies have shown that perspective-taking can be induced by positive appraisals of a target (McPherson-Frantz & Janoff-Bulman, 2000). Perhaps in Studies 2 and 3, those positive appraisals led to perspective-taking on the part of participants, which then led to increases in levels of action identification. Consistent with this causal chain is the fact that perspective-taking did not increase liking in the present study. This suggests that the path from liking to perspective-taking to action identification may be unidirectional.

The absence of relationship between mind attribution and action identification and between action identification and positivity in this study differed from the prior studies. Because perspective-taking did not affect mind attribution in this study, and positive appraisals mediated mind attribution scores in the prior studies, it may be that positive appraisals drive mind attribution directly rather than first inducing perspective-taking. These results also argue against a demand effect interpretation of the differences in action identification found across conditions in the prior studies. Although the perspective-taking instructions were explicit, demand effects would have likely produced a difference in mind attribution, which was not the case.

Thus, although action identification and mind attribution are related, as indicated by positive correlations between the measures in Studies 1–4, different mechanisms may be associated with the two processes. Further investigation is needed to clarify the causal pathway between liking, action identification, and mind attribution.

General Discussion

An association between level of action identification and mind attribution was observed in four of the five studies. When participants identified a person's actions at a level that encompassed underlying goals and intentions, they also recognized this person's mental capacities, particularly for intention and cognition. Liking for the target was both measured (Study 1) and manipulated (Studies 2, 3, and 4) to ascertain its role in action identification and mind attribution. Studies 1–4 revealed strong positive relationships among positivity (encompassing liking, respect, goodness, and similarity), action identification, and mind attribution. In Studies 2–4, by manipulating liking, we induced participants to not only rate the targets more positively but to identify their actions at higher levels and to attribute to them greater capacities for mind overall, as well as for intention and cognition, specifically. Although ratings of positivity mediated attributions of mind in Studies 2 and 3, they did not mediate action identification in these studies. The results of Study 4 were broadly consistent with the prior studies; in addition, we found an actor–action consistency bias. Participants rated liked persons' good actions at relatively higher levels and disliked persons' bad actions at relatively higher levels. Finally, the results of Study 5 showed that ma-

nipulating perspective-taking induces people to identify others' actions at higher levels but does not affect liking or mind attribution. The results of all five studies indicate that action identification and mind attribution are related, but although mind attribution is directly driven by positivity, action identification may be directly driven by perspective-taking, which itself can be driven by liking.

From Mind Attribution to Action Identification

One goal of this research was to establish a relationship between action identification and mind attribution. Studies 1–4 established that the constructs are closely related, and that both are generally correlated with positive feelings for the actor. Although mind attribution seems to stem directly from those positive feelings, action identification does not. Thus, the constructs are clearly distinguishable. In Study 5, no relationship was found between action identification and mind attribution. It is possible that in the prior studies, action identification and mind attribution were related because both were associated with feelings of positivity for the target person. Positive feelings for another individual may lead directly to greater attributions of mind and indirectly, via perspective-taking, to high-level identifications for this person's actions. However, as shown in Study 5, if the initial step of generating positivity is eliminated and perspective-taking is induced, higher levels of identification will result but greater attributions of mind will not.

This result highlights a distinction between the two constructs. Mind attribution requires that a person acknowledge an actor's global capacity for thought and intention but does not determine what those thoughts and intentions are. By contrast, action identification requires a perceiver to consider the specific contents of an actor's mind during the performance of an action. It appears that perspective-taking stimulates a perceiver to consider the specific contents of a person's mind but not to change his or her assessment of the global mental capacities of that person. Rather, changing one's assessment of a person's global mental capacities may be more directly stimulated by positive appraisals of the person.

From Liking to Mind Attribution and Action Identification

These studies also revealed the central role of liking for the target in both mind attribution and action identification. The roughly equivalent strengths of the relationship between the variables made elucidating the specific causal pathways difficult, but whereas liking was consistently shown to be associated with high levels of action identification, positivity garnered from the likability of targets was not directly implicated in mediating the influence of the manipulated features of targets on action identification in Studies 2 and 3. Although in Study 4 liking ratings did mediate action identification, this effect may have resulted from the wide range of actions identified or from the inclusion of the "self" condition, in addition to the liked and disliked targets. Study 4 showed that the level of action identification for liked targets was even higher than the level for self. Although people did express equal liking for themselves as for the liked other, it may be that people are privy to both low-and high-level aspects of their own behavior, thus resulting in more moderate identifications.

Action–Actor Consistency

Liking appears to increase the identification levels of all manner of actions, from the very positive to the very negative, as seen in Study 4. However, this study also revealed a tendency for high-level identifications to occur when actor and action are consistent in valence—a pattern also congruent with the linguistic intergroup bias effect (Maass et al., 1989; Maass et al., 1995). If a person likes a target, the person will identify that target's positive actions at higher levels and negative actions at relatively lower levels. If a perceiver dislikes a target, then the perceiver identifies the target's negative actions at higher levels and positive actions at relatively lower levels.

The Nature of Mind Attribution

By creating a scale meant to capture global attributions of mind to a target person, an a priori assumption was made that mind attribution is characterized by three components: the cognition, intentions, and emotions experienced by the target. Although the results consistently demonstrated that people made greater attributions of intention and cognition to liked others than to disliked others, the results were less consistent with respect to the attribution of emotion. In Studies 3 and 4, no liking-based differences in emotion attribution were seen. It may be that liking for a target does not influence the attribution of emotion to the target, because emotion is more readily or widely attributed to people than are cognition and intention.

Much like positivity, action identification was also consistently related to intention and cognition attribution but not to emotion attribution. Emotion attribution did not predict action identification in any of the studies. This may have been due to the nature of action identification. In general, the higher level identifications are directly relevant to the actor's ongoing thoughts and intentions but are less relevant to emotional processes such as experiencing pleasure and pain. One could imagine an action identification scale composed of more emotional items in which a person is not, for example, simply "smiling" but "conveying gratitude," that might be more tightly correlated with emotion attribution.

Action Identification and the Diagnosis of Mind Attribution

The Mind Attribution Scale asks perceivers to make potentially harsh judgments of a target. After all, most humans should agree that other humans think, have goals, emote, and so forth. To rate a target as unlikely to exhibit these human capacities is something of an insult. Given the transparency of the questions about mind attribution, participants' judgments of the targets may have been biased by their desire to respond in a socially appropriate way. As Leyens and colleagues (2000) observed, when people dehumanize others, it is generally by devaluing their most intricate emotional states rather than ignoring their obvious sensitivity to pain or pleasure. Perceivers may feel compelled to acknowledge the basic features of other

humans' minds, even the minds of enemies, simply to look the part of a sensible judge of other minds.

This is one strength of the action identification scale as a measure of mentalization. People may identify the actions of others at higher or lower levels without fully realizing that their identifications imply more or less appreciation of the other's mind. Levels of action identification follow the contours of mind attribution but in a way that is likely to escape the attention of perceivers and thus fail to be noticed in perceivers' attempts to appear unprejudiced in their social perceptions. Level of action identification may be a useful tool for registering variations in mind attribution, and perhaps also positivity of feelings, in a way that is not easily monitored by the social perceiver.

Conclusions

As a rule, the extent to which a perceiver imbues a target person with intentions, thoughts, and emotions has been thought to reflect the abilities of the perceiver. Children are initially unable to represent others' thoughts and intentions but become able to do so as they mature (Frith & Frith, 2003). Certain populations of adults remain impaired in understanding others' internal states; such an inability is a hallmark of serious psychological disorders such as autism and Asperger's syndrome (Baron-Cohen, 1995). The present studies suggest that representing others' internal states, specifically those of intention and cognition, may not only be influenced by the mental capacities of the perceiver. Rather, the process of mentalization may also be influenced by the perceiver's feelings toward the target and as such may be flexible across time and situation. Even an adult fully capable of mentalizing other individuals might fail to do so in certain instances, such as if the target is disliked. Disliked targets are dementalized, and this manifests itself in both low-level identifications as well as reduced attributions of mind. The results of this research suggest that liking may influence specific (action identification) and global attributions of mind via different mechanisms and highlight the impact of the actor–perceiver relationship on perceptions of agency.

References

Ames, D. R. (2004). Inside the mind reader's tool kit: Projection and stereotyping in mental state inference. *Journal of Personality and Social Psychology, 87,* 340–353.

Austin, J. L. (1961). *Philosophical papers.* London: Oxford University Press.

Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (1996). Mechanisms of moral disengagement in the exercise of moral agency. *Journal of Personality and Social Psychology, 71,* 364–374.

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.

Baron-Cohen, S. (1995). *Mindblindness: An essay on autism and theory of mind.* Cambridge, MA: MIT Press.

Barrett, H. C., Todd, P. M., Miller, G. F., & Blythe, P. W. (2005). Accurate judgments of intention from motion cues alone: A cross-cultural study. *Evolution and Human Behavior, 26,* 313–331.

Carey, S. (1996). Cognitive domains as modes of thought. In D. R. Olson & N. Torrance (Eds.), *Modes of thought: Explorations in culture and cognition* (pp. 187–215). New York: Cambridge University Press.

Carruthers, P., & Smith, P. K. (1996). (Eds.). *Theories of theories of mind.* Cambridge, England: Cambridge University Press.

Cortes, B. P., Demoulin, S., & Rodriguez, R. T. (2005). Infrahumanization or familiarity? Attribution of uniquely human emotions to the self, the in-group, and the out-group. *Personality & Social Psychology Bulletin, 31,* 243–253.

Danto, A. (1963). What we can do? *Journal of Philosophy, 40,* 435–445.

Frith, U., & Frith, C. D. (2003). Development and neurophysiology of mentalizing. *Philosophical Transactions: Biological Sciences, 358,* 459–473.

Galinsky, A. D., & Moskowitz, G. B. (2000). Perspective-taking: Decreasing stereotype expression, stereotype accessibility, and in-group favoritism. *Journal of Personality and Social Psychology, 78,* 708–724.

Goldman, A. (1970). *A theory of human action.* Princeton, NJ: Princeton University Press.

Heider, F. (1958). *The psychology of interpersonal relations.* New York: Wiley.

Heider, F., & Simmel, M. (1944). An experimental study of apparent behavior. *American Journal of Psychology, 57,* 243–259.

Hodges, S., & Wegner, D. M. (1997). Automatic and controlled empathy. In W. J. Ickes (Ed.), *Empathic accuracy* (pp. 311–339). New York: Guilford Press.

Hoffman, C., Mischel, W., & Mazze, K. (1981). The role of purpose in the organization of information about behavior: Trait-based versus goal-based categories in person cognition. *Journal of Personality and Social Psychology, 40,* 211–225.

Idson, L. C., & Mischel, W. (2001). The personality of familiar and significant people: The lay perceiver as a social-cognitive theorist. *Journal of Personality and Social Psychology, 80,* 585–596.

Johansson, G. (1973). Visual perception of biological motion and a model for its analysis. *Perception and Psychophysics, 14,* 201–211.

Johnson, S. C. (2003). Detecting agents. *Philosophical Transactions: Biological Sciences, 358,* 549–559.

Keysar, B., Barr, D. J., Balin, J. A., & Brauner, J. S. (2000). Taking perspective in conversation: The role of mutual knowledge in comprehension. *Psychological Science, 11,* 32–38.

Kruglanski, A. W. (1975). The endogenous–exogenous partition in attribution theory. *Psychological Review, 82,* 387–406.

Lerner, M. J. (2003). The justice motive: Where social psychologists found it, how they lost it, and why they may not find it again. *Personality and Social Psychology Review, 7,* 388–389.

Lerner, M. J., & Miller, D. T. (1978). Just world research and the attribution process: Looking back and ahead. *Psychological Bulletin, 85,* 1030–1051.

Levy, S. R., Freitas, A. L., & Salovey, P. (2002). Construing action abstractly and blurring social distinctions: Implications for perceiving homogeneity among, but also empathizing with and helping, others. *Journal of Personality and Social Psychology, 83,* 1224–1238.

Leyens, J., Paladino, P., Rodriguez-Torres, R., Vaes, J., Demoulin, S., Rodriguez-Perez, A., & Gaunt, R. (2000). The emotional side of prejudice: The attribution of secondary emotions to in-groups and out-groups. *Personality and Social Psychology Review, 4,* 186–197.

Maass, A., Milesi, A., Zabbini, S., & Stahlberg, D. (1995). Linguistic intergroup bias: Differential expectancies or in-group protection? *Journal of Personality and Social Psychology, 68,* 116–126.

Maass, A., Salvi, D., & Arcuri, L. (1989). Language use in intergroup contexts: The linguistic intergroup bias. *Journal of Personality and Social Psychology, 57,* 981–993.

Malle, B. F., & Pearce, G. E. (2001). Attention to behavioral events during interaction: Two actor-observer gaps and three attempts to close them. *Journal of Personality and Social Psychology, 81,* 278–294.

Mashek, D. J., Aron, A., & Boncimino, M. (2003). Confusions of self with close others. *Personality & Social Psychology Bulletin, 29,* 382–392.

McPherson-Frantz, C., & Janoff-Bulman, R. (2000). Considering both sides: The limits of perspective-taking. *Basic & Applied Social Psychology, 22,* 31–42.

Nickerson, R. S. (1999). How we know—and sometimes misjudge—what others know: Imputing one's own knowledge to others. *Psychological Bulletin, 125,* 737–759.

Premack, D., & Woodruff, G. (1978). Does the chimpanzee have a theory of mind? *Behavioral and Brain Sciences, 1,* 515–526.

Schneider, D. J., Hastorf, A. J., & Ellsworth, P. (1979). *Person perception* (2nd ed.). Reading, MA: Addison Wesley.

Stotland, E. (1969). Exploratory studies of empathy. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 4). New York: Academic Press.

Vallacher, R. R., & Wegner, D. M. (1985). *A theory of action identification.* Hillsdale, NJ: Erlbaum.

Vallacher, R. R., & Wegner, D. M. (1987). What do people think they are doing? Action identification and human behavior. *Psychological Review, 94,* 3–15.

Vallacher, R. R., & Wegner, D. M. (1989). Levels of personal agency: Individual variation in action identification. *Journal of Personality and Social Psychology, 57,* 660–671.

Wegner, D. M. (2002). *The illusion of conscious will.* Cambridge, MA: MIT Press.

Wegner, D. M., & Giuliano, T. (1982). The forms of social awareness. In W. J. Ickles & E. S. Knowles (Eds.), *Personality, roles, and social behavior* (pp. 165–198). New York: Springer-Verlag.

Wegner, D. M., & Vallacher, R. R. (1986). Action identification. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (pp. 550–582). New York: Guilford Press.