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Articles

Review Essay

Book Review

Let's Pretend!
Children and Joint Action

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According to many, joint intentional action must be understood in terms of joint intentions. Most accounts of joint intention appeal to a set of sophisticated individual intentional states. The author argues that standard accounts of joint intention exclude the possibility of joint action in young children because they presuppose that the participants have a robust theory of mind, something young children lack. But young children do engage in joint action. The author offers a revision of Michael Bratman's analysis of joint intention that reflects the socio-cognitive abilities young children do have. This revision makes sense of joint action among young children and equally well explains simple joint actions involving adults.

Keywords: *collective intentionality; joint action; child's theory of mind; joint attention*

Until recently, the notion of collective or group intentionality was likely to be discussed only in conjunction with the work of Emile Durkheim and early-20th-century debates over the proper methodology of the social sciences. We now find, however, philosophers of mind and action theory turning their attention to the issue. One of the reasons for the resurrection of collective intentionality has been to explain joint *action*. Individual intentions shape and inform individual actions. My intention to finish this article guides my daily activities, structures my desires in a variety of ways, and facilitates coordination with both my future self and others around me. But we do not always act alone, and it is coordination with others that raises interesting issues regarding the possibility of collective intentions. Many prominent philosophers of action theory, including John Searle (1990, 1995), Michael Bratman (1992, 1993, 1999), Margaret Gilbert (1989, 1994, 1996, 2003), and Raimo Tuomela (1993, 1995; Tuomela and

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Miller 1988) have argued that joint action cannot be understood merely in terms of individual intentions to perform some action.[1] Rather, joint action requires joint or shared intentions.[2]

There are a variety of accounts of joint intention on offer. Most of these accounts analyze joint intention in terms of a highly complex set of individual intentional states that exist under conditions of common knowledge. In this article, I want to pose a problem for these accounts. I do not intend to argue, as many have, that these accounts are too individualistic to capture the collective nature of joint action.[3] Instead, I want to argue that these accounts are too complex to accommodate cooperative and joint actions where the major participants are animals and young children (ages 1 to 4). In particular, I will argue that these accounts presuppose that the participants in a joint action have a robust theory of mind. Children under the age of 4 (possibly 5) and animals lack a robust theory of mind of either a general or particular nature. But they do engage in joint action, or so I shall argue. This suggests that the requirements for joint intentional action need to be weakened and revised.

I do not have the space here to investigate the capacity for joint action in both animals and infants. Nor do I have the space to discuss all of the accounts of joint action and intention that are currently in the literature. In section 1, I consider Michael Bratman's account of shared intention, the intention that underlies joint intentional action. In section 2, I lay out why I think that this account rules out the possibility of young children as participants in joint action. I present evidence that supports the view that young children (1 to 4 years old) do engage in joint action and they do so even though they lack a robust theory of mind. In section 3, I explore the capacities that young children do have and that make it possible for them to participate in joint actions. In section 4, I return to Bratman's account of shared intention and consider whether the capacities identified in section 3 can resolve the problems I raise for his account in section 2. I propose a revision of Bratman's account and suggest that it handles not only cases of joint intentional action in which young children participate but simple cases of joint action involving adults. I end by discussing the relationship between the type of joint action I identify and other forms of joint action that are more complex. My aim is to show that reflection on

1. An exception to this is Seamus Miller (1992), who has argued that joint action does not require joint intentions but simply a common end or goal.

2. I will use the phrase "shared intention" and "joint intention" interchangeably.

3. See, for instance, Stoutland (1997) and Tollefsen (2002a, 2002b).

children (and animals) provides a richer understanding of our nature as cooperative beings.

1. BRATMAN ON "JOINT INTENTIONAL ACTION"

Let me begin by further limiting the scope of my discussion. I want to focus in this article, as Bratman does in his work, on cooperative activity that involves a pair of participating agents and does not involve the actions of complex institutions with structures of authority. I also want to limit the discussion to activities that are, in Bratman's terms, *cooperatively neutral* (1993, 330). *Cooperatively neutral* joint action types involve actions that may be done cooperatively but need not be. Singing a duet, painting the house together, walking together, washing dishes together, moving a table together, are all paradigm cases of joint actions that are *cooperatively* neutral. That is, they could be done by individuals alone. Marriage, on the other hand, is not something that an individual can do alone. Therefore, it is not a cooperatively neutral joint action type. It is, as Bratman describes it, *cooperatively loaded*. I will also focus on joint actions in which the participants are within close proximity. That is, I want to put on hold joint actions that might be done over telephone lines (joint research?) and via e-mail and Internet (computer games?). My focus, then, will be on *face-to-face* cooperatively neutral joint actions. The limits I impose on this discussion are not ad hoc; nor do they limit our discussion to joint actions that are trivial, uninteresting, or rare. Indeed, I would suggest that these types of cooperative actions are primary—conceptually, ontogenetically, and phylogenetically.[4]

Consider, then, a paradigm case of joint intentional action.[5] Dave and Marianne are washing the dishes together. This is something they *do*. That is, it is an intentional action. And it is something that *they* do. That is, they are doing it together. Why can we not explain this intentional action in terms of Dave's intention to wash the dishes and Marianne's intention to wash the dishes, perhaps adding the condition of common knowledge? Even if Dave and Marianne know of the

4. Surely these are the sort of joint actions that our evolutionary forebears engaged in—joint hunting, gathering, and so on. It also seems plausible that our introduction to joint action as children is through face-to-face cooperative endeavors with our caretaker (e.g., joint pretense). I will have more to say about joint pretense in section 3.

5. Henceforth, "joint action" shall refer to "joint intentional action."

other's intentions, this does not seem to be enough to guarantee that Dave and Marianne are washing the dishes *together*. After all, these intentional states could be in place in a case in which Dave washes the dishes in the kitchen sink and Marianne washes them in the upstairs bathroom. In what sense would they be washing the dishes together? This suggests that what is necessary for joint action is some sort of joint intention: an intention that *we* wash the dishes.[6]

But how are we to understand this joint intention? Bratman makes clear his commitment to individualism. He does not think that shared intentions are the intentions of a plural agent. Nor does he think shared intention can be understood in terms of individual promises or individual intentional states. Instead Bratman proposes that we understand shared intentions as a state of affairs consisting of a set of interrelated individual intentional states. Here is Bratman's analysis of shared intention:

We intend to *J* if and only if

1. (a) I intend that we *J* and (b) you intend that we *J*.
2. I intend that we *J* in accordance with and because of 1a and 1b, and meshing subplans of 1a and 1b; you intend the same.
3. 1 and 2 are common knowledge.

The requirement that our subplans "mesh" is designed to rule out cases where Dave and Marianne both intend that they wash the dishes, but their individual plans about how to go about washing the dishes undermine the joint action. Dave intends to wash the dishes with Palmolive and Marianne intends to wash them with Joy. In this case, the individual subplans are in conflict, and this would prevent Dave and Marianne from washing the dishes together.[7]

6. John Searle (1990, 403) provides a nice example to highlight the inadequacy of accounts of collective action that appeal only to individual intentions to perform some action. Imagine a group of people sitting on the grass enjoying a sunny afternoon. Suddenly it grows dark and starts to rain. They all get up and run for shelter. In this scenario each individual has the intention, "I am running to shelter," and these intentions are had independently of one another. Now imagine a situation in which their running to the shelter is part of a performance. Suppose they are a group of actors and this is part of a scene in a play. Thus, at one point in the play, they perform the same actions done by the individuals in the above scenario. According to Searle, the performance by the actors involves a collective intention of the form "we intend to do *x*." This collective intention is different from the individual intentions had by the individual actors and it is not captured by summing up individual intentions of the form "I intend to *x*."

7. We should note that Bratman's account of joint intentional activity does not rule out cooperation under conditions of duress or in competitive contexts. In other articles (e.g., Bratman 1992), Bratman provides an analysis of an additional type of joint action, what he calls shared cooperative activity (SCA). In SCA, participants not only meet conditions 1 to 3, but they are each committed to the joint activity and they are committed to providing mutual support to one another. I have focused on the weaker form of joint action.

This is an extremely elegant analysis, and Bratman makes a compelling case that this complex of individual intentional states can play the role that shared intentions play in joint action. Shared intentions help to direct and coordinate our individual intentional states, and they act as a backdrop against which bargaining and negotiation occur. Bratman's complex of individual intentional states seems to fulfill these roles quite well.

Despite this, I think the analysis as it stands is too complex to accommodate joint action involving young children. In the next section, I argue that young children, ages 1 to 4, have the capacity for joint action and, hence, shared intention, but they lack the psychological sophistication needed to fulfill the conditions of Bratman's analysis. Although Bratman admits that his analysis may provide only one way in which joint intentions are realized and hence only one way in which joint actions might be performed, the failure of Bratman's account to extend to children (and animals) is illustrative. It suggests that there is a simpler and more parsimonious analysis to be given of face-to-face, cooperatively neutral, joint actions.

2. MEET ANYA

Anya is a happy and healthy 18-month-old. Although her mother thinks she is extraordinary, there is nothing really unusual about her. She does the usual things that many 18-month-old children do and has the capacities of most 18-month-olds. She walks and climbs, eats with utensils, drinks from a "sippy" cup, and has a vocabulary of 20 words or so and a whole host of communicative gestures. Anya, like her infant counterparts, went through a radical transformation between the ages of 12 to 18 months. Although at 9 months a healthy infant is able to interact with other people and explore her environment, it is not until 12 months or so that young infants begin to exhibit strong signs of social behavior. The most immediate difference is that children at this age begin to play with others. Although their play is often fleeting and they have difficulty sharing, the interaction they have with peers is remarkably different from previous months.

Prior to the first year, young infants are like windowless monads. They play alongside one another but do not interact to any great extent with each other. But as they past the 1-year mark, children begin to engage in more social behavior—in short, more cooperative behavior. Anya is particularly interested in building towers with others. She begins by placing a block on the floor and encourages me to place one of my choosing on top. She then adds another and so on. She delays her stacking in accordance with my stacking and will often encourage me to finish my part of the tower if I turn for a moment to attend to something else. Building towers is just one case of social interaction. There are many more. Children at this age make puzzles with others, play ring-around-the-rosy, look at books together, have conversations (those that have linguistic capacities), and engage in a variety of other simple games and tasks.

Joint pretense (pretending together) is a particularly good example of joint action in young children. As they get older, their capacity to engage in episodes of joint pretense increases. Anya is so good at serving pretend tea to her friends that she often mimics the sound of pouring tea: "sssss," and when one child spills the "tea," she insists on "wiping it up" with a towel. In these sorts of joint activities children not only coordinate their overt actions, but they must maintain and coordinate their pretend world as well. Perhaps it is less difficult to poor pretend tea than real tea, but it involves cooperation at two levels—the real and the fictional.[8]

I submit that these episodes of play are genuine cases of joint action. Children at this age are not simply playing alongside one another as might occur if Anya and I built separate towers next to one another. In these cases, children are coordinating their own behavior in a way as to encourage and facilitate the actions of others. The cooperative capacities of children are, of course, limited by their attention span, egoism, and physical abilities, but nonetheless they seem to be no different in kind from the paradigm cases of joint action cited by Bratman and others.[9] The children are not automata. Their behavior is not preprogrammed. Nor are they simply mimicking the actions of an adult (although they often do this as well). Prima facie, the tea party is something that the children *do*. And so prima facie, it seems to be a joint intentional action. But if the joint intentional actions of adults presuppose shared intentions, one would assume that the joint intentional actions of children (or children and adults) must involve shared intentions as well.

8. See Nichols and Stich (2000) for a philosophical discussion of pretense.
9. Gilbert's (1989) paradigm case of joint intentional action is walking together.

But can young children meet the conditions necessary for shared intention according to Bratman's analysis? There are two difficulties that arise when we attempt to understand the joint intentions involved in joint action at the level of young children. First, Bratman's analysis requires that each participant be aware of the other's intention. They must be mutually responsive to the intentions of those engaged in the joint action. This is clearly required by condition 2 in his analysis. The participants to a joint action must form their own intentions in accordance with and because of the intention of the other. Prima facie, this would seem to presuppose that the participants have a robust theory of mind. How could I be responsive to other's intentions in this manner, if I do not understand others as having them?

A theory of mind refers to our practice of construing others and ourselves in terms of mind-related constructs such as belief, desire, intention, and thought. I take the central features of a robust theory of mind to include the following:

1. an understanding of other persons in terms of their thoughts, intentions, and beliefs;
2. an understanding that other persons' thoughts, beliefs, and intentions may differ from one's own; and
3. an understanding that others have thoughts and beliefs that may not match with the current state of affairs (false beliefs).

Young children do not have a robust theory of mind, so they seem incapable of meeting the conditions for shared intention. The difficulty is not resolved if we suggest that what is required is not a general theory of mind but a particular theory of mind. That is, a theory of a particular person at a particular time.[10] It still seems to require that a young child understand the individual in terms of inner mental states and has the ability to track these states. The fact that Bratman's account requires that participants are mutually responsive to others' intentions appears to presuppose that the participants in joint action are proficient mind readers. Call this the *mutual responsiveness problem*.

10. Thanks to David Henderson for pointing this out to me. The literature on a child's theory of mind is often unclear as to whether they are concerned with a theory of mind that would apply to all people or a theory of a person at a time and in a given context, what I am calling a particular theory of mind.

The second problem is even more pressing. The existence of these intentions and their interrelatedness must be mutually known to the participants. Like most of the accounts of joint action presently on offer, Bratman's includes a common knowledge clause (condition 3 in the analysis above).[11] I do not intend here to delve into the voluminous literature on common knowledge. Basically, the idea of common knowledge involves knowledge of the other's knowledge and knowledge of the inferential capacities of others. For Lewis (1969), for instance, if a proposition A is publicly known among a set of agents and each agent knows that everyone can draw the same conclusions from A that she can, then A is common knowledge. Or consider Schiffer's (1972) definition of common knowledge:

X knows that p.
Y knows that p.
X knows that y knows that p.
Y knows that x knows that p.
X knows that y knows that x knows that p.
Y knows that x knows that y knows that p . . . and so on.

Of course, this structure need not be consciously present in the agents. It is only required that the believed content is something the person could infer to from what he indisputably currently believes. Despite this, I submit that the common knowledge requirement (even if tacit) presupposes a robust theory of mind. To know what another knows and to be capable of making the sorts of inferences required for common knowledge, one must have an understanding of others (or an understanding of a particular person) in terms of thoughts and beliefs. Because knowledge that p entails belief that p, it requires, in particular, an understanding of others in terms of belief. If I know that John knows that p, then I also know that John believes that p and that his belief that p is true. Bratman's analysis then, and many of the other accounts of joint action in the literature,[12] presupposes that the participants in joint intentional activities have a robust theory of mind. Call this the *common knowledge problem*.

11. The exception here is John Searle.

12. The accounts of Gilbert and Tuomela require that the participants be in conditions of common knowledge as well. However, they all have their own particular accounts of common knowledge. Still, I would argue that no matter what account of common knowledge you present, it presupposes that participants have knowledge (either tacit or explicit) of the mental states of others. Without an understanding of mental representation, young children cannot have knowledge of the mental states of others. Searle's account of collective intentionality seems not to require that the participants be under conditions of common knowledge. Because Searle thinks that an individual's ability to have we-intentions or we-beliefs is a biologically primitive capacity that is had by a wide variety of species, his account stands as the only one in the literature that is prima facie able to accommodate young children. See Tollefsen (2004) for a discussion of these issues.

But poor Anya does not have a robust theory of mind (of the general or particular sort), nor do any of her peers. Although there is a great deal of controversy concerning the advent of a theory of mind in young children, most researchers believe that a robust theory of mind does not come online until the 4th year (some researchers put it even later at 5). This is supported not only by the false belief tests but by a variety of other research.[13] Yet young children seem to engage in joint action. Thus, Bratman's account appears to be too complex to accommodate joint action in children.[14]

To be fair, Bratman does acknowledge that the role of shared intention might be played by a different "web" of attitudes. He is concerned with identifying *one* type of shared intention. Thus, he is not providing necessary conditions for joint intentional action. Young children, then, are not a strict counterexample to his account. But Anya and her peers can engage in the same joint activities that Bratman is concerned to analyze.[15] Why should we think that there is something different going on in cases of joint action involving young

13. See, for instance, Gopnik and Astington (1988) and Flavell, Flavell, and Green (1995). Not only do young children fail the notorious false belief tasks, but they also fail two other tests designed to reveal an understanding of other minds—the appearance reality test and the visual perspective-taking tasks (Flavell, Flavell, and Green 1983; Flavell et al. 1980). It appears that young children cannot seem to understand that two people can have different takes on one reality. That is, they fail to conceive of mental representations, the hallmark of a robust theory of mind.

14. To be clear, its not that it is too complex because the intentional states it posits have to be conscious or occurent. I understand Bratman (and Gilbert, Tuomela, and Searle) to be uncovering the intentional structure of joint action, and this structure could very well be tacit. I am also not claiming that it is too complex because young children cannot have an intention of the form "I intend that we J." Although I think there are troubling issues about this type of intention, I think children have a rich mental life—lots of intentions and so on. I am not (at least not today) Davidsonian about the mental lives of children and animals. It should also be noted that I am sidestepping the issue of whether the Theory/Theory or Simulation Theory, or some other account of our abilities to make sense of others and ourselves, is to be preferred. Regardless of what theory one adopts, the evidence clearly supports the view that young children do not have a robust conception of the mind.

15. Finn, Anya's brother, was a very good dishwashing partner at the age of 3. Unfortunately, he has lost interest!

children? And if children (and animals) do participate in a different form of shared intention, then why not begin with this form and see how far we can get? After all, we are animals and we were children. In the interest of parsimony and simplicity, we ought to begin a study of joint action that is responsive to considerations of ontogeny and phylogeny. I begin such a study in the next section.

3. WHAT DOES ANYA HAVE? JOINT ATTENTION, SOCIAL REFERENCING, AND INTENTION-READING

Let us return to Anya and her remarkable ability to engage in cooperative endeavors. I say "remarkable" because, as we have just seen, this ability is present despite a robust theory of mind. And in children who are younger than 18 months, it is present despite the lack of a developed language capacity. At the age at which children begin to engage in joint activity many cannot walk or talk, how in the world can they engage in joint activity with her peers and adults?[16]

Current research in social psychology and development psychology suggests that joint activity in young children rests on a variety of social cognitive capacities. These capacities begin to exhibit themselves at the age of 9 months. As I mentioned above, prior to 9 months infants exhibit a variety of behaviors involving interaction with objects, grasping and manipulating them; and they also interact with other people, expressing emotions, smiling in response to smiles, and so on.[17] But at around the age of 9 to 12 months, there is a new set of behaviors that is triadic in nature. That is, they involve a referential triangle of child, adult, and the object/event in the world to which their attention is drawn. Thus, infants at this age begin to follow the gaze of caretakers and peers on a regular basis (gaze following) and act on objects in the ways adults act on them (imitative learning). At this time, young children also begin to use a variety of gestures to get others to attend to things in which they are interested. As Michael

16. The capacity of young children to engage in acts of pretense alone and with others (called social pretense in the literature) is especially puzzling and has received a great deal of attention by developmental psychologists in recent years. For just a small sampling of the research on pretense, see Goswami (2002) and Sarach and Spodex (1998).

17. For research on early infants see, for instance, Cooper and Aslin (1989), Anisfeld (1991), and Meltzoff and Moore (1994).

Tomasello (1995) describes it, they exhibit a host of gestures to get the adult to "tune in" to them. These abilities are the foundation for a more sophisticated form of social cognition that begins to exhibit itself around the age of 12 to 18 months, what Tomasello and others have called *joint attention*.

We have already noted the triadic nature of some infant/caretaker interactions at the 9-month mark and the 9-month-old's ability to get an adult to tune into something they are looking at, so what is different about *joint attention*? When a 9-month-old and her mother look at the baby ducks in a pond, are they not *jointly* attending to the ducks? As Tomasello (1995) points out, joint attention is not just visually orientating oneself to the same object in the environment. What is important in joint attention is that the infant and caretaker are looking at the same aspect of their environment.

> It is presumably the case that 6-month-old infants quite often orient to the same spatial location as adults, but focus on different aspects of what is at that location. In such cases, we may talk of simultaneous looking or simultaneous orienting to a location but not of joint attention. Joint attention is not just a geometric phenomenon concerning two lines of visual orientation. (P. 105)

Nor is it sufficient for the child and caretaker to be attending to the same aspect of what is at that location for it to be *joint* attention. Imagine a case in which the child and caretaker are both looking at the same aspect in their environment (the white swans rather than the brown mallards), but they are standing on either side of a tree, and the infant is not aware of the mother's attention, nor is the mother aware of the infant's attention. Or consider Tomasello's (1995, 106) example: "both child and adult may have their attention drawn to the same thing fortuitously, as when barking leads each of them to look to a dog out separate windows of a house." For attention to be truly joint, the participants must be monitoring the attention of the other to the outside entity.

As I have said, the capacity to engage in joint attentional episodes is most evident between the ages of 12 and 18 months. It is at this stage that we find young children exhibiting a form of gaze alteration that is thought to signify a tracking of the other's attentional focus.[18] The

18. Although even Tomasello (1995, 106) admits that gaze alteration is not an infallible sign of joint attention: "For example, an infant may look to an object the adult is looking at, and then, perhaps because the adult moves or talks, have his or her attention

scene is a familiar one to parents with toddlers. Children at this age regularly pick up objects and bring them over to others to show them the objects, and the child will typically look at the other's face during their joint focus as a way of verifying that the other is seeing and attending to that which is of interest to her. Prelinguistic children use a whole host of protodeclaratives and protoimperatives to actively manipulate adult behavior and attention.

It is no surprise that the capacity to engage in joint attentional episodes exhibits itself at about the same time we begin to see children engage in joint activities. The ability to track another's attention and coordinate one's own attention and action with another is itself a form of cooperative behavior, and it is surely a necessary requirement for joint activities like building a tower. Anya must be capable of tracking my attention to be able to coordinate her own efforts to build the tower. If she cannot track my attention, she cannot anticipate where I will put the next block or which block I will choose. And it is precisely because she is able to track and keep my attention via a variety of protoimperatives that we are able to engage in extended episodes of joint tower building. She is also able to use my facial expressions as cues. After placing her piece on top, she often looks to me as if to ask, "Will it topple?"

Joint attention is clearly present in cases of pretense as well. When children pretend, they create together a shared space of possibilities. To maintain the pretense, one must be aware of the other's attention both to the physical objects that are being used in the game of pretense and also the attention given to the fictional realm as well. It would be difficult to explain Anya's ability to serve pretend tea to her friends if she did not have the capacity to track their attention to the tea cups, tea pot, and the play environment. To take an example involving adults, just think of how difficult it would be to move a table together if one could not see that to which the other was attending; a partner with dark glasses and no ability to verbally convey that to which one is attending (nor an ability to gesture because their arms are around a large table), would make for a very difficult move.

The capacity for joint attention exhibits itself in conjunction with another social-cognitive skill—*social referencing*. In social referencing, the child looks to the adult when confronted with an ambiguous situation and then adopts the adult's attitude to that situation. If the adult exhibits fear, then the child retreats, and if the adult exhibits a sense of ease or comfort, the child approaches (Campos 1980; Mumme, Fernald, and Herrera 1996). Social referencing is thought to be a precursor to a robust theory of mind because it involves interpreting others emotions, but these emotions are not understood to be mental (Wellman 1993).

drawn to the adult, and then, perhaps because the object moves or makes noise, back to the objection. This alternating of attention between an object and a person is not joint attention because the child is not concerned with the adult's attention to the object."

Social referencing appears to be present in cases of joint activity in which children participate. Not only do children track others' attention to an object or a state of affairs, they are also keenly aware of the emotional stance the other takes toward that object. The recognition of these emotions seems needed to coordinate one's actions with another and to negotiate conflicts when they arise. Indeed, social referencing would seem to be needed to ascertain whether someone is willing or positively disposed to engage in a joint activity. When Anya and I build a tower together, she is keenly aware of my responses to her moves. If the tower is in danger of toppling and I express this with an "oh no!" look, she adopts this look as well and her behavior alters in response to my attitude. She might choose a smaller block to place on top to avoid toppling the structure. Again, pretense in young children is helpful here. In episodes of joint pretense, parents often signal that the act is one of pretense by making a "this is silly" face (Lillard, Witherington, and Robinette 2001). Adults seem to signal that they are in conditions of play with children in the same way that they would signal that a toy is dangerous or a stranger is not threatening.[19]

Research on pretense in young children and, in particular, episodes of joint pretense, suggests that there is yet another social-cognitive capacity present in cases of joint activity involving young children, that of *intention-reading*. Pretense is defined as projecting a mental representation onto reality (Bretherton 1984; Lillard 1993). Obviously, then, pretense involves the use of mental representation. The crucial issue here is whether children, during pretense, consider mental representation as mental representation. This is the hallmark of a theory of mind. Prima facie, pretending with others involves reading the other pretender's intentions. A child who watches her mother talk into a banana during an episode of domestic play must interpret that her mother intends that the banana serve as a telephone. Merely reading the behavior, without awareness of the intention, would lead to

19. Apparently, animals appear to give signs that one should interpret their play acts as "not real" (Bekoff 1977).

confusion on the child's part. The child in nonpretense contexts might believe the banana to be a phone. This suggests that young children have the capacity for what researchers have called *intention-reading*.

Now the ability of the child to understand intentions in pretense might lead one to think, contrary to what I have said and what researchers believe, that young children do have a robust theory of mind. But this would be a mistake for the following reasons. First, recall that a robust theory of mind, as I have defined it, involves understanding of others in terms of mental states like belief and thought as well as intention. Although joint pretense seems to presuppose an understanding of intention, it does not yet presuppose an understanding of concepts like belief and thought.[20] The capacity to read intentions may simply be the rudimentary beginnings of a robust theory of mind.

Second, it is not clear the capacity to understand the intention present in acts of pretense involves the understanding that the pretender has this intention "in mind." That is, it is not clear that the child must interpret the pretense action in a way that involves the positing of an internal state that guides the pretender's behavior. Rather, it may simply involve an awareness of what Searle (1983) has called an *intention-in-action*. This is a concept Searle deploys in his analysis of action (pp. 83-98). For Searle, an action is "a causal and Intentional transaction between mind and the world" (p. 88). Thus, an action is composed of two parts: an intention and a movement. The intentional component is, roughly, the mental and causal component that represents (or presents, to use the term Searle prefers when discussing the intention-in-action) conditions of satisfaction to be met by the appropriate movement. In cases of premeditated or deliberative action, the action is caused by what Searle terms a prior intention—that is, an intention to act formed in advance of the action itself. But many if not most everyday actions are not premeditated and thus cannot be attributed to prior intentions. It is largely to account for these actions that the intention-in-action is invoked. For in contrast to the prior intention, the intention-in-action is not formed in advance of the action but rather causes the act by representing its conditions of satisfaction on the fly, as it were. Indeed, intentions-in-action are primary. All intentional action involves intention-in-action, but not all intentional action involves prior intentions.

What evidence is there to suggest that children understand intentions-in-action? Intention-reading in pretense has not received a great deal of attention by researchers, but it has been researched a great deal recently outside of pretense contexts. In one experiment, 18-month-olds who watched an adult try to pull apart the ends of a barbell, but not succeed, proceeded fully to carry out the action themselves later (Meltzoff 1995). Michael Tomasello and others have designed experiments to show that 24-month-old children will interpret the exact same behavior differently depending on what they see the adult doing moments immediately preceding the target behavior; for instance, if an adult pulls at a box before engaging in some actions leading ultimately to opening it, young children construe the entire sequence as "trying to open the box" in a way that they do not if they do not see the initial pulling (Rakoczy, Tomasello, and Striano 2004). Woodward (1998) has suggested that even younger children might have some capacity to read intentions in that even by 9 months of age, they interpret grasping actions as directed at specific objects rather than locations. Furthermore, preferential looking and habituation paradigms in infants appear to show some sensitivity to some of the properties of goal-directed action by the second half of the first year of life (Gergely et al. 1995; Woodward 1998; Baldwin and Baird 2001). Although Michael Tomasello has argued that this and other research supports the view that young children have an understanding of prior intentions, the evidence equally supports a less controversial claim, that young children perhaps even infants can read intentions-in-action.[21]

20. There are some difficulties here that should be noted. If intention is essentially tied to the notion of belief, then it would seem that an understanding of intention presupposes an understanding of belief. For instance, if, as Davidson (1984) has argued, beliefs are primary, when a child understands another's intentions, then he or she also understands that the person has beliefs. I cannot understand that you intend to get the ice cream out of the freezer unless I also understand that you believe the ice cream is in the freezer. If I did not understand that you had a belief about the whereabouts of the ice cream, it would be difficult to see how I could interpret you as having an intention to get the ice cream out of the freezer. I do not have the space here to reflect on the philosophical debates about intention and their consequences for the literature on a child's theory of mind. Researches like Tomasello resist associating intention-reading with an understanding of others as believers and thinkers. Tomasello (1995, 105) defines intentions as "concrete goals or purposes by which human beings guide their behavior." There is strong experimental evidence that suggests that young children have an understanding of others' intentions and desires much earlier than they acquire an understanding of belief and thought (Gopnik and Slaughter 1991; Lillard and Flavell 1992, Moses 1993; Wellman and Wooley 1990). Perhaps this suggests that philosophers like Davidson are wrong about the primacy of belief and the holistic nature of propositional attitudes.

21. Recent research by Lillard (1998, 2001) suggests that a young child's understanding of pretense does not even involve an understanding of intention-in-action. Chil-

So Anya and her peers lack a robust theory of mind, but they do have the capacity for joint attention, social referencing, and intention-reading (but this does not necessarily presuppose the ability to interpret another in terms of prior intentions). These capacities appear to be present in cases of joint intentional activity involving children, and they are surely precursors to a robust theory of mind. But are these capacities sufficient to make sense of joint actions involving children on Bratman's account of shared intention? Do the capacities identified here allow us to resolve the mutual awareness problem and the common knowledge problem? In the next section, I provide a revision of Bratman's account of shared intention that incorporates what we know about young children's sociocognitive abilities. I will suggest that although older children and adults do have a robust theory of mind, many simple joint activities involving more sophisticated agents can be explained by appeal to this revised account of shared intention.

4. SHARED INTENTION REVISED

The coordination that takes place in joint action and in joint attentional interactions is accomplished by means of an understanding that the other participant has a focus of attention to the same entity as the self. There is a recognition of an alternative perspective. This implies an understanding of the other participant, not as an object but as a locus from which action can originate. This acknowledgment does not commit one to the existence of a robust theory of mind. It does, however, suggest that what is present in cases of joint attention and joint action is the recognition that someone is doing something rather than having something done to them. Joint attention and the other social cognitive capacities exhibited by children between the ages of 12 and 18 months provide strong evidence that young children often will say that people are pretending to be an *X* even when they are told that the person either does not want to pretend to be *X*, does not know what *X*s are, and does not intend (or is not trying) to be an *X*. From this research, it appears that young children determine whether someone is pretending merely by looking at the person's action or other external manifestations. Lillard and Flavell (1992) suggest that young children might understand pretense as action or acting-as-if rather than as a mental state. Unfortunately, I do not have space here to explore the implications of Lillard's work. If Lillard is correct, intention-reading could still be present in cases of joint pretense if one interprets intentions in a Rylean sort of way.

dren have the capacity to recognize the teleological nature of certain actions.

Young children seem to be able to distinguish between behavior that is goal directed and that which is not, and they are able to read off from the behavior, context, and perhaps using social referencing, the goal the behavior is attempting to fulfill. The intention-in-action presents its conditions of satisfaction, and children have the capacity to perceive those conditions. They do not call the action "trying to open the drawer" because they recognize that the adult has a prior intention to do so, that there is some "inner" goal that directs the agent's behavior. They have seen the adult tugging at the drawer. This action presents its conditions of fulfillment, and the children can, with the help of social referencing, literally see these conditions. The experimental evidence supports this interpretation equally well and does not require a full understanding of intentional agency involving the recognition of prior intentions.

If children can recognize intentions-in-actions without a robust theory of mind, then we have resolved the mutual responsiveness problem. Bratman's analysis of shared intention requires that the participants be mutually responsive to the intentions of the other participants. But how could children be mutually responsive to the intentions of others if they do not also understand them as having those intentions? The intention-reading capacity of young children suggests that although they cannot understand prior intentions, they are able to perceive the intention-in-action.[22]

Recall the second problem I raised for Bratman's account. The common knowledge problem stems from the fact that his account requires that the complex of intentional states be common knowledge among

22. Those familiar with Searle's work on collective intentionality may begin to see something familiar. Searle argues that at the heart of joint actions is a form of primitive intentionality. Consider Searle's case of Jones and Smith's cooperative behavior as they prepare hollandaise sauce. Jones is stirring while Smith slowly pours in the ingredients. "Each [of them] has a form of collective intentionality that he could express as 'We are preparing hollandaise sauce' " (1990, 410). Searle declares this to be a collective intention-in-action. Although there are similarities between what I am proposing and Searle's account, I want to avoid adopting Searle's account of collective intentionality. On Searle's account, each individual has an intention of the form "We intend to *j*," and I find this a bit obscure. And as many commentators have remarked (i.e., Meijers 2003), Searle's account of joint action and joint attention also seems to leave out the essential "sharedness" or "jointness" of joint action because he allows for the possibility that there be a collective intention to act and thus a collective action even when no other participants are present.

the participants. Common knowledge requires a great deal of psychological sophistication on the part of the participants. I argued that it requires a robust theory of mind, and since young children lack this theory of mind, they would be excluded from participating in shared intentions. We need not posit common knowledge, however, to introduce the openness that needs to be present in cases of joint action. Joint attention shares a structure very similar to common knowledge without involving a great deal of cognitive sophistication (either explicit or tacit). The point has been made quite nicely by Christopher Peacocke (2002) in one of the few philosophical discussions of joint attention. Peacocke points out that there is an overtness in joint attention that is a specifically perceptual phenomenon. He characterizes it in the following way:

> X perceives that x and y are attending to o.
> Y perceives that x and y are attending to o.
> X perceives that y perceives that x and y are attending to o.
> Y perceives that x perceives that x and y are attending to o.
> X perceives that y perceives that x perceives that x and y are attending to o . . . and so on. (P. 4)

The iterative structure of joint attention is similar to that posited for common knowledge, but it does not involve inference from counterfactual cases. Nor does it require knowledge[23] of others' mental states and the ability to draw inferences about those states. It simply requires that participants perceive that the other is perceiving, and as we have seen, this capacity is present in young children. Young children can identify and manipulate the attention of others. And joint attention, unlike common knowledge, is not something merely dispositional or counterfactual; it is present to the consciousness of the participants. What joint attention provides is a shared perceptual space in which cooperative actions can take place.

Given the nature of joint attention, then, and the ability of children to recognize intention-in-action, I want to suggest the following revision to Bratman's account of the shared intentions underlying joint intentional action:

1. (a) I intend that we J and (b) you intend that we J.
2. I intend that we J in accordance with and because of 1a and 1b, and meshing subplans of 1a and 1b; you intend the same.

23. Perceptual knowledge is, of course, a form of knowledge, but perceiving another perceiving does not seem to require knowledge of inner mental states.

3. 1 and 2 are jointly perceived (or as Peacocke puts it, 1 and 2 are mutual open-ended perceptually available).

There seems to be no problem with young children meeting the conditions in 1. Aside from difficulties with the notion of an individual intending that we J, young children surely have the mental representational capacities to be able to form intentions.[24] However, there are cases of joint action among children, as there surely are in adults, where there are no prior intentions, simply intentions-in-action. The condition stated in 2 is met by children via their ability to understand the intention-in-action of the other. The content of this intention-in-action will have to be something like "that we J." Having identified the intention-in-action, children can act in accordance with and because of this intention, and as the activity continues, they are able to track additional intentions-in-action that may be exhibited in the form of subplans. Admittedly, it is not clear how this intention would be manifested in the action. Perhaps certain behavioral cues would aid in the identification of this intention—facial expressions, extended hands, expressions of cooperativeness. The intentions-in-action are perceptually overt, and because of the joint attention of the participants, each perceives that the other perceives. In a real sense, what is being shared here is not only an intention to act together but a perception or a perceptual space of possibilities that the participants then go on to negotiate.

This revision allows us to make sense of the intentional structure of joint action in children. Joint actions of children are things that they do; they are intentional, and what underlies these actions is a complex of intentions under conditions of joint attention. What makes it possible for children to be aware of these intentions is their ability to track intentions-in-action.

I have revised Bratman's account of joint intentional action to accommodate joint action involving young children. But I want to suggest that this analysis works equally well for many cases of adult joint action (e.g., Marianne and Dave's joint action of washing the dishes together). Although adults have the capacity to identify and track prior intentions because they have a robust theory of mind, the

24. Given the dependency of very young children on their caretakers and certain views concerning the development of the self (i.e., object relations theory), one might wonder whether very young children always intend in the form "I intend that we J." Even more interesting would be the possibility that they have something like the capacity Searle identifies and all of their early intentions are of the form "We intend to J."

simple cases of joint action on which two people engage in a cooperatively neutral act that involves no prior planning do not seem to require that the participants have knowledge of the prior intentions of others. What *is* required is a continual awareness of the intention-in-action. Joint attention and social referencing (and in adults, verbal communication) provide the backdrop for this awareness and is needed to guide the actions of the individuals and resolve further coordination problems. In addition, although not sufficient for more complex joint intentional actions that involve prior planning, norms, or agreements, the ability to read intention-in-action, social referencing, and joint attention seems to underlie many of the more complex joint actions. Consider the ongoing joint intentional action of playing a game of basketball. There is nothing simple about this joint activity.[25] It is a face-to-face joint activity, but it is not cooperatively neutral; it often involves more than two people; and it requires a vast amount of background knowledge about the rules, discourse, and behavior associated with the game of basketball. But the fast pace of the play prohibits sophisticated planning of each joint endeavor, and it also prohibits interpretation of others in terms of mental representations. Although not sufficient, the ability to social reference and to read intention-in-action within a shared perceptual space provides us with a baseline understanding of the cognitive structure of these more sophisticated forms of joint action.

CONCLUSION

To be sure, there are a great deal of unresolved issues here, and my discussion raises a whole host of additional problems and puzzles. My revision of Bratman's analysis of shared intention makes intelligible cooperatively neutral, face-to-face, joint intentional action among young children and adults. It provides a more parsimonious account of this form of joint action and is responsive to ontogenetic evidence. In addition, the cognitive prerequisites of these simple joint intentional actions seem to be present in more sophisticated forms of joint intentional action.[26] Of course, the relationship between the simple form of joint intentional action I have described and more sophisticated forms of joint action involving commitments, social norms, and institutional structures will have to further explored. I will also need to say more clearly what perceiving an intention-in-action involves and the origins of such a perceptive capacity. I have provided evidence that it exists in young children, but the nature of the perceptual ability remains a bit of a mystery.[27] My aim here has been to suggest that many forms of joint intentional action rest on the ability to share a perceptual environment with others and not just on the ability to share intentions. Although the details of my revision need considerable fine-tuning, I hope to have shown that by focusing on the cooperative capacities of young children, we can better understand our own cooperative capacities. I suggest that an exploration of the cooperative capacities of animals will be equally revealing. But I will reserve this exploration for another time.

25. Thanks to Jim Bohman and Allison Wylie for pointing this out to me.

26. Gilbert has claimed to provide an analysis of the core notion of certain concepts like that of a social group and joint action (1989). In a recent article (2003), she has claimed that joint commitments are the foundation of human social behavior. In correspondence, Tuomela has suggested that I have identified a form of rudimentary joint action but not a full-blown case of joint action. I would suggest that since prima facie children are able to do, although for less time and with less coordination, what adults are able to do (walk together, move objects together, wash dishes together, play catch, and so on), their exclusion from "full-blown" cases of joint action is more a matter of theoretical bias then philosophical argumentation. If one is committed to the view that the basic forms of joint action presuppose joint commitments (Gilbert) or we-intentions (Tuomela), then it will follow naturally that cases of joint action in which children are the major participants will be classified as quasi. But since, pretheoretically, children and animals engage in joint action, I think we need to explore the case of children and animals more carefully.

27. Fascinating research suggests a possible neural explanation. When monkeys watch others engage in specific motor acts, the same parietal neurons fire as fire when the monkey itself engages in like acts (Rizzolatti et al. 2002). These "mirror neurons" may explain why children are able to distinguish between doings and happenings.

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