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HELPING BEHAVIOR AND JOINT ACTION IN YOUNG CHILDREN

abstract

An important idea due to Tomasello and others is that the human capacity as the human capacity for social cooperation is at the heart of the species' capacity to understand others' mental states and behavior. Furthermore, they argue that this idea allows for an explanation of how humans came to share thoughts and language. While this is a promising idea, the special attempt to pursue this hypothesis in developmental studies and evolutionary theory developed by Tomasello and his research group faces several problems. This is especially apparent in their attempts to explain helping behavior and joint action in young children. In this paper, we argue that many of these problems result from assuming that the right explanation of joint action and simple forms of shared intentionality is given by Bratman's theory of shared intentions.

keywords

joint action, cooperation, development, shared intention

1. Introduction One important application of theories of collective intentionality is in explaining the evolution of social understanding – and even human thinking (Tomasello 2014). The promising idea behind this enterprise is that insofar as the human capacity for social cooperation is at the heart of the species' capacity to understand others' mental states and behavior, it leads to an explanation of how humans came to share thoughts and language. While this is an important idea, the special attempt to pursue this hypothesis in developmental evolutionary studies developed by a dominant trend in developmental studies due to Tomasello and others (Tomasello 2014, Warneken & Tomasello 2006, 2007) faces several problems, or so we argue in this paper.

Such problems are especially apparent in Warneken, Tomasello et alia's attempts to explain helping behavior in young children. Their explanation can be characterized as a twofold explanation as it involves two explanatory factors: the first is children's *altruistic* tendency to cooperate, and the second is the ability to act jointly and share intentions, which is independent of the former factor and in turn explained in terms of theory of mind skills. In this paper, we identify three main problems with said explanation and argue that they result from assuming that the right account of joint action and simple forms of shared intentionality is given by Bratman's theory of shared intentions.

2. Bratman on joint action According to Bratman's account, agents that engage in joint action have a number of individual and interlocked intentions that steer, guide and monitor their joint activity. In this section, we proceed to present this model of joint activity, analyzing some of its key features and especially the notion of helping behavior that flows from it. In the subsequent section, we show that assuming a model like Bratman's leads Warneken, Tomasello et alia to overlook important features of children's helping behavior and to wrongly assess its relation to their evolving interest and engagement in joint activities with adults.

Bratman identifies a set of jointly sufficient conditions that qualify an action as a case of shared agency. Given Jones and Jane and an action J, say, building a house, the conditions are:

(1) the agents pursue *interdependent* goals^{1,2}, that is, Jones intends that Jane and Jones J together, and Jane intends that Jones and Jane J together³.

(2) the agents pursue the goal in an *intentional* and non-coercive way, that is, Jones intends that Jane and Jones J together in accordance with and partly because of Jane's intention in (1), and Jane intends that Jones and Jane J together in accordance with and partly because of Jones's intention in (1).

(3) the agents intend that their strategies towards the goal mesh: Jones intends that Jane and Jones J together in accordance with and partly because of the meshing sub-plans of (1), and Jane intends that Jones and Jane J together in accordance with and partly because of the meshing sub-plans of (1).

(4) all the conditions are out in the open, i.e., are common knowledge for Jones and Jane.

(5) among the agents, there is public mutual responsiveness that tracks the goal.

(6) there is a commitment to mutual help and support among the agents.

The interdependence between Jane's and Jones's goals, it can be argued, has to be characterized as "weak". It is weak because the intentions in (1), which identify such interdependent goals (Jane's and Jones's intentions *that they J*), *derive from or are sustained by* individual intentions, which are independent. The idea of "weak" interdependence should be understood in contrast to the "robust" form of interdependence that authors like Tuomela and others want to secure for common or collective goals, i.e., for goals intended by a group where individual intentions are not based upon individual intentions but are themselves dependent on collective intentions (cf. Tuomela 2005).

Bratmanian shared intentions can derive from independent and individual intentions in the sense that the formation of intentions in condition (1) temporally follows the formation of intentions of the form

(0) Jane intends to J, and Jones intends to J.

But, even if shared intentions are not preceded by intentions like (0), they are in any case *sustained* by intentions of such form in the following twofold sense. *First*, it is not possible for an agent to intend that she J with someone else without intending to J: if the agent's intention to J lapses, then the intention that the agent Js with someone else has to lapse, too. However, *second*, it can be that the intention that the agent Js with someone else expires and, yet, the agent still intends to J. That is, whenever agents have intentions of the form (1), they also have intentions of the form (0) – the latter have to accompany the former and, in certain cases, they temporally precede them.

1 No commitments need to be involved in this scenario, except for those private (non interpersonal) commitments towards one's goal that are generated by the agents' individual intentions.

2 By "goal", we mean a state of affairs that the bearer of the intention is committed to bringing about (in this case: J).

3 To avoid circularity, Bratman denies a robust reading of "together". Instead, "together" should be read as meaning that "each of us intends that we J by way of the intentions of each that we J" (Bratman 2015, p. 3). This view denies the need to postulate a plural subject, neither is a plural subject *part of the content* of the intentions nor are such intentions those of a plural subject.

We have said that the agents' goals in (1) are weakly interdependent: Jane intends to J with Jones only to the extent that Jones intends to J with Jane. But how can one characterize the goal in (0)? This can be said to be shared *distributively*, i.e., an outcome O is a distributive goal of two or more agents' actions if, *first*, O is one to which each agent's actions are individually directed and, *second*, each agent's actions are related to the outcome in a way that it is possible for all of them together to succeed in bringing about O (Butterfill 2012, p. 849).

The form of help in condition (6) can be said to directly depend on the notion of an interdependent goal as presented in condition (1) and on the notion of a distributive goal that defines the nature of the overarching goals in (0). If the agents pursue a distributive goal, then the help they are willing to provide is not on behalf of the other agent(s). Consider the following example. Imagine that at a given point Jane notices that Jones's behavior may put the possibility of building the house at risk, e.g., because he is not using the right amount of sand to prepare the concrete. She decides to do something to fix this problem. In this case, help is triggered by the fact that one agent, say, Jane, realizes that one of the *means* that she chooses to reach her goal (namely Jones's expected contribution, cf. Bratman 2014, p. 100f) does not work out appropriately.⁴ Since the expected contribution is missing, the achievement of her goal is endangered. *Therefore*, Jane intervenes to fix the problem, which she conceives of as *her* problem. She fixes it in such a way as to supply the missing contribution. This, i.e., fixing her problem, can be contended to be what Jane *directly* intends.⁵ Or, in other words, this is what is steered and guided by her intention. Now, according to the ordinary concept of help (Schmid 2010), helping seems to involve directly intending the other's goal, i.e., the other's goal is the *end* of the action. By contrast, in a scenario like the one framed by Bratmanian joint intentions, Jane does not have an intention of this sort towards Jones' goal, as Jones' goal is only a *means* towards her goal, the actual end of her action. To illustrate this contrast, we can introduce the notion of *indirect or oblique help* where by an event is intentionally brought about as a consequence of another action, but is not intended as such.⁶ Helping would be instrumental in this case insofar as the other's goal is taken as a means for pursuing one's own goal and not as an end itself.

Thus, Bratman's model seems to provide an adequate account of the kind of joint action that involves instrumental helping among interactants motivated by individual reasons. While this model may be suited to account for many cases of cooperation, we argue that his analysis is not successful in accounting for children's cooperative behavior, as Tomasello et al. meant it to be. In the following section, we review Warneken et al.'s studies on the early development of joint intentionality. We present three major challenges that this account faces and show how these shortcomings spring from the authors' use of Bratman's model of joint intentions. The solution to these problems, we conjecture, has to pass through an

4 The other's contribution figures as a *means* to one's own goal insofar as it is "by way" of the other's intentions that the goal is pursued. This does not mean that the intention of the other is treated on equal footing with other means to the same end, means that are not intentional contributions to the same end. The conditions (1) – (6) spelled out above identify the other important features that the contribution of the other needs to meet in order to qualify as an intentional contribution.

5 This distinction between direct and indirect help is developed at length in Salice & Satne (*under review*).

6 In previous work on the philosophy of action, Bratman (cf. 1984) convincingly relaxes the condition that, for an action to be intentional, it has to be intended. He argues for the idea that, if an action's outcome A is salient and expected by the agent, then A qualifies as intentional. To illustrate with our example, Jane intends to fix the situation, and she knows that fixing the situation (given that Jones's goal overlaps with hers) will result in helping Jones. She then intentionally helps Jones. But she did not intend this in the sense of having an intention that refers to Jones's goal. She did not *directly* intend to help Jones; she obliquely or indirectly helps Jones. For a full-length explanation, see Salice & Satne (*under review*).

altogether different conception of joint intentionality, one that seriously considers the idea of genuinely collective intentions. Arguing in favor of this idea would nevertheless exceed the purposes of this paper.

Warneken, Tomasello et alia have studied children's engagement in joint action and helping behavior at a young age. Such studies analyze children's early understanding of shared intentions by focusing on two different kinds of behavior prominent in children between 14 and 24 months: 1. children's tendency to help others achieve their goals, which is manifested in their engagement in further pursuing the incomplete actions of adults; 2. children's ability to engage in shared cooperative activities in Bratman's sense, where the roles of each agent's actions are complementary and where all the interactants (i.e., children and adults) are together pursuing the goal (Warneken & Tomasello 2006, 2007). In this view, only the latter is an example of shared intentionality.

According to these studies, the first kind of behavior is to be found in children at around 14 months of age (Warneken & Tomasello 2006, 2007). The experiment that Warneken and Tomasello developed to test this kind of helping behavior ran as follows: the experimenters performed several tasks in front of children where the experimenter encountered some kind of hindrance – his marker fell while drawing, a clothespin was dropped while hanging towels, a spoon accidentally fell into a box on top of which the experimenter's teacup was placed. In each case, the experimenter expressed annoyance when this happened (“Oops! I dropped my marker”, etc.). This was contrasted to control conditions where the experimenter did not seem to care about what happened, or where he intentionally caused the hindrance (e.g., intentionally throwing the spoon into the box after stirring the tea). While in the former cases the children spontaneously engaged in the activity by helping the experimenter (picking up the clothespin or marker, etc.), in the latter they did not. According to the authors, the outcomes of the experiment showed the presence of an altruistic tendency in young children, a tendency to act upon others' incomplete or impeded goals, and a correlated capacity to understand someone else's intentional actions. Importantly, in Tomasello et alia's view, this is not yet a case of shared intentionality because – even if children are acting upon another person's goal – they are not coordinating their activities with the adult.

The second kind of behavior – the one that can properly be called “shared intentional activity” according to these authors – is argued to satisfy Bratman's conditions spelled out above. It was shown that children as young as 18 months can successfully deal with joint problem-solving tasks in which two agents (the child and the experimenter) must perform complementary roles in order to achieve a joint goal, e.g., pulling opposite ends of a tube to retrieve stickers that are hidden inside, or placing a ball into a tube and catching it from the other side.

Warneken et alia (2006) analyzed the behavior of children between 18 and 24 months in similar experiments. When comparing both age groups, it was observed, they surmise, that this sort of activity is consistently and spontaneously carried out by children aged 18 to 24 months, and becomes more skillfully and expertly performed over time. Moreover, in carrying out these experiments, the authors found that children over 18 months of age consistently protest (verbally or non-verbally) if the adult disengages before the shared activity is completed and, significantly, such protesting still arises even if the activity is successfully completed and the goal attained. In addition, they also observed a tendency in the children to repeat the action even when it was completed successfully. In their view, this showed that, in so doing, the children were not pursuing an individual goal (e.g., get the ball) but that, rather, they were interested in the shared activity as such.

Warneken, Tomasello et al. understand shared intentional activity in terms of Bratman's analysis of shared intentional activity and explicitly so (see Warneken et al., 2007, p. 291;

3. Children's engagement in joint action: Warneken & Tomasello's view

see also Tomasello 2014). Accordingly, they characterize spontaneous helping behavior as an example of individual intentionality: contributing to another person's goal manifests an understanding of the other person's goal-directed behavior, but it is not yet a case of sharing a goal with another, as the conditions spelled out by Bratman are not fulfilled. The authors conclude that helping behavior in young children is a precursor of the kind of shared activity that is exhibited when they later engage with adults in coordinating activities, such as in the experiments above. Nevertheless, as we argue below, the specific features of the analysis they provide of shared intentional activity and helping behavior cast doubt on whether their conclusion really follows from the studies. Several features of children's behavior are not really explained by the Bratmanian model they use. Moreover, using such a model to explain children's engagement in shared activity leads to what could be taken as important shortcomings in their analysis.

4. Some problems with Warneken and Tomasello's account

In this section, we identify three problems that arise for this theory, and we argue that their origin lies in the authors' attempt to employ Bratman's theory of joint action to explain helping behavior in infancy. If our arguments are sound, they show the need for an alternative account of joint intentionality that might provide us with a better explanation of how shared intentionality and social understanding develop in infancy.

The *first* problem concerns the inability of the theories under scrutiny to account for the continuity and overlap in the development of two sorts of behavior: helping others complete their tasks (over 14 months of age) and cooperating with others to perform joint tasks (over 18 months of age). While children seem to move naturally from one to the other at 18 months, the model that these authors use gives us no motivation to see these two kinds of behavior as interconnected in any essential way.

Let us assume, as the authors do, that the earliest form of shared intentional activity that children display can basically be captured by Bratman's analysis. If so, then children's tendency to help could not be brought to bear in their evolving interest and engagement in shared intentionality. Remember that, in terms of paving the way for obtaining my own individual goal, Bratman's individualistic account of helping behavior falls under what we have called oblique help. This shows that behavior that fits the ordinary notion of help, according to which one seeks the other's goal for its own sake, is at best understood in a Bratmanian model as an extra motivating factor to engage in joint action, but not as part and parcel of the very same joint engagement. For example, it is not the case that a child conceives of his helping an adult as pursuing a joint activity with the adult, since the other conditions for Bratmanian joint action are not met. Conversely, when in the context of engaging in joint action, the help the children might provide is motivated by their individual goals, rather than by the adult's goal (unless such help is based upon an extra motivating factor). Accordingly, helping behavior of the kind studied in the experiments is to be understood as being independent of joint intentions, although it could still constitute evidence that the child understands the adult's behavior as goal-oriented. This being so, that kind of behavior *would not contribute to explaining* children's early engagement in joint activities with others and their inclination to want to participate in and repeat these joint activities. Moreover, the tendency of children around 14 months old to help adults complete their actions is, according to this analysis, totally independent of any individual motivation to pursue the specific actions the adult is engaging in. This is indeed a feature of the situations explicitly controlled by the experimenters: in control situations identical to the experimental ones in which adults do not pursue the goals, children do not pursue the goals in question either. The experiments are designed precisely to avoid such interference. But, if this is so, then the experimental conditions exclude cases in which the children have the same goal as the adults do. For this

reason, the helping behavior in question does not seem to be related to the kind of helping behavior that is displayed when coordinating activities, as this would be a different kind of helping behavior, oblique or indirect, that presupposes independent individual goals, as explained above. This is why helping behavior in children requires a completely different explanation in this model. The authors' preferred strategy in explaining its origins (Tomasello 2014, Warneken & Tomasello 2006) is to attribute it to an innate altruistic tendency. But, even if this is so, it would still be the case that instances of a spontaneous tendency to help would not be best understood as early precursors of distributive intentionality in Bratman's sense, since they do not involve the child's having the goal independently of the adult's having it. These would be concomitant types of behavior and not internally articulated developments.⁷ *Second*, the authors also take as important evidence of the child's ability to share goals in a Bratmanian sense that they will protest both if the adult disengages before the action is completed and if he does so after it has been completed. This is important, indeed crucial, because it suggests that children are not acting individually, but that they understand the key contribution of the partner to what they are pursuing. Moreover, the fact that they want to repeat the sequence even when it has been completed successfully can also be considered as evidence of the special engagement and interest children have in these activities. Now, this evidence is not very congenial to Bratman's conception of joint action. In his theory, there would be no motivation to continue trying to reengage the adult in the action once it has successfully been completed. The key driving force of each individual's behavior is the goal he is pursuing: he acts to the effect that X (say to retrieve the ball from the tube) is reached by means of the other's intention to do the same. But, when the ball is retrieved, the goal is successfully attained and, arguably, there is no reason to continue engaging in the same activity. This seems to be even more cogent once one considers that, according to Bratman, no commitments are required for shared intentions. According to a Bratmanian framework, children would protest only until their individual goal was achieved. Once the goal is attained, no additional motivation to protest or reengage is expected to emerge. The *third* worry concerns the appeal to a theory of mind model that underlies Tomasello et alia's account of joint action. Many authors (Tollefsen 2005, Brownell et al. 2006, Pacherie 2013, Michael et al. 2014, Zahavi & Satne 2015) have argued that we need a simplified account of joint action if we want to make sense of children's ability to engage in shared activities with others. In accepting Bratman's account of shared intentionality, Tomasello et al.'s analysis assumes that, in order to engage in joint intentional action, children have a minimal theory of the mind: at least one that involves a concept of another person as an intentional agent (with perceptions, intentions, emotions, etc.), if not the concept of a mental agent (that involves a belief-desire psychology, see Tomasello & Rakoczy 2003). If we follow Bratman's conception of shared intentional action, children who are capable of participating in joint action must be said to at the very least have both an understanding of the concept of intention as applied to themselves and others and common knowledge of their own intentions as well as those of others. This would of course involve higher order propositional attitudes; second and third order attitudes would at least be involved. It seems sensible to think that this is too much

⁷ That this is so is recognized by Warneken & Tomasello 2007: "[i]ntraindividual comparisons of infants' performance on helping and cooperation tasks [Bratman's shared intentional activity] revealed no straightforward associations between the two suggesting that these activities differ in important ways" (p. 291, see also pp. 291-292). What we suggest is precisely that, while this should be expected when comparing helping behavior with Bratmanian coordinated activities, the results might be different if the demands for engaging in joint action were provided by a different theoretical model. In an alternative setting, the temporal and conceptual links between the two might become apparent.

to ask of children in order for them to be able to engage in joint intentional action, not only because they engage in this sort of activity quite early, but also because engaging in some shared activities and joint actions may be essential for acquiring such sophisticated knowledge of other persons as agents – instead of presupposing it.

- 5. Conclusion** If the considerations developed so far are correct, then they suggest that this two-factor explanation of the development of social understanding is not completely plausible vis-a-vis the behavior young children display when helping others and cooperating with them in different coordinated activities. We have argued that this is so because Bratman's theory of shared intentions, which is used to model children's understanding of others and their helping behavior, does not seem to square with the experimental observations conducted by Warneken, Tomasello et alia.

The suggestion we would like to put forward as a conclusion to this paper is that such difficulties might be overcome if one uses an altogether different notion of shared intention, one in which collaboration flows from the very structure of the intentions shared by the agents without the need to postulate any further factor like an innate pro-social attitude. But which notion of shared intention could be of use here? It seems promising to look into those authors (e.g. Gilbert 2014 and Toumela 2005) that describe collective intentionality not as merely distributive, but as genuinely collective, as the intentionality of a group or of a *we*. A strategy like this might help address the three difficulties presented above, i.e., (i) showing that there is an internal articulation between helping behavior and shared intentions, (ii) explaining children protesting and reengaging behavior in joint activities, and (iii) providing a less cognitively demanding explanation of children's ability to cooperate with others than Bratman's model offers. Arguing in favor of these ideas, however, clearly exceeds the purpose of this paper.

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