

## Telling Stories Without Words

Kristin Andrews

York University

*Journal of Consciousness Studies*, 16, No. 6-8, 2009: 268-288.

Review Article on Dan Hutto's *Folk Psychological Narratives: The Sociocultural Basis of Understanding Reasons*

"Grown-ups never understand anything by themselves, and it is tiresome for children to have to explain things to them always and forever."

- Antoine de Saint-Exupéry in *The Little Prince*

### 1. Introduction

Folk psychology (FP) can be understood functionally or structurally. The functional approach to FP is to identify it with a set of practices. Those who take this approach generally focus on the prediction and explanation of intentional action (with an emphasis on prediction (Andrews 2003)). Recent critiques have suggested that FP can be more profitably studied if we consider its other functions (Andrews 2008a; Zawidzki 2008). Both the standard approach and these critiques assume a functional take on FP.

More common is a structural approach to FP. Rather than beginning with the social cognitive practices, and asking about the cognitive mechanisms that are involved in those practices, those who take a structural approach to FP offer a fuller definition, and begin with a more robust commitment to the cognitive mechanisms involved in our FP practices. Most commonly, this approach takes FP to involve manipulation and attribution of the propositional attitudes. Daniel Hutto's recent claim that FP is

essentially a narrative practice is grounded in this approach; this claim involves identifying FP as the use and comprehension of the propositional attitudes (Hutto 2008). Hutto's view implies that having language is necessary for one to be a folk psychologist, and that those who lack language cannot engage in the FP practices. I think that Hutto's theory also implies a rejection of the familiar claim that FP is primarily used to predict behavior (Andrews, forthcoming).

One of the central projects of those who take a functional approach to FP is to determine its structural properties. For example, when one regards FP as the practice of explaining behavior, the behavior is the object of investigation, and the mechanisms that underlie the behavior have to be determined. Whether those mechanisms include having concepts of belief or desire, or whether they take the form of narrative practice, is an open question for those who take a functional approach. On the other hand, for those who take a structural approach to FP, there are certain concepts that are analytically identified with FP, and the primary research questions are: Under what conditions, and for what purposes, do we utilize those concepts? On Hutto's narrative approach, it turns out that the function of FP is not for prediction, but rather for explanation and social cohesion.

While I think Hutto is right to see FP as involving explanation more than prediction, and while I am sympathetic to the view that FP explanation is closely connected to narrative practice, I think that these commitments are consistent with an account that does not rely on a commitment to FP as manipulation and attribution of the propositional attitudes. I will argue here that we can take a functional approach to FP that identifies it with the practice of explaining behavior without being led to all of Hutto's structural commitments. That is, we can understand folk psychology as having the

purpose of explaining behavior and promoting social cohesion by making others' behavior comprehensible, without thinking that this ability must be limited to those with linguistic abilities. One reason for thinking that language must be implicated in FP explanations arises from the history of theorizing about the nature of scientific explanation. I will show that there are other models of explanation that are free from the metaphysical linguistic baggage of the traditional models, and argue that such models can be profitably used to make sense of an explanation-centered FP that need not involve the attribution of propositional attitudes or a functioning linguistic competence. Further, I will argue that there is evidence that pre-linguistic human children engage in explanatory practices, and that some of these explanations may be seen as narrative explanations in an important sense.

## 2. Explaining intentional action

At first, it may seem obvious that in order to even try to explain intentional behavior, one must at least be able to engage in a linguistic act. After all, when we give examples of explanations, they take the form of propositions, such as: *because she was happy*, or *I think he wanted her to win the race*.

In addition, one might expect that psychological explanations are propositional in form due to accounts of scientific explanation that portray explanation propositionally. If scientific explanations are propositional, and FP explanations are a variety of scientific explanation, then we should expect that FP explanations are propositional as well.

However, this conclusion can be challenged by examining the two assumptions on which it relies. To begin with, even if FP explanation is a type of scientific explanation, it

does not follow that it relies on a linguistic model since not all accounts of scientific explanation do. One can also question whether FP explanation is a variety of scientific explanation at all. I will first expand on both of these challenges, and then sketch out an account of FP explanation that does not presuppose that explanation requires linguistic competence.

## 2a. Varieties of scientific explanation

The 20<sup>th</sup> century saw an explosion of interest in the nature of scientific explanation, beginning with the deductive-nomological (D-N) account (Hempel and Oppenheim 1948). On this model, an explanation of an event takes the form of a valid deductive argument that consists of a general covering law and initial conditions, the explanans, which deductively entails the phenomenon to be explained, the explanandum. The scheme of the argument is presented as follows:

$$C_1, C_2, \dots, C_k$$
$$\underline{L_1, L_2, \dots, L_r}$$
$$E$$

where the Cs represent the initial conditions or facts implicated, the Ls represent the relevant general laws, and E describes the explanandum. On this account of a scientific explanation, an explanation is propositional in form, and thus competence with propositional thought is necessary for an explanation to be entertained. Subsequent variations of the D-N model retained the commitment to explanations as arguments,

including the inductive-statistical approach (I-S) (Hempel 1965). Even as criticisms of the D-N and I-S models of explanation ultimately undermined such models, many of the accounts that replaced them continued to assume that the structure of scientific explanations is propositional.<sup>1</sup> It wasn't until Cartwright explicitly challenged the propositional structure of explanation that non-propositional explanations of scientific explanation as models were proposed (Cartwright 1983).

Despite the existence of many different accounts of scientific theories, the influence of the D-N model of explanation dominates the FP literature (Andrews 2003). For example, the theory-theory version of FP explanation can be extracted from David Lewis's account of mental states in terms of psychophysical identifications (Lewis 1972) and Paul Churchland's formalization of FP as a theory (Churchland 1981). Both accounts accept that FP explanation consists of a general covering law connecting mental content and behavior, and an attribution of mental content to the individual whose behavior is to be explained. Since the behavior can be inferred from the general law and the individual's mental state, the result is an explanation of the actor's behavior that fits the D-N model of explanation. Such a move - from a disputed account of scientific explanation to FP explanation - is rarely, if ever defended. If D-N explanations were the only available model, this lack might be forgiven. However, there exist other accounts of scientific

---

<sup>1</sup> Importantly, some theories of FP explicitly deny the D-N model of explanation, and can be seen as beneficiaries of Salmon's critique that the covering law model of explanation neglects causation (see e.g. Glennan 2005, Godfrey-Smith 2005, Gopnik & Schulz 2007, Maibom 2005). In more recent philosophy of science, varieties of causal models of explanation (see e.g. Cartwright 1979, Glennan 2002, Salmon 1984; 1994; Spirtes, Glymore & Scheines 1983; Woodward 2003) vie for dominance with unification models.

explanation that do not treat explanations as arguments, and many that do not take explanation to be propositional in structure.

An example is Cartwright's simulacrum account of explanation as model manipulation (Cartwright 1983). A model is a simplified fiction that captures the form of the state of affairs to be explained, while leaving aside the substance details. Explanations of the same phenomenon will differ depending on the amount of detail contained in the model, and while more detail can help to provide a better explanation, the model must be simplified enough to be usefully manipulated. A good model provides greater understanding to the model-builder, and thus helps to explain the modeled phenomenon.

While accounts of scientific *theories* as models have been taken by some as a useful way at looking at the cognitive architecture of FP (Giere 1996; Maibom 2003; Godfrey-Smith 2005), so far as I know no one has developed a detailed account of what FP explanation might look like given a model account of explanation. Applying the model approach to explanation in folk psychology, we might say that a folk psychological explanation requires developing a model of the target that will provide a simplified version of the causal relations that are of interest to the model-builder. On this account, explanations are causal, given the assumption of closeness of fit between model and world and the assumption that the world is causally structured. This account captures the intuition that explanations cite some causal factor without assuming that the structure of explanation is propositional. Model explanations are not linguistic entities; an explanation is the ability to manipulate the model successfully, to call forth the target behavior. Thus, a model account of FP explanation seems consistent with a rejection of

explanation as a linguistic entity, and allows for the possibility that one could engage in FP explanatory behavior while lacking linguistic competence.

## 2b. Differences between scientific explanation and FP explanation

While a model theory of FP explanation might give some *prima facie* reason for rejecting the notion that linguistic competence is necessary for seeking or providing explanations, to be compelling this argument must include an answer to the many questions that surround model accounts of explanation more generally - questions having to do with the role of model interpretation and construal, and the relationship between the model and the world. Such questions must be satisfactorily answered before we can accept a model account of scientific explanation. But must the same questions be answered in the case of FP explanation? Only if FP explanation is a variety of scientific explanation, and it seems clear that we ought not think of FP in this way.

Scientific explanation has as its primary goal an accurate description of the world. If that description is a linguistic entity, the requirement is for that proposition to be true of the state of affairs it describes. If it is not a linguistic entity, it must somehow correspond to the relevant state of affairs, even if it is a simplified version of the state of affairs. Truth or some kind of correspondence is a necessary condition for an adequate scientific explanation.

However, the goals of FP explanation are rather different from those of scientific explanation. First off, when we explain people's behavior we do so because they have done something odd; normal behavior does not require explaining. But the oddness of the behavior is relativised to an observer; it is only odd if you don't have some understanding

of the behavior. And we develop FP explanations in a social context, so explanations often come about through conversations with others, or with the target herself. If Klara is a stalwart member of the book club, and she doesn't show up for the weekly meeting, then you might ask for an explanation for her nonappearance. That explanation may be supplied by a third party who had a private interaction with Klara, and who has information that makes sense of Klara's absence. For example, the third party may have talked to Klara about a doctor appointment scheduled during book club, or she might have seen that Klara was experiencing depression, and she may explain Klara's absence in reference to such facts.

Note too that FP explanations are what people actually construct when engaged in non-scientific inquiry about people's intentional actions, not about what caused the behavior. After all, we are talking about *folk* psychology, rather than scientific psychology. Thus, identifying something as a FP explanation is more of a descriptive act, and not so much an evaluative one. While the explainer accepts the explanation as true, an explanation need not be in fact accurate to count as an adequate FP explanation. When psychologists study FP explanations, the truth of an individual's FP explanations is irrelevant; as Heider puts it, regardless of whether a person's explanations are true, they are *her* explanations, and "must be taken into account in explaining certain of his or her expectations and actions" (Heider 1958, 5).

Finally, there is a normative component to the practice of explaining behavior. People provide explanations for their own and others' behaviors for a variety of purposes, such as impressing one's audience, condemning individuals and actions, as well as for simply reducing one's own cognitive dissonance (Malle 2004).



Since FP explanations are offered for behaviors that are not already understood, we might say that FP explanation is, minimally, something that fulfills an individual's drive to understand a person, and the goal of FP explanation is to somehow make sense of the target behavior in the social context. Knowing the biological or chemical facts that played a causal role in the person's behavior may not generate a feeling of understanding in the explanation-seeker, and in such cases those facts do not serve as a FP explanation, even if they do serve as a scientific explanation. For example, we may seek an explanation for a person's suicide attempt even if we were to have a full neurological description of her just before she pulled the trigger.

This minimal definition of FP might concern those who think that explanations should be true, but this concern is based on a misunderstanding of the differences between scientific and folk practices. The goals of science are truth and manipulability, and scientists have developed epistemic criteria with an eye towards those aims. FP explanation is a folk practice, and has as its goals whatever the goals of the explainers are. One goal may be truth, but there are many other goals of FP explanation, so truth or accuracy is not necessarily implicated in FP explanations. FP explanation is a natural practice, so our account of FP explanation will be a descriptive one; it is an answer to the question, "How do people actually go about explaining behavior?" Since people explain those behaviors that are not understood, FP explanation will be something that fulfills one's drive to understand a person (including one's self), where that "understanding" may rely on false or epistemically unjustified beliefs.

The minimal account might also worry those who see it as uncomfortably subjective, since it is defined in terms of satisfying someone's psychological state. However, FP

explanation shares this feature with some pragmatic accounts of scientific explanation. Following van Fraassen, since a good explanation only exists in relation to a why-question (van Fraassen 1980), a good FP explanation will resolve some tension on behalf of the explanation-seeker. What this means is that an FP explanation is initiated due to an affective state that will drive a person to engage in some explanation-seeking behavior.

I propose the following features for a satisfactory FP explanation:

1. FP explanations are constructed by individuals as a response to an affective tension, such as a state of curiosity, puzzlement, disbelief, etc. about a person or behavior. The affective tension drives explanation-seeking behavior.
2. FP explanations reduce cognitive dissonance and resolve the tension that drives the explanation-seeking behavior; generating an explanation promotes a feeling of satisfaction.
3. FP explanations are believed by the explanation-seeker, and are not believed to be incoherent given the individual's other beliefs, regardless of whether the belief is in fact true or consistent with those beliefs.
4. FP explanations can be given for one's own behavior or the behavior of another, and can either be communicated to others or remain private (Andrews, in preparation).

This account of FP explanation emphasizes the phenomenological aspect of explanations by identifying an explanation with the quality of our feeling toward the explanandum. Such a view goes at least back to Hobbes, who wrote: "There is a lust of

the mind, that, by a perseverance of delight in the continual and indefatigable generation of knowledge, exceedeth the short vehemence of carnal pleasure" (quoted in Gopnik 2000, 299).

Some have argued that the feeling of needing an explanation is an essential part of explanations more generally, and that it is a biological drive that leads us to construct and accept theories (Schwitzgebel 1999). Others have argued that although a feeling of understanding is not an essential aspect of explanatory behavior, humans evolved to experience such satisfaction with the development of explanations (Gopnik 2000). Gopnik suggests that we receive intense satisfaction from generating explanations for the same reason we receive intense satisfaction from having sex; it is nature's way of encouraging us to engage in that behavior. And like having sex, generating explanations often, but not always, provides beneficial consequences for the species. The more often individuals have sex, the more likely it is that they will successfully reproduce, and the more often individuals generate explanations, the more likely it is that they will come upon an accurate account of the world, says Gopnik. Or, to modify Gopnik's view slightly, the more likely it is that they will come upon a useful account of the world, including useful explanations of behavior, regardless of whether those explanations are true or not. After all, truth is not always aligned with survival.

Either way, paradigmatically, explanations have a phenomenological aspect to them that involves what Velleman calls the initiation and resolution of an "emotional cadence" (Velleman 2003).<sup>2</sup> Following Velleman, the paradigm of FP explanation will involve the

---

<sup>2</sup> While Velleman was describing narrative explanation more specifically, much of what he says about the nature of stories can be said of FP explanation without prejudicing the issue with regard to the necessity of explanations as propositional. The job of a good

coming to be and resolution of an affective tension. I won't take a position on whether this pattern of affective experience is a necessary condition for a FP explanation, but do accept that it is the paradigmatic form of FP explanation, and by examining the paradigm we can gain a greater understanding of FP explanation.

The tensions that lead one to seek an explanation may include curiosity, fear, wonderment, and other affective states. For convenience's sake, I call these states *curiosity states*. When an individual is in a curiosity state, it leads her to search for an explanation, and explanation-seeking can take a number of forms. It might involve observable behaviors such as manipulation of the physical world (such as exploratory behavior) or verbal behavior (such as thinking out loud), or it might take the form of unobservable contemplative activity (such as building and manipulating a mental model). These explanation-seeking behaviors typically lead an individual to generate an explanation (or explanations), and often later lead to accepting an explanation. Once an explanation is generated that meets the very limited rationality constraints described above, namely, the belief that the explanation is true and the belief that it doesn't conflict with any of one's other beliefs, the affective state that led the seeking behavior is replaced with a different affective state of satisfaction, such as relief, or happiness.

Each of the three steps of FP explanation—the arising of a curiosity state, the explanation-seeking, and the explanation-generating—can be experienced without going on to the next step. One might experience curiosity and have a drive to seek an explanation, but have other reasons for avoiding a search. For example, one's society may prohibit curiosity on the matter, and the prohibition may be sufficient to curtail

---

story, according to Velleman, is to lead the reader to gain a greater understanding of the events by first initiating and later resolving a pattern of emotional experience.

explanation-seeking behavior. One might also land in a curiosity state, and seek for an explanation, but fail to generate one, perhaps because one becomes bored or distracted, or because one lacks the cognitive capacity to do so.

Let me add something about the fourth aspect of FP explanation. I do not think that all FP explanations need to be communicated to another in order to count as an explanation. For example, if I see a person walking erratically down the street talking to himself, I might wonder what's wrong with him. Looking more closely, I notice a device attached to his ear, and the affective tension is resolved. I need not articulate to myself or to anyone else that the individual is talking to another using a hands-free cell phone; just noticing the phone places the behavior in a familiar context, one that does not need further elucidation.

Given this account of FP explanation, it becomes clear how FP explanation and scientific explanation differ. The difference here is like the difference between knowledge and belief. Knowledge, like scientific explanation, is necessarily veristic. On the other hand, FP explanation is like belief, and while it might be aimed at truth, it can still be had even if it is false. For FP explanation, a lack of truth does not entail a lack of explanation.

FP explanation is a folk activity, and when we examine what people do when they explain, we see that truth is only one of the pragmatic goals. Sometimes, we seek explanations in the face of a truth we don't want to accept, like the mother who posted the following to Yahoo! Answers:

My 17 year old son has been very secretive with me lately, recently he has started to refuse to go to church with the family and tonight when I was going through his room I found a magazine with naked men in it. He obviously has a girlfriend that he is

hiding from me that brought that magazine into my home and I am afraid they are having intercourse and I am greatly concerned that he is going to get her pregnant.<sup>3</sup>

The truth can be too painful to accept, and in the social domain there may be pragmatic advantages to denying what is evident.

The prima facie reasons for thinking that FP explanation must be propositional in form came from thinking that scientific explanation is propositional, and that FP explanation is a form of scientific explanation. I have argued that both those assumptions are false, and thus the prima facie motivation for thinking that FP explanation is propositional falls by the wayside. In the next section I will offer evidence for a contrasting conclusion, namely that practices of FP explanation do not rely on linguistic competence.

### 3. Explanation without language

In the account of FP explanation I sketched in the previous section, I suggested that we should understand FP explanation as consisting of both explanation-seeking and explanation-accepting. A young child may be able to seek an explanation — insofar as there is a tension between her beliefs that she strives to resolve — yet be incapable, due to cognitive limitations, of resolving the tension by postulating hypotheses. For example, if an explanation in terms of the actor's belief is the only satisfactory explanation, and the child is unable to engage in reasoning about beliefs, she would fail to satisfy her need. However, if an explanation in terms of the individual's emotional state would suffice to resolve the tension, then the same child might be successful in devising an explanation,

---

<sup>3</sup> Thanks to Fail Blog for bringing this to my attention. Retrieved 2/2/09  
<http://answers.yahoo.com/question/index?qid=20081226174833AA5LmiA>

since an understanding of emotional states develops before a child is proficient at attributing propositional attitudes.

Thus, I propose that we consider any practice that falls within the first three steps involved in offering an FP explanation (the arising of a curiosity state, the explanation-seeking, and the explanation-generating) as part of FP explanation. This move might strike some as extremely minimal — so much so that I may be charged with inappropriately extending the application of the word ‘explanation.’ However, recall that I have defined a curiosity state as some affective state that motivates people to engage in exploratory behavior. From the seminal work on exploratory play by Berlyne (1954) and Piaget (1951), developmental psychologists have suggested that the following behaviors can be associated with exploration in children (Chak 2007):

- Touching objects
- Manipulating objects
- Observing attentively
- Detailed observation
- Listening attentively
- Asking questions
- Searching for answers
- Using different methods to search for answers

The exploratory behavior, when successful, will provide additional information about the world that will resolve the tension that led to the curiosity state to begin with. Piaget suggested that human infants have an innate drive to explore the world, and that such behavior is associated with the intelligence that allows children to make sense of the world (Piaget 1936/1952). Thus, it makes some sense to see the curiosity state as part of the practice of FP explanation.

In addition, since the exploratory behavior of children that arises from a curiosity state helps them to make sense of the world, exploratory behavior can be seen as

explanation-seeking behavior. These two aspects of FP explanation, curiosity and explanation-seeking, can be observed and do not necessarily involve verbal behavior. Facial expressions, behavior, gestures, and non-verbal vocalizations can indicate that one is in a curiosity state, and the non-verbal exploratory behaviors can indicate explanation-seeking. Explanation accepting is a more difficult behavior to observe when it is not accompanied by a verbal act. There are many reasons why someone might stop seeking an explanation—the explanation-seeker might get bored or distracted—so we cannot identify the cessation of exploratory behavior with explanation accepting. Obviously, if one asserts some FP explanation, we can infer from that behavior that the explanation has been accepted. But if we are to avoid prejudicing the question against the possibility of nonverbal FP explanation behavior, then we must not require that an explainer offer what we take to be a paradigmatic explanation. Instead, we must look for evidence in the other behaviors associated with FP explanation. Thus, if we examine explanation functionally rather than structurally, and focus on curiosity, explanation-seeking behavior, and behavior that suggests the formulation of an explanation, the claim that explanation requires language should be seen as a hypothesis open to empirical examination, rather than as an initial premise.

### 3a. The early development of FP explanation in humans

Explaining behavior is perhaps one of the primary activities humans engage in. From gossip magazines that speculate on the odd behaviors of celebrities, to idle chatter about our friends and neighbors, humans have a special interest in understanding others' intentional actions. An analysis of adult human communication confirms this; Robin



Dunbar claims that our conversations are dominated by discussion of what others are doing and why they are doing it (Dunbar 1996). Even young children show an overwhelming interest in the actions of others, including the causes of those actions and the reasons for their performance. When children's conversations are analyzed, the content is predominantly comprised of people and actions (Hood, Bloom & Brainerd 1979), and even young infants ask more questions about people's behavior than any other topic (Dunn 1988; Callanan & Oakes 1992). And while children are not able to ask why-questions until they are about 3 years old (Clancy 1989), they demonstrate interest in the causes of people's behavior long before, and are thought to understand explanations for behaviors and use other verbal means to ask for explanations of behavior by at least 2 years old (Bloom et al. 1980).

Others think that verbal requests for an explanation arise even earlier. In a series of studies, Chouinard found that children start verbally asking for explanations of intentional action using truncated why-questions around 1 ½ years-old (Chouinard 2007). For example, a child who asks "daddy break?" in the right context is interpreted as asking for an explanation for her father's breaking some object. This seems to constitute a plausible understanding of the child's verbal behavior, given her inability to formulate "why?" questions. Though there is an early verbal interest in seeking explanations for people's behavior, the requests for information rarely cite others' beliefs, desires, knowledge, or other mental states before the child is 2 ½-3 years old (Chouinard 2007). While this might suggest that children do not ask for FP explanations until just before they are able to pass false belief tasks, some of children's earliest questions are about people and their actions. At a year and a half, children are wondering why people and

animals do what they do, and before asking questions directly about mental states, children ask questions that fall within the domain of social cognition, such as "What is he doing?" (Chouinard 2007, 19) or "Why is he sleeping?" (Chouinard 2007, 64). While these questions differ from the questions that children ask a year later insofar as they don't refer to unobservable mental states, the answers to these questions about people's behavior will often cite mental states. Indeed, we know that children talk about goals and desires before they pass the false belief task (Wellman & Phillips 2001; Bartch & Wellman 1995; Bretherton & Beeghly 1982), and we might expect that children ask questions about others' behavior that are answered by reference to goal, emotion, desire, etc. by 18 months.

At 2 years, children are already offering explanations for a variety of things, and there is evidence from children's naturalistic language that 2- and 3- year-olds are very interested in psychological explanations that focus on people, their behavior, and their mental experiences (Hood & Bloom 1979; Dunn & Brown 1993; McCabe & Peterson 1988; Hickling & Wellman 2001). However, it isn't until much later that children offer explanations of people's actions that fit the standard belief/desire propositional attitude structure. Children's early explanations often cite emotional states and desires, or are descriptions of the world. For example, to answer a why-question, young children will often cite their own desire (Child: "Open it" Adult: "Why?" Child: "Because I want you to open it") (Hood & Bloom 1979, 6), or will cite an emotion "I not gon go up...because I'm afraid of her" (Hickling & Wellman 2001, 671), or will describe the situation (Adult: "Why are you taking off your socks?" Child: "Because it's not cold outside") (Hood & Bloom 1979, 6).

For humans, the early development of language is quickly put to use seeking explanations and, soon after, for offering explanations of behavior. But is the development of language necessary for seeking and generating explanations, and does the interest in explanations appear as part of the linguistic competence? There is some reason to think that children's interest in explanations, and in particular explanations of human and animal behavior, precedes their ability to articulate that interest verbally.

### 3b. FP explanation in preverbal humans

If we divide FP explanation into curiosity states, explanation-seeking behavior, and explanation generating, we can see how preverbal children engage in FP explanatory behaviors. Let's take curiosity states first. Among developmental psychologists, early childhood educators, and parents, it is widely accepted that preverbal children experience curiosity. Parents are instructed to be sensitive to the objects of their child's curiosity, and to encourage exploration as part of cognitive development. Facial expressions, behavior, gestures, and vocalizations are all taken as indicators that an infant is in a curiosity state. Like adults, infants express curiosity with a pursed mouth or furrowed brow (Gopnik 2000).

What are children curious about? If preverbal children are involved in FP explanatory behavior, some of the objects of their curiosity must involve the behavior of people and other intentional agents. While infants are interested in many things in their world, people and animals appear to be the most interesting. When children begin to ask questions, the objects of those questions reflect these early interests (Chouinard 2007).

While infant curiosity is an accepted starting point in developmental psychology, the question of whether infants take action in order to resolve their curiosity states remains largely unexplored. Very little research has been done on whether pre-linguistic infants act to seek explanations, whether of behavior or of other events. Still, given the limited research, there is sufficient evidence to conclude that infants are seeking explanations.

Explanation-seeking behaviors in infants, like in older humans, can include both trying to determine the explanation for oneself and requesting information from another. Since pre-linguistic infants cannot verbally ask questions of their caregivers, any request for information must be in nonverbal form. Some developmental psychologists conclude that the best interpretation of some infant behavior is that the child is seeking information from a caregiver (Chouinard 2007). Nonverbal "questions," as described by parents and coded by research assistants, involve some combination of gesture, facial expression, and vocalizations (Chouinard, personal communication). A nonverbal question might take the form of a child's pointing toward an object and vocalizing with a rising cadence (e.g. "uh?").

In addition to asking nonverbal "questions", infants can seek information from adults by looking toward them to see how they are responding to an event. Infants engage in this social referencing as early as 10 months, looking toward their caregiver's face when confronted with a novel event, and modulating their response based on the emotion expressed on the caregiver's face (Walden et al. 1988). Such infants might try to make sense of an unknown adult, or an unusual behavior such as a wink or a silly face, by

engaging in social referencing and looking toward the caregiver to determine whether the behavior is a threat.

Infants' exploratory behavior also indicates that they seek to uncover an explanation for themselves. From an early age, humans engage in exploratory behaviors such as touching and manipulating novel objects in systematic ways or turning to look for the source of an unfamiliar noise. As they get older, preverbal infants can seek to uncover causes of events through manipulation and re-enactment. For example, a child who hurts herself when falling or bumping her head might return to the scene of the injury and re-enact the events leading up to the event in order to determine the cause of her accident. Or a child who figures out how to open a puzzle box may be seen as looking for an explanation of how the box works.

In the social domain, infants seek explanations when they intently attend to novel human behavior, move to look from the perspective of another person, or when they re-enact others' behaviors. Even at 12 months old, children will move their bodies in order to see what an adult is looking at (Moll & Tomasello 2004). For an infant to engage in such behavior, she must be motivated to uncover the object of the adult's gaze, and must also have some understanding of how to do so. Such an act neatly fits the first two stages of FP explanation behavior: the infant is curious about the adult's behavior, and acts to resolve that curiosity by engaging in explanation-seeking behavior.

Though such behaviors are a far cry from the sophisticated explanations we can generate as adults, in which we talk about motivations for action in terms of mental states, these very simple cases of FP explanation should be taken as part of the FP explanatory repertoire for humans. The fact that the behavior to be explained is not very

interesting to you, as an adult with much experience in the domain of human interaction, does not mean that it cannot be the target of an infant's explanation-seeking behavior. This may be very simple FP explanatory behavior, but we should not deny that it counts as explanation-seeking merely because the action is not of interest to us, or simply because the infant cannot verbally articulate her interest in this act.

The third aspect of explanation-seeking behavior, generating the explanation, is much more difficult to observe. The behavior we usually associate with constructing an explanation is verbal in structure, and of course we do not see that behavior in the pre-linguistic infant. Behaviors that we might associate with explanation generating, such as a cessation of exploratory behavior, could alternatively be due to boredom or a shift in attention due to a new stimulus. On the other hand, a child who successfully solves a problem after engaging in exploratory behavior may be said to have generated an explanation. For example, we might want to say that the child who successfully opens the puzzle box, and then closes and opens it a few additional times, has successfully generated an explanation. In the same spirit, a child who moves to follow the gaze of a caregiver, and then retrieves the object of the adult's gaze and gives it to the adult, may be said to have formulated an explanation of the adult's behavior. The child who engages in such behavior is certainly acting as if she understands why the adult was gazing where she was. A natural interpretation of this behavior is to say that the child successfully found out why the adult was behaving as she was.

The facial expressions associated with curiosity, and the searching or "asking" behaviors associated with explanation-seeking, while not definitive proof that infants engage in the first two aspects of explanation-seeking, offer strong evidence. Indeed,

even without a prior theoretical commitment to a view that associates explanation-seeking with language, such behaviors would be seen as displays of a child's wondering why, and are often described as such by the layman. A parent responds to her child's behavior by saying, "She's wondering why we're out in the middle of the night" or "He wants to know why you are making those noises." If such responses are natural interpretations of the behavior, then without theoretical argument against such interpretation, we ought to take seriously the lay expertise of the adult caregiver, and treat it as some evidence for the attribution (Andrews 2009). In addition, if such behaviors are not examples of the first two aspects of explanation-seeking behavior, then some plausible alternative interpretation of them would be required.

One might worry that nonverbal explanations of the sort I am suggesting are impossible, because the content of such explanations requires language. In response to this worry, let me say only that the same kinds of arguments for attributing beliefs or concepts to animals can be used to defend preverbal infant belief (e.g. Allen 1999, Dennett 1995, Smith 1982).<sup>4</sup> There is no special worry about attributing explanatory beliefs to non-linguistic agents; if nonverbal creatures can have beliefs, there is no reason to think they cannot have explanatory beliefs. Explanatory beliefs, as we saw in the first section, need not rely on having some knowledge of propositional structure, since they need not take the form of arguments. Explanatory beliefs are not like grammatical beliefs, which require the thinker to have some knowledge of language. If thought without

---

<sup>4</sup> Allen (1999) offers criteria for ascribing concepts to nonhuman animals. Dennett (1995) suggests that we can use the intentional stance to ascribe to animals the beliefs and desires they should have given their evolutionary fitness to their environment. Smith (1982), following Armstrong (1973), argues that we can ascribe *de re* content to animals. See Andrews (2008b) for a discussion of the issues associated with ascribing content to animals.

language is possible, then explanations without language are possible. Explanations, even FP explanations, are not intrinsically tied to any linguistic concept.

One might also object that FP explanations must include reference to the target's belief or desire, and that these concepts, like grammatical concepts, require proficiency with language. Since children do not gain proficiency with the concept of belief until, at the earliest, after they pass the false belief task at around 4 years old, critics may argue that younger children cannot possibly explain intentional action.

But recall that I am taking a functional approach to FP, and not assuming the content of such explanations pre-empirically. Not all explanations of behavior cite the target's reasons, nor do they all imply anything about the target's beliefs (see Andrews 2007 for an elaboration of this point). I might explain my neighbor's rude behavior by saying, "They have a new baby and I'll bet he didn't get much sleep." This could satisfy as an explanation without giving reasons for the neighbor's rudeness. Or I might come to believe that my otherwise progressive coworker votes Republican because her family is deeply involved in the party. Such things are given as explanations of behavior, yet they do not imply anything about the actor's reasons. My coworker might not realize that her family influences her to vote as she does, and the neighbor might not even know that he was being rude. Explanations of behavior, then, are more than just ascriptions of beliefs and desires to others.

The fact that children ask questions about human behavior as soon as they are capable of formulating such questions offers additional evidence that children are wondering about people's actions, and seeking explanations, before they are able to



speak. Without good reason to reject this interpretation of infant behavior, we ought to accept that such children are folk psychological explainers.

#### 4. Conclusion

If I am right and we can conceive of non-linguistic explanations, then the class of folk psychological explainers is potentially much larger than we might have thought. Not only might pre-linguistic children be explaining intentional action, nonhuman animals might be engaged in this FP practice as well. If we want to know whether any nonhuman animals do what humans do in the domain of FP, such as predicting and explaining behavior, we shouldn't make the mistake of asking whether the animal has a theory of mind, for I have suggested that one can be an FP explainer without having the ability to attribute mental states. Rather, we should look to see whether other species experience curiosity states, and whether they engage in explanation-seeking behavior that allows them to resolve those curiosity states. I suspect that, once explanation is divided into its parts, it will appear less odd to suggest that nonhuman animals seek explanations, even in the domain of the social.

By understanding FP functionally, and by focusing on the explanatory function of FP, we see that the class of explainers and explanations might be much larger than has been assumed by those who limit explanations to language-users. But we also see that simple explanation-seeking behavior can involve a narrative structure, even when the explanation-seekers lack language. For Velleman, a narrative explanation begins with a phenomenological state of emotional upheaval, and ends with the resolution of that emotional state and a subsequent replacement of it by some other state (Velleman 2003).

This emphasis on the coming to be and resolution of an emotional cadence fits nicely with my account of FP explanation. Hutto also accepts this emotional requirement for narrative when he agrees with Sugiyama that narrative involves "conflict and resolution" (cited in Hutto, this volume). Of course, all these authors also discuss narrative as linguistic behavior, and the latter two explicitly claim that a narrative is only possible when there is a foundation of linguistic competence. But if we take the conflict and resolution as central to narrative, and leave aside the commitment to a linguistic requirement, then we open the door to the possibility that people can generate a narrative explanation before they can use language. Competent language users certainly *can* tell stories without words, as anyone who has seen a Balinese dance or a Road Runner cartoon can attest. The question that remains is whether pre-linguistic infants can do so.

Children who seek explanations for themselves sometimes manipulate the object of interest. If it is a puzzle box, the child will handle the box in order to discover its causal structure. If the object of interest is a person, the child might re-enact the behavior of the target, either by moving her body to align herself with the target's gaze, or by imitating a series of behaviors that led up to the behavior in question. Such re-enactments and repositioning of the body to seek explanations is part of the process of explaining behavior, and this process fits the conflict and resolution model quite well.

For example, a child who sees someone gathering a pile of leaves and then jumping into it might experience some conflict, if this behavior is unfamiliar to her. To resolve that conflict, a child may re-enact the behavior in order to discover why the other acted in this way. After jumping into the leaves herself, the child discovers that the behavior is enjoyable, and understands the other better. This re-enactment demonstrates

the child's understanding of a sequence of events. Once the child has discovered the pleasures of leaf-pile jumping, she has a schema of the series of behaviors that will allow her to understand future similar such behaviors. Unless one denies that nonverbal narratives are possible, the child's construction of the schema that can be used to make sense of similar acts in the future looks a lot like the construction by the child of a narrative. And if a Balinese dance can be a behavioral presentation of a narrative, the same can be said of the child's re-enactment of the leaf-raking and jumping behavior. Thus, the existence of pre-linguistic children as FP explainers is at least *prima facie* compatible with the claim that FP explanations take the formal structure of a narrative, if we allow for the possibility of narratives without language, as it seems we should.

If I am right to suggest that individuals who are not competent manipulators and attributors of the propositional attitudes may still seek and even provide explanations for behavior, then the focus on the linguistic aspect of FP is a red herring. Instead, we can focus on the explanatory nature of FP and, from that starting point, examine how behavior is explained by different populations, both among humans and other species. The important dividing line here isn't between language users and non-language users, but between explanation seekers and those who do not seek explanations. Before we ever developed the ability to offer reason explanations, we first developed the curiosity that caused us to look for answers. How those answers are formulated might differ among species and cultures, but what unites them is their function, rather than the form of their construction. Once it is accepted that those without language seek explanations, we can do the metaphysics to determine how to understand those explanations—as

nonconceptual content, or as biosemantics, or some other system altogether. But before we can take on that task, we must observe behavior.

## References

Andrews, K. (2003), 'Knowing Mental States: The Asymmetry of Psychological Prediction and Explanation', in Quentin Smith and Aleksander Jokic, eds., *Consciousness: New Philosophical Perspectives*, (Oxford: Oxford University Press), pp. 201-219.

Andrews, K. (2008a), 'It's in Your Nature: A Pluralistic Folk Psychology', *Synthese*, 165(1), pp. 13-29.

Andrews, K., (2008b) "Animal Cognition", *The Stanford Encyclopedia of Philosophy* (Winter 2008 Edition), Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/win2008/entries/cognition-animal/>.

Andrews, K. (2009), 'Politics or Metaphysics? On Attributing Mental Properties to Animals', *Biology and Philosophy*, 24(1), pp. 51-63.

Andrews, K. (forthcoming), Review of Hutto's *Folk Psychological Narratives: The Sociocultural Basis of Understanding Reasons*, *Philosophical Psychology*.

Andrews, K. (In preparation), *Person Reading: Understanding Folk Psychologies*.

Armstrong, D. (1973). *Belief, Truth and Knowledge* (Cambridge: Cambridge University Press).

Bartsch, K., & Wellman, H. (1995), *Children Talk About the Mind* (Oxford, UK: Oxford University Press).

Berlyne, D. (1954). 'A theory of human curiosity', *British Journal of Psychology*, 45, pp. 180-191.

Bloom, L.; Lahey, M.; Hood, L.; Lifter, K. & Fiess, L. (1980), 'Complex sentences: Acquisition of syntactic connectives and the semantic relations they encode', *Journal of Child Language* 7, pp. 225-261.

Bretherton, I., & Beeghley, M. (1982), 'Talking about internal states', *Developmental Psychology*, 18, pp. 906-921.

Callanan, Maureen A. & Oakes, Lisa M. (1992), 'Preschoolers' questions and parents' explanations: Causal thinking in everyday activity', *Cognitive Development*, 7, pp. 213-233.

Cartwright, Nancy (1983), *How the Laws of Physics Lie* (Oxford: Oxford University Press)

Chak, A. (2007), 'Teachers' and parents' conceptions of children's curiosity and exploration', *International Journal of Early Years Education*, 15(2), pp. 141-159.

Chouinard, Michelle M. (2007), 'Children's Questions: A Mechanism for Cognitive Development', *Monographs of the Society for Research in Child Development* (Boston, MA: Blackwell)

Churchland, P. (1981), 'Eliminative materialism and the propositional attitudes', *Journal of Philosophy*, 78, pp. 67-90.

Clancy, Patricia M. (1989), 'Form and function in the acquisition of Korean why-questions', *Journal of Child Language*, 16, pp. 323-347.

Dennett, D. C. (1995), 'Do animals have beliefs?', in H. Roitblat & J. Meyer, eds., *Comparative Approaches to Cognitive Science* (Cambridge, MA: MIT Press)

Dunbar, R. (1996), *Grooming, Gossip, and the Evolution of Language* (Cambridge, MA: Harvard University Press)

Dunn, J. (1988), *The Beginnings of Social Understanding* (Cambridge, MA: Harvard University Press)

Dunn, J. & Brown, J. R. (1993), 'Early Conversations About Causality: Content, Pragmatics, and Developmental Change', *British Journal of Developmental Psychology*, 11(2), pp.107-123.

Giere, R. (1996), 'The Scientist as Adult', *Philosophy of Science*, 634, pp. 538-541.

Glennan, S. (2005). 'The modeler in the crib', *Philosophical Explorations*, 8(3), pp. 217-228.

Glennan, S. (2002). 'Rethinking mechanistic explanation,' *Philosophy of Science*, 69(3 supplement), pp. S342-S353.

Godfrey-Smith, P. (2005), 'Folk Psychology as a Model', *Philosophers' Imprint*, 5, pp.1-16.

Gopnick, A., & Schulz, L. (Eds.). (2007). *Causal Learning: Psychology, Philosophy, and Computation*. (New York: Oxford University Press)

Gopnik, A. (2000), 'Explanation as Orgasm and the Drive for Causal Knowledge: The Function, Evolution, and Phenomenology of the Theory Formation System', in F. Keil & R. Wilson, eds., *Explanation and Cognition* (Cambridge, MA: MIT Press), pp. 299-323.

Heider, F. (1958), *The Psychology of Interpersonal Relations* (New York: Wiley)

Hempel, C. G., & Oppenheim, P. (1948), 'Studies in the Logic of Explanation', *Philosophy of Science*, 15, pp.135-175.

Hempel C. (1965), 'Aspects of Scientific Explanation', in C. Hempel, *Aspects of Scientific Explanation and Other Essays in the Philosophy of Science* (New York: Free Press), pp. 331-496.

Hickling, A. K. & Wellman, H. M. (2001), 'The Emergence of Children's Causal Explanations and Theories: Evidence from Everyday Conversation', *Developmental Psychology*, 37(5), pp. 668-683.

Hood, L., Bloom, L., Brainerd, C. J. (1979), 'What, When, How and Why: A Longitudinal Study of Early Expressions of Causality', *Monographs of the Society for Research in Child Development*, 44(6), pp. 1-47.

Hutto D. D. (2008), *Folk Psychological Narratives: The Sociocultural Basis of Understanding Reasons*, (Cambridge, MA: MIT Press)

Lewis, D. (1972), 'Psychophysical and Theoretical Identifications', *Australasian Journal of Philosophy*, 50, pp. 249-258.

Maibom, H.L. (2003), 'The Mindreader and the Scientist', *Mind and Language*, 18, pp. 296-315.



McCabe, A. & Peterson, C. (1988), 'A Comparison of Adults' Versus Children's Spontaneous Use of Because and So', *Journal of Genetic Psychology*, 149(2), pp. 257-268.

Malle, B. F. (2004), *How the Mind Explains Behavior: Folk Explanations, Meaning and Social Interaction* (Cambridge, MA: MIT Press)

Moll, H., & Tomasello, M. (2004), '12- and 18-month-olds Follow Gaze to Spaces Behind Barriers', *Developmental Science*, 7, pp. F1-F9.

Piaget, J. (1936/1952), *The Origins of Intelligence in Children* (New York: Basic Books)

Piaget, J. (1951), *Psychology of Intelligence* (London: Routledge)

Salmon, W. C. (1994), Causality without counterfactuals. *Philosophy of Science*, 61, pp. 297-312).

Salmon, W. C. (1984), *Scientific Explanation and the Causal Structure of the World* (Princeton: Princeton University Press)

Schwitzgebel, E. (1999), 'Gradual Belief Change in Children', *Human Development*, 42, pp. 283-296.

Smith, P. (1982), 'On Animal Beliefs', *Southern Journal of Philosophy*, 20, pp. 503-512.

Spirtes, P., Glymour, C., & Scheines, R. (1983), *Causation, Prediction, and Search* (New York: Springer)

Van Fraassen, B. (1980), *The Scientific Image* (Oxford: Oxford University Press)

Velleman, J. David. (2003), 'Narrative Explanation', *The Philosophical Review*, 112(1), pp. 1-25.

Walden, T. A., & Ogan, T. A. (1988), 'The Development of Social Referencing', *Child Development*, 59, pp. 1230-40.

Wellman, H. & Phillips, A. T. (2001), 'Developing Intentional Understandings'. In B. Malle, L. Moses, & D. Baldwin, eds., *Intentions and Intentionality: Foundations of Social Cognition* (Cambridge MA: MIT Press), pp. 125-148.

Woodward, J. (2003), *Making Things Happen: A Theory of Causal Explanation* (New York: Oxford University Press)

Zawidzki T. (2008), 'The Function of Folk Psychology: Mind Reading or Mind Shaping?', *Philosophical Explorations*, 11, pp.193-210.

