

Empathy and Instinct: Cognitive Neuroscience and Folk Psychology

ANNE JAAP JACOBSON

University of Houston, USA

(Received 23 February 2009)

ABSTRACT *Might we have an instinctive tendency to perform helpful actions? This paper explores a model under development in cognitive neuroscience that enables us to understand what instinctive, helpful actions might look like. The account that emerges puts some pressure on key concepts in the philosophical understanding of folk psychology. In developing the contrast, a notion of embodied beliefs is introduced; it arguably fits folk conceptions better than philosophical ones. One upshot is that Humean insights into the role of empathy and instinct in the production of helpful actions are affirmed.*

Mr. Autrey was waiting for the downtown local at 137th Street and Broadway in Manhattan around 12:45 p.m. He was taking his two daughters, Syshe, 4, and Shuqui, 6, home before work.

Nearby, a man collapsed, his body convulsing. Mr. Autrey and two women rushed to help, he said. The man, Cameron Hollopeter, 20, managed to get up, but then stumbled to the platform edge and fell to the tracks, between the two rails.

The headlights of the No. 1 train appeared. “I had to make a split decision,” Mr. Autrey said.

So he made one, and leapt.

Mr. Autrey lay on Mr. Hollopeter, his heart pounding, pressing him down in a space roughly a foot deep . . .

. . .

Correspondence Address: Professor Anne Jaap Jacobson, 510 Agnes Arnold Hall, Department of Philosophy, University of Houston, Houston, Texas, TX 77204-3785, USA. Email: ajjacobsen@uh.edu

"I don't feel like I did something spectacular; I just saw someone who needed help", Mr. Autrey said. "I did what I felt was right".¹

While Mr. Autrey's capacity for risking his safety for that of a stranger is remarkable, human beings can and sometimes do act to benefit others. If we are walking across campus and someone nearby stumbles and scatters possessions around, many of us will often stop to help. Why does anyone do such a thing?

The central purpose of this paper is to investigate the way in which recent cognitive neuroscience makes available a new perspective on this question. This new approach can also be understood as providing an account of at least some folk explanations of action that are distinct from those traditionally attributed to them. The investigation will also introduce a new notion of embodied beliefs.

I. Hume and helpful actions

Of course, there are a number of possible explanations of why we help someone, and any one of them might be applicable, given we have no other information. One kind of answer that students often give when I bring up the topic appeals to self-interest. One version of this might be that in helping one looks to be a good person to people around, while if one doesn't, one looks to have a less commendable character. Another might be that we are trying to bank good-will, so that if we deposit some, we'll be able to withdraw it later. Similarly, we might see ourselves as upholding the idea of a helpful society in light of our knowledge that we will need help ourselves at some time. And others might think that parental training has a large role in our helpful behavior.

Hume² provides us with two theses about such helpful actions that students do not ordinarily think of. One is that part of what leads to our helping others is what he called "sympathy", or our ability to feel what others are feeling. Thus, we can, it seems, feel the distress of others. For example, the sight of a fearful face may arouse our apprehension or fear. The thesis that we come to share others' feelings is now well-accepted,³ even though Hume's causal reasoning explanation of how it happens is not.

When we feel someone's pain why does that ever lead to helpful actions; why not just get rid of the source of the pain by turning away? Is it just that helping means the feeling goes away more quickly? Hume's answer comes with the second component in this account, an appeal to what we can call instinct.

We will use "instinct" to capture an important feature of Hume's moral thought, which is that we just do find securing others' welfare, at least sometimes, fundamentally rewarding; that is, the reward's value does not rest on another reward. This use of the word is not entirely faithful to Hume's texts. He uses the word "instinct" in two different contexts, one having to do with

beliefs and the other with some motivating passions. The first appears famously in his discussion of how we form beliefs about the future; the crucial factor is instinct, not reason. While instinct is opposed to reason in Hume's account of belief formation, it has a less general role in his moral philosophy. There "instinct" is used for cases where one is motivated by direct passions that simply have to be taken for features of human psychology; we just do feel and act out of those feelings.⁴ For example, one's parental love may cause actions instinctively. Part of what apparently makes "instinct" appropriate in such cases is that one has a basic motive; one's acting out of parental love to help a child is not to be explained in terms of some further goal. In answer to "Why did you rush over to pick her up", "Because I'm her parent" provides us with an answer that does not need a further explanation, at least not one in terms of goals. Parents just do care about that sort of thing.

Hume takes benevolence to have the same sort of feature; that is, people just do seek each other's good, at least sometimes, and there need be no further end in sight. We, though not Hume, will say that in acting benevolently we may be acting instinctively. In saying this, we mark the fact that, as Hume argues, acting benevolently does not need to be explained in terms of something other than concern for another's welfare. As my students pointed out, helpful actions may be motivated by self love, but Hume thinks they need not be.

We will look at the possible roles of what I shall call "empathy" (as opposed to Hume's word, "sympathy") and "instinct" in producing helpful actions. "Empathy" has a wide number of uses in the philosophical and psychological literature. "Empathy" as I am using it is very close to "emotional contagion", or simply picking up others' emotions.⁵ As such it coincides with Hume's "sympathy". However, like Humean sympathy, empathy in this paper is considered to be linked to benevolent actions. That is, there is a nomological connection between empathy and acting benevolently; the link is not a semantic link, as I employ the terms, but rather a lawful one, where the law is a psychological law.

Though I think there is such a link, the task of proving conclusively there is one goes well beyond this paper, though we will see that such a claim is getting increasing empirical support. Rather, what I want to do is to explore a new model of action that has the capacity to explain how empathy can instinctively lead to benevolent actions. One of the things most remarkable about the new picture, I think, is that it also provides an alternative to so-called folk-psychological accounts. Further, it can lead us to see that the folk's actual use of psychological terms is in accord with the new picture.

II. Folk psychology

Our discussion of empathy and instinct will be set against a very standard account of action explanation. The formulation we will use is attributable to

Davidson,⁶ though it is arguably in Hume.⁷ The view itself is typically said to capture “folk psychology”, or folk understandings of beliefs, actions and emotions. In this section, we will look at the central features of the theory. After that, we will look at how empathy and instinct can be understood in terms of recent cognitive neuroscience. The latter account presents some interesting challenges to the former, and that will be the topic of the rest of the paper.

Let us first clarify our terminology. We’ll understand “Folk Psychology” as a theory about how actions are properly explained. There is a second thesis that is also of interest to us; that is the thesis that the folk actually explain actions the way Folk Psychology says they should.

According to Folk Psychology, actions are explained by reference to a causing belief-desire pair related in a particular way. For example, “Fred went to Whole Foods to buy organic milk” means that Fred’s action of going to Whole Foods was caused by his desire for organic milk and his belief that going there would lead to his getting it. The belief-desire pair causing action A is of the form “desire for X and belief that A-ing will lead to X”.

Davidson challenged the idea that an intention to buy milk could not cause the buying of milk since there is a non-contingent connection between the intention and the buying, as previous writers had declared. He maintained instead that the intention was really the belief-desire pair and they could clearly be causes. The matter of non-contingent connections was about how the intention was described and not how it related to an action.

“Belief” and “desire” are meant to be labels for fairly broad categories. Thus, one might crave something, fancy it, have a longing for it or just want it, and all these states would go into the “desire” category. Similarly, one might believe that some action will get X or think it is quite likely or more likely than not.

According to Davidson, the belief-desire pair constitutes the agent’s reason for acting and, furthermore, such reasons rationalize the action.⁸ That is, they show what from the agent’s point of view the good of the action was. The “reason for which an action is performed”, as understood in Folk Psychology, is a special kind of reason. Having a mere reason for acting does not require that one can see the reason shows an action to be good. For example, I might be right in thinking you have good reasons to undergo radiation therapy, but you might not be aware of them. Again, it is controversial whether explanations of actions in terms of reasons need to employ only concepts the agent possesses. I might correctly describe you as thinking the Cy Twombly was an amateur work even though you do not know the artist’s name. But for the agent the reason-for-which shows an action is positively evaluable, and grasping that it does so requires mastery of the concepts. Because of this, action explanations can be seen as being deeply related to a practical syllogism of the sort:

Having an umbrella when it is raining is good.

I am about to go outside in the rain.

Hence, I will get an umbrella.

Such a syllogism reflects a slightly fuller underpinning to “She got the umbrella because she was about to go outside in the rain” when the statement gives the reason for which the agent acted.

The idea that the folk do have such a causal theory of action explanation and that it is a good theory has been close to an orthodoxy in philosophy,⁹ though one with some dissenters.¹⁰ While most of the challengers have argued directly against the claim that the folk have such a theory, others have denied that the theory is a good theory.¹¹ Nonetheless, our goal in considering Folk Psychology is to provide a contrast for a different kind of explanation. Hence, we will not look at past challenges.

As we have seen, beliefs and desires figure very prominently in the folk psychological account. If we take “The White House is in Washington, DC” as an example of a belief, we can see that it has content and aboutness. It is about the White House and Washington, DC, and it says the first is in the second. The statement that specifies its content also has satisfaction conditions; in this case, it is true. A desire to see the White House also has a content and aboutness, but it is not true or false; nonetheless, it is satisfied or not satisfied.

Philosophers call such states “propositional attitudes” and often think of them as consisting in attitudes towards propositions, where the latter provide the sense and confer the aboutness and the satisfaction conditions. According to these theorists, propositional attitudes should be thought of as internal states that can be, and often are, the causes of actions, emotions, desires and beliefs, among other things. Beliefs, which we will now focus on, are often considered to be either token-identical to or realized in some brain state or process and thus supervenient on it. The brain state or process can be considered a vehicle for the content. The content may depend on the environment in a number of ways—for example, if I believe that boy grabbed my wallet, which boy my belief is about depends on my environment—but the vehicle is thought of as being wholly internal.

If the role of belief in the production of an action is mirrored by a practical syllogism, then it seems that the belief has to be the product of some conceptualizing. Not every specification of a belief has to use concepts that the believer has, as the Cy Twombly example above illustrates. However, we cannot correctly represent an action as the product of practical reason unless the agent has done some cogitating about what figure as the premises. Even without this context, beliefs are thought of in philosophy as at least partially the product of conceptualization. Because conceptualization is tied to language use in philosophy, the status of non-language users as believers is problematized.

Another factor that will be important later is that philosophers typically also distinguish between beliefs and perceptions.¹² While philosophers allow

that we have perceptual beliefs—beliefs which may have the same content as the perception—these beliefs are not identical to, nor part of, the perception. As a consequence, the connection between the environment and action is mediated by both perception and belief. Before we proceed, however, we need to consider some topics that, while not featuring explicitly very much in what follows, are important for understanding it.

III. Representations, methodology and schemas

The current analytic philosophy community seems largely to agree on a model of the mind's cognitive relation to the environment. On this model, the mind has states that are about the environment, which are said to be mental representations. I have argued elsewhere that there is another model of the mind that is present in ancient, medieval, and early modern philosophy, and in cognitive neuroscience.¹³ According to this model, the mind realizes states of the environment external to it. The metaphysics behind this model has varied with those holding it; for Aristotle and Aquinas we have forms present in the world and realized also in us, while for cognitive neuroscience, we have mathematical transformations of features of the world realized in us. Thus Jamie Ward describes representations as features of the world manifested in our brains,¹⁴ and Peter Dayan¹⁵ speaks of spiking patterns “encoding” environmental features where the relation between the encoded and the encoding is not some semantical relation, but rather one of simple mathematical transformation of one into the other.

Were it not for the fact that “represents” and “representation” are used abundantly in many texts employing the second model, it might be best to avoid using the term. However, they are, and so I have called this second sort of representation “Aristotelian representations”, in honor of the philosopher who first worked out a theory about them. For somewhat similar reasons, I have called the first sort “Fodorian representations”.¹⁶

Fodorian representations have content and satisfaction conditions; Aristotelian representations do not. The contrast is at least close to a contrast between verbal descriptions and examples. A verbal description of the color of a coat may be true or false, while a color swatch of the same color is not. An Aristotelian representation represents by realizing features. While philosophers may want to interpret Aristotelian representations as Fodorian representations, there are a number of reasons not to do so. One is that they are often described in ways that are incompatible with that interpretation. For example, Aristotle, Locke and Hume explicitly deny that Aristotelian representations have truth-conditions. More recently, cognitive neuroscientists talk about how pain is represented in the brain, and they are not talking about how the brain has states about pain that are true or false. In the literature about the mind's ability to mirror others' emotions and actions, one person's representation of another's emotion is

a realization of the same kind of emotion and not some state about the other person that is true or false.

There are other more methodological reasons for resisting the construal of Aristotelian representations as Fodorian representations. One of these is that Fodorian representations are heavily involved in a language-based model of mind states that antedates the recent explosive development of cognitive neuroscience. Advocates of them are in effect imposing a prior model of the mind on neuroscience. Methodologically, it is at least as interesting to refrain from doing that in order instead to find a model of the mind in cognitive neuroscience.

There is another methodological point that one can see as resulting from the first. Philosophers today find it easy to understand the mind as full of states with semantic properties such as content and satisfaction conditions. Talk about beliefs and desires appear, then, to be reports about such states, and folk discussions of wanting and believing are construed as about these inner things. That may not be the best way to interpret what is going on. As Wittgenstein said, “If we try to use a schema here [insist on a single logical form—A.J.J.], instead of merely noting what is really common, we see everything falsely simplified.”¹⁷ Hence, in this paper, we will look at a use of “believe” and “think” that appears not to report inner semantically rich states. In the spirit of seeking a minimalist account of such utterances, we will merely describe what appears to make the usage appropriate.

Under a paradigm developed in the 1980’s, as Marco Iacoboni has pointed out, neuroscientists thought of action and perception as confined to something like separate boxes, with a cognitive function box in between. This last, according to Iacoboni, was thought of as allowing us “to plan and select our motor behavior, to attend to specific things that are relevant to us, to disregard extraneous matters, to remember names and events, and so on”.¹⁸ On such a view, it would seem rash in the extreme to jettison Fodorian representations, since they would carry the cognitive meaning. However, we are now beginning to realize that the mind needn’t work that way. For example, it is well-known that the magneto-cellular pathway in vision carries information to the sub-cortical limbic system and leads to action without anything remotely like planning. The merest glimpse of a moving snake-form and many of us jump, and when we do, it is away from the snake, not toward it. That is, this very low level processing can produce quite discriminating action-direction. The magneto-cellular pathway also carries information about facial expression, and here again we react before anything like a conceptual episode. In particular, the input is not conceptualized before action and so the feeling or action does not depend on beliefs, even though it can be directed to (or from) some item. We will look later at a model which attempts to capture some even more goal directed but belief-independent actions.

Finally, we will be using some terms in ways that require explanation. “Action schema” is used in a number of different ways in the relevant literature.

I will use it to signify that we have patterns of behavior the details of which are largely or entirely unknown to our conscious mind in advance of their execution. Nonetheless, these patterns may be extremely sensitive to the details of our environment. For example, if one walks on an irregularly uneven surface that requires variations in the placement of one's foot, there are a lot of adjustments that will be made if one just keeps one's eyes on the terrain. These adjustments are not mediated by any conscious thought and it is difficult to see how they could be, since we do not have the concepts for the details to which one needs to adjust. Describing all the different facets of the indentations one reacts to would be beyond the ordinary resources of most of us. If there is non-conceptual content in perceptual experiences, that may be because the systems that use such content do not need conceptualized input.

This paper opened with another example. Autrey performed a highly complex and context sensitive action without have the time to think about it. Among the very remarkable facts about this episode is that his actions furthered his goal of saving a life.

IV. A pattern for action initiation

How can there be purposeful action without thought? Hume saw quite early on that it is to our benefit that some things are not under the control of reason, but rather happen automatically. As he noted, with some exaggeration, instinct wins over reason:

For reason is slow in its operations; very little of it appears in early infancy; and at best—even in adults—it is extremely liable to error and mistake. . . [unlike] some instinct or automatic tendency, which can be infallible in its operations, present at the first appearance of life and thought, and independent of all the laborious deductions of the understanding.¹⁹

A related observation was made in 1911 by Whitehead:

It is a profoundly erroneous truism, repeated by all copy-books and by eminent people making speeches, that we should cultivate the habit of thinking of what we are doing. The precise opposite is the case. Civilization advances by extending the number of operations which we can perform without thinking about them. Operations of thought are like cavalry charges in a battle—they are strictly limited in number, they require fresh horses, and must only be made at decisive moments.²⁰

It is now a truism in cognitive psychology, though not in philosophy of mind, that our goals and the behavior we use to pursue them may be entirely

out of consciousness in the sense that we are unaware of having the goals and our behavior is not consciously aimed toward those goals.²¹ The literature in psychology tends to describe what is happening in terms of the familiar categories of semantically heavy internal states, but recent work in cognitive neuroscience reveals a way to understand a wide range of our behavior which instead invokes Aristotelian representations. In so doing, it lays out a pattern of action initiation which can be used to understand kinds of actions not well considered in the philosophical literature. These include actions that can be seen as both instinctive or automatic and goal directed.²²

This work highlights the role of dopamine.²³ Our initial reactions to a new and positive experience include a burst of dopamine. The dopamine burst's repetition will function as a quantitative measure of the level of reward provided by that kind of experience. Importantly, the burst of dopamine fairly quickly becomes detached from the reward and transfers to an earlier conjunct of the reward. Thus experiences of walking into a candy store can be occasions for a dopamine burst, and its quantity will be proportional to the so far experienced level of the reward itself, the pleasure of eating candy.

This routine is important for a number of reasons. One concerns our ability to update ourselves about our environment. The dopamine rush results in strengthened connections among neurons. Experiences of preceding conjuncts that are reliably followed by the reward become more vivid. That is, the frequency of the neural spikings that represent (in the sense of being a neural transformation of) those events increases.²⁴ In addition, cases in which the sign is not followed by the reward will lead to a decrease in the dopamine rush and eventually the signals are less vivid. Thus the system enables us to keep attuned to the changing contingencies in our environment.

Another reason, one particularly important for the present discussion, is dopamine's quantitative role in the brain's enactment of decision strategies. The effects of the dopamine can be modeled computationally and what we see is that the quantity of dopamine maps nicely onto the "reward" variable in some formal decision-therapeutic models. Finally, and in our context particularly importantly, the output is connected to the motor areas of the brain. One's body gets into action.

The picture I am sketching is in fact more complicated.²⁵ Though the connection between perception and action may be simple, it certainly looks as though the connection may be mediated by a dopamine-carried assessment of the reward. One's current state, including needs, also makes a difference to the values of different outcomes. Thus, food is less interesting to those whose hunger has been thoroughly satisfied. The capacity to assess the value of an outcome in light of other factors makes human behavior much less habitual. We do not always clean our plates, for example. But it does not mean that the process is the product of some episode of conceptualization.

One way to see that conceptualization has not entered the picture is to realize that the mechanism we are describing occurs on a very low level; it is

not a matter of cogitating. As we have seen above, though neuroscientists may use the term “representation” in discussing their results, they do not mean the semantic-like content that philosophers think comes with representations. Nothing in the model invokes beliefs or desires as they are understood by advocates of the folk psychological model. There are several reasons for accepting such an austere reading and so concluding that the model does not employ beliefs and desires.

- (a) First of all, the model is instantiated by many other species, many of which we would not want to say have Davidsonian belief-desire pairs, such as bees.
- (b) Secondly, one of the most important lessons of recent cognitive neuroscience is a confirmation of Hume’s view that the rapid actions of instinct are superior to the slow operations of reason. The mechanism we are looking at operates much too quickly to involve the sort of conceptualizations that is required for Davidson’s rationalizing explanations to apply.
- (c) There are serious problems in getting the content of Fodorian representations to have causal efficacy. It is not my intent here to rebut all theories of content, but we can note the familiar philosophers’ invention of a molecule by molecule duplicate created a few minutes ago that would have the causal properties of the original, but not the same contentful states on a number of theories, including Millikan’s.²⁶

One might object that the operation of the model we are looking at in fact captures well Davidsonian desires. This seems to be a mistake. It may be that any model which connects an inner state to one’s motor system in a way that initiates action can be said to characterize some notion of “desire”. However, these “urges” are very quick and low level; they are prior to practical reasoning or rationalizing. They are at such different levels of conceptualization from beliefs that they are ill-equipped for a Davidsonian project.

It is generally very important that human beings can act very quickly and often much too quickly to allow conceptualization to play much of a role:

The human mind operates largely out of view of its owners, possibly because that’s the way it evolved to work initially, and because that’s the way it works best, under many circumstances. Without such an efficient, powerful, and fast means of understanding and acting on the world, it would be difficult to survive. We would be stuck pondering every little decision, such as whether to put our left or right foot forward first, as the world sped by.²⁷

Despite the considerations just advanced, one might want to insist that the initiating causes be seen as realizing beliefs and desires. One who does so has two undischarged commitments. The first is to locate the conceptualization

in the empirical model. The second is to defend the theoretical desirability of positing inner contents as causes. This latter task has not been completed, and there are recent strong arguments for saying that it cannot be completed.²⁸ Given in addition that, as has been pointed out in this paper, causal content need not be posited to understand the cognitive neuroscience we are considering, the burden of proof is now on theorists of Folk Psychology.

Notice that as we are describing them, these actions fail Davidson's criteria for intentional actions, since they are not caused by a belief-desire pair at all, still less one of the right kind. However, they do meet Anscombe's²⁹ requirement, which is just that the question "Why?" has application. For Anscombe, it is appropriate to ask why one did it even in cases where the answer is "for no particular reason, I just did". While this claim of Anscombe's is at the bedrock of her views, which certainly eschew the inner states model espoused by Folk Psychology, a number of examples are explored in later work by Hursthouse.³⁰ For Hursthouse, there is a range of pointless actions that are nonetheless intentional; among them would be tearing up the picture of someone who has betrayed one. As Hursthouse argues, one need not do it to feel better or anything of the sort; rather, it is simple an intentional expression of one's emotion.

V. Embodied beliefs

We've seen a number of comments from philosophers and scientists about automatic, unconscious processing. However, the idea that there are action patterns that require little more than sub-doxastic processing should not be surprising even to ordinary reflection. For example, many people can successfully negotiate their way along the highly irregular terrain of a beach without injury. Taking one's eyes entirely off of one's path might be a recipe for an accident, but we do not cogitate about the sensory input we get. We can navigate even if we are engaged in an important conversation. The idea that complicated maneuverings that fit the goal of walking safely can be accomplished without planning is clearly comprehensible and even familiar. Nature has taken important things like safely negotiating our way through complicated environment largely away from thought and reason.

The picture from cognitive neuroscience that we have been looking at provides us with a causal model for these activities. What it stresses is that there are sub-doxastic connections between perception, one's current state and motor routines, and that some actions at least may be constituted by such a process, or some part of it. One way of capturing the difference between the neuroscientific model and the traditional picture is to look at an example such as one's moving to let someone through a door. On the neuroscientific account, the perception may simply trigger the action routine. Philosophers typically would add to this not just that one saw this, but that one next believed that the person was trying to get through the door. The truth in the

environment is duplicated both in one's perception and in one's belief, and must be if there is to be the action-initiating belief required by folk psychology.

This latter position does not reflect what we should expect, given how evolution tends to work. One would think that evolution has produced mechanisms for direct connections between perception and action, since evolution produces creatures that can act very rapidly if their niche requires that, as we have seen a number of researchers claim.

Mr. Autrey's case looks like a dramatic example of just this sort of case. As he said, he made a "split second" decision, and it is very unclear that that allowed time for any thought. At the same time, his own account ascribes beliefs to himself, such as that what he was going to do was right. In retrospective accounts of actions, we may well attribute to ourselves beliefs in cases where we did not at the time have the conceptualization.

We can think of these beliefs as "embodied beliefs", what makes it appropriate to say that we have an embodied belief is largely our at least partial execution of a motor routine. To take a simple case, suppose you walk down a set of stairs and stumble at the end. You say, "I thought there was another step." What can make this true is not that you had some mental state with the appropriate content, but rather that you were executing a motor routine whose successful completion required another step.

Cases of embodied beliefs can be quite complex. Suppose you are in a lecture hall with colleague and you have to fill out a form. Someone next to you leans over and hisses "Pencil". You start to pat down your clothes or pick up your brief case in an attempt to get the person a pencil. What one does not do is go through the steps suggested by practical reasoning model:

- (1) See the gesture and hear the words.
- (2) Believe that the gesture and words occurred.
- (3) Interpret them as amounting to a request with oneself as the person requested.
- (4) Consider whether or not to give the person a pen.
- (5) Decide to give the person a pen.
- (6) Consider where one might be.
- (7) Decide to start with one's own pockets.

One mark that this didn't happen is that one may be half through the search before it occurs to one that some thought is needed. Is this a very trustworthy person or someone so absent-minded that one will never see one's rather nice silver pencil again? If the person quickly stops you and explains that the point was to remind you that you needed to use a pencil for the form, it can be right to say that you thought she needed one, even if in another sense no such thought occurred to you.

There are, to be sure, people who do not just straightaway start to search. Some high functioning autists are among them. Possibly there are others who have some idiosyncratic connection to their pencils, which lead them to

treat a query about pencils as if it were one about a precious piece of jewelry. But in general we are highly social creatures who do not have to cogitate much to respond socially.

The important point is that what makes it the case that you believe you were asked to lend a pencil is not that that there was a mental state with that content which caused the action. Rather, it is sufficient that the perceptions led to the motor routine. Supposing this is correct, we have a picture of belief and its place in action which departs significantly from the Davidsonian model. Since the examples of the stairs and the pen are ordinary ones in which ordinary people may use “belief”, it appears that the folk use of “belief” does not coincide with the notion used in characterizations of Folk Psychology.

It is worth reminding ourselves that we are now concerned with two different questions. The first is the difference between the neuroscientific account and Folk Psychology. The second is about whether folk discourse is fully characterized by the second or instead includes the first. The thesis here proposed is that the folk have a conception of belief that is not confined to attitudes toward conceptualized propositions, and that can cover embodied beliefs which may be sub-conceptual and constituted by perception-action routines. Such embodied beliefs are not propositional attitudes initiating actions, as the Davidsonian account characterizes the role of beliefs.

VI. In conclusion: returning to Hume

In the neuroscientific account we have looked at, perception plays an initiating role in helpful actions, and Hume’s sympathy is strongly analogous to perception; one comes to feel another’s state and this sets off the helping behavior. Further, what is actually helpful has to some extent to be learned. It can seem right to move someone who has been in an accident, but that might well, one learns, make things much worse. But given one has gotten the appropriate connections and routines, what provides the motivation?

The neuroscientific account we have been looking at can cover cases where the dopamine burst comes either from primitive or basic rewards or from derived rewards, ones that are rewarding because of their connection to another reward. The goal of helping another might be a derived one, based on either self-love or need for parental approval, perhaps. But it looks as though for Hume a basic, built-in instinct to help is operating at least in some cases.

There is some evidence that Hume is right in thinking that helping others can be primitively rewarding, but the support is incomplete or highly contested. The incomplete evidence comes from experiments with infants who witness a scene with helpful toys and obstructive toys, where what is helped or hindered is another toy.³¹ Children strongly prefer the helpful toy if allowed to hold or play with the toys.

Here we show that 6- and 10-month-old infants take into account an individual's actions towards others in evaluating that individual as appealing or aversive: infants prefer an individual who helps another to one who hinders another, prefer a helping individual to a neutral individual, and prefer a neutral individual to a hindering individual. These findings constitute evidence that preverbal infants assess individuals on the basis of their behaviour towards others. This capacity may serve as the foundation for moral thought and action, and its early developmental emergence supports the view that social evaluation is a biological adaptation.

However, there are competing hypotheses about what is creating the preference, and it remains possible that it is a self-regarding one.³²

Others have claimed that empathy is abundant in our evolutionary predecessors. If true, the results said to be established could help ground an evolutionary story about how the pleasure of helping others is hard-wired. These claims, however, are hotly disputed.³³

Beliefs and desires may still be relevant to actions because they play a major role in assessing whether an action was a rational thing to do.³⁴ Much in culture is concerned with the assessment of the rationality of instinctual actions, where a rational action is to be judged in terms of beliefs and goals. To say that is not to say that a belief has to be what started off the action. What sets off the action may be sub-doxicastic, a mere neural transform of an environmental feature. Such actions can be very quick and their rapidity can bring to our attention how pervasive acting quickly may be.³⁵

Postscript

Just before I got the proofs for this paper, I discovered Nakao, H. & Itakura, S. (2009) "An integrated view of empathy: Psychology, philosophy, and neuroscience", *Integrative Psychological and Behavioural Science*, 43(1), pp. 42–52. They report fMRI experiments that "suggest empathetic distress and empathetic altruism share a common basis". Their finding gives us a partial overlap between observing someone in distress and wanting to help them. This welcome result is in fact stronger than the claim of a nomological connection I made, but it is consistent with it.

Notes

1. Buckley, C. (2007) "Man is rescued by stranger on subway tracks", *The New York Times*, Jan. 3, p.1.
2. Hume, D. [1739–1740] (2000) *A Treatise of Human Nature*, Oxford Philosophical Texts (Oxford; New York: Oxford University Press).
3. In addition to our ability to feel with others, we also pick up their pains and their motor programs. See: Kohler, E., Keysers C., Umiltà, M.A., Fogassi, L., Gallese, V. &

- Rizzolatti, G. (2002) "Hearing Sounds, understanding actions: Action representation in mirror neurons", *Science*, 297(5582), pp. 846–48; Wicker, B. (2003) "Both of us disgusted in my insula: The common neural basis of seeing and feeling disgust", *Neuron*, 40(3), pp. 655–755; Rizzolatti, G. and Craighero, L. (2004) "The mirror-neuron system", *Annual Reviews Neuroscience*, 27, pp. 169–92; Iacoboni, M., Molnar-Szakacs, I., Gallese, V., Buccino, G., Mazziotta, J.C., & Rizzolatti, G. (2005) "Grasping the intentions of others with one's own mirror neuron system", *PLoS Biology*, 3(3), pp. 0529–0537; Fogassi, L., Ferrari, P.F., Gesierich, B., Rozzi, S., Chersi, F., & Rizzolatti, G. (2005) "Parietal lobe: From action organization to intention understanding", *Science*, 308, pp. 662–67; Jackson, P.L., Meltzoff, A.N., & Decety, J. (2005) "How do we perceive the pain of others? A window into the neural processes involved in empathy", *NeuroImage*, 24(3), pp. 771.
4. See the *Treatise*, p. 214 and p. 315.
 5. For a discussion of different uses of "empathy," see Stueber, K. "Empathy" in: E.N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Fall 2008 Edition), forthcoming URL=<<http://plato.stanford.edu/archives/fall2008/entries/empathy/>>. The sense in which I use it is at least close to Lipps' "inner imitation".
 6. Davidson, D. (1963) "Actions, reasons, and causes", *Journal of Philosophy*, 60, pp. 685–99.
 7. Smith, M. (1987) "The Humean theory of motivation", *Mind: A Quarterly Review of Philosophy*, 96, pp. 36–61.
 8. Davidson, D. (1987) "Problems in the explanation of action", in: P. Pettit, R. Sylvan, J. Norman (Eds.), *Metaphysics and Morality* (Oxford: Oxford University Press) pp. 35–49.
 9. Stueber, K. (2006) *Rediscovering Empathy: Agency, Folk Psychology, and the Human Sciences* (Cambridge, MA: MIT Press).
 10. Hursthouse, R. (1991) "Arational actions", *Journal of Philosophy*, 88(2), pp. 57–68; Hutto, D.D. (2007) "Narrative and understanding persons", *Royal Institute of Philosophy supplement*, 60, pp. 1–16, and (2008) *Folk Psychological Narratives: The Sociocultural Basis Of Understanding Reasons* (Cambridge, MA: MIT Press); Jacobson, A.J. (1993) "A problem for causal theories of reasons and rationalizations", *Southern Journal of Philosophy*, 31(3), pp. 307–21, and (2000) "The soul unto itself", *Arobase: Journal Des Lettres et Sciences Humaines* 4(1–2), pp. 100–25; Sehon, S.R. (2005) *Teleological Realism: Mind, Agency, and Explanation* (Cambridge, MA: MIT Press).
 11. Churchland, P.M. (1984) *Matter and Consciousness: A Contemporary Introduction To The Philosophy Of Mind* (Cambridge, MA: MIT Press).
 12. See Johnston, M. (2006) "The function of sensory awareness", in: T. S. Gendler and J. Hawthorne (Eds.) *Perceptual Experience* (Oxford: Oxford University Press), and Siegel, S. (2006) "Which properties are represented in perception?", *Ibid*.
 13. See Jacobson, A.J. (2003) "Mental representations: What philosophy leaves out and neuroscience puts in", *Philosophical Psychology*, 16(2), pp. 189–203, and (2008) "What should a theory of vision look like?" *Philosophical Psychology*, 21(5), pp. 641–55.
 14. Ward, J. (2006) *The Student's Guide to Cognitive Neuroscience* (New York: Psychology Press).
 15. Dayan, P. & Abbott, L.F. (2001) *Theoretical Neuroscience: Computational and Mathematical Modeling Of Neural Systems*, *Computational Neuroscience* (Cambridge, MA: MIT Press).
 16. Jacobson, A.J. (2007) "Empathy, primitive reactions and the modularity of emotion", *Canadian Journal of Philosophy*, Suppl vol 32, pp. 95–112, and (2008) "What Should Theory of Vision Look Like?" *Philosophical Psychology*, 21(5), pp. 641–55.
 17. See #510 in Wittgenstein, L. (1967) *Zettel*, G. H. von Wright, and G. E. M. Anscombe (Eds.) (Oxford: Basil Blackwell).
 18. Iacoboni, M. (2008) *Mirroring People: The New Science of How We Connect with Others* (New York: Farrar, Straus and Giroux), p. 12.

19. Hume, D. [1748] (2000) *An Enquiry Concerning Human Understanding: A Critical Edition* (Oxford/New York: Clarendon Press; Oxford University Press), p. 45.
20. As quoted in Bargh, J.A., Chartrand, T.L. (1999) "The unbearable automaticity of being", *American Psychologist* 54(7), pp. 462–80.
21. Bargh, *op.cit.*
22. Rangel, A., Camerer, C.F. and Montague, P.R. (2008) "A framework for studying the neurobiology of value-based decision making", *Nature Reviews Neuroscience*, 9(7), pp. 545–56.
23. Dopamine has recently been implicated in a host of mental phenomenon; see Shizgal, P. & Arvanitogiannis, A. (2003) "NEUROSCIENCE: Gambling on dopamine", *Science*, 299 (5614), pp. 1856–58. The role we are looking at has been extensively studied by Read Montague at Baylor College of Medicine. Much of the research is discussed in his (2007) *Your Brain Is (Almost) Perfect: How We Make Decisions* (New York: Penguin Group). Earlier papers include Montague, P.R. & Quartz, S.R. (1999) "Computational approaches to neural reward and development", *Mental Retardation and Developmental Disabilities Research Reviews*, 5, pp. 86–99; Montague, P.R., Dayan, P., Person, C. & Sejnowski, T.J. (1994) "Bee foraging in uncertain environments using predictive hebbian learning", *Nature*, 377, pp. 725–28.
24. See the preceding discussion in Section 2.
25. See Rangel *et al.*, *op.cit.*
26. See Millikan, R.G. (1996) "On swampkinds", *Mind and Language*, 11(1), pp. 103–17.
27. Wilson, T.D., and Bar-Anan, Y. (2008) "PSYCHOLOGY: The unseen mind", *Science*, 321(5892), pp. 1046–47.
28. Ramsey, W. (2007) *Representation Reconsidered* (Cambridge: Cambridge University Press). Ramsey's arguments are detailed and include an examination of many different theories. The upshot is, at the very least, that it will be extremely difficult to make a case for saying that mental representations give us an explanatory purchase not otherwise available.
29. Anscombe, G.E.M. (2000) *Intention*, 2nd ed. (Cambridge, MA: Harvard University Press).
30. Hursthouse, *op.cit.*
31. Hamlin, J.K., Wynn, K. and Bloom, P. (2007) "Social evaluation by preverbal infants", *Nature*, 450(7169), pp. 557. A different approach finding altruism in young children is described in Fehr, Ernst, Bernhard, Helen, Rockenbach, Bettina (2008) "Egalitarianism in young children", *Nature*, 454(7208), pp. 1079.
32. Private communication with an author.
33. For a brief survey of the issues, see Wilson, David Sloan. (2007) "One for all", *American Scientist*, 95(3), pp. 269.
34. See Jacobson, A.J. (1993) "A problem".
35. Comments from a large number of people over the last several years have been of great help in thinking about these issues. I am especially grateful to Aaron Zimmerman and Karsten Stueber for their detailed responses. I have also learned a very great deal from my colleagues at the University of Houston Center for Neuro-Engineering and Cognitive Science.

Copyright of Inquiry is the property of Routledge and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.