Prosocial behavior requires both conceptual and motivational components. A full account of the development of prosocial behavior requires attention to the acquisition of both theory of mind and the tendency to organize action toward the interests of others and the future self.

Altruism, Prudence, and Theory of Mind in Preschoolers

Chris Moore, Shannon Macgillivray

The work reported in this chapter arose from two complementary lines of thinking. One was a consideration of the psychological mechanisms involved in organizing behavior that is not in the best immediate interests of the actor but rather is in the interests of someone else—in short, altruism. Clearly this issue is fundamentally about moral action. However, our thinking on the topic led us in a different direction from traditional work on the development of moral reasoning, which is primarily about the kinds of rules actors use to justify moral action (see Chapter Five, this volume). Instead, we considered how action could be motivated by interests or goals that were not the actor’s own immediate ones. Goals or interests that are not an actor’s own immediate ones include those that are attributable to another person or to the self in the future. We refer to these collectively as noncurrent goals or interests. In drawing the distinction between immediate and noncurrent interests and goals, we were led also to consider the connection between altruism and prudence. By prudence, we mean action that is designed to bring about some future desired goal of the self at the expense of some immediate goal. Typical examples drawn from everyday life are dieting, training for a sporting event, and saving money.

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The relation between altruism and prudence has a venerable intellectual history, being a topic of some interest to writers such as John Locke and William Hazlitt (see Martin and Barresi, 1995). In their time, the issue was how a person could be naturally interested in the concerns of another person or the self at another time. A variety of solutions were proposed, but the one from Hazlitt has a remarkably modern sense to it: “The imagination, by means of which alone I can anticipate future objects, or be interested in them, must carry me out of myself into the feelings of others by one and the same process by which I am thrown forward as it were into my future being, and interested in it” (Hazlitt, 1969, p. 3).

The point that Hazlitt was making here is that there is a fundamental similarity between altruism and prudence: in both cases, the actor must imagine and empathize with a noncurrent state of affairs—the other person’s in the case of altruism and one’s own future in the case of prudence. As we shall see, where Hazlitt saw one and the same process, we identify two. Nevertheless, his ideas can be seen as a starting point for the work we describe here.

Altruism and prudence may be seen as two pillars of organized social behavior. Altruism is the organization of action with respect to others’ goals. Prudence is the organization of action with respect to one’s own future goals. This line of thinking about the nature of altruism and prudence led naturally to a second line of thinking, which was the idea that the function of theory of mind is to organize complex social behavior. From the beginning of the nearly twenty-five-year modern history of the notion of theory of mind, there has been the assumption that the ability to explain and predict behavior by attributing mental states to agents is functional in the organization of social behavior (Moore and Frye, 1991). In simple terms, it has been assumed that successful functioning in large social groups involves complexities of information handling that are to some extent simplified by postulating mental states governing behavior. Surprisingly little work, however, has directly addressed the relation between theory of mind and the organization of social behavior. Certainly there is a substantial literature on deception because of its obvious connection to false-belief understanding (Ruffman, Olson, Ash, and Keenan, 1993; Russell, Mauthner, Sharpe, and Tidwell, 1991). More recently, a number of researchers have turned to the investigation of relations between theory of mind and both prosocial and antisocial behavior (Hughes, White, Sharpen, and Dunn, 2000; Jenkins and Astington, 2000; Slomkowski and Dunn, 1996). But a general consideration of the link between theory of mind and organized social behavior has largely been neglected (but see Chapter Three, this volume).

In what follows, we briefly introduce the relevant issues from the theory-of-mind literature before going on to consider the connection between theory of mind, altruism, and prudence. We end by providing some recent evidence from our empirical program on this connection.
Theory of Mind

By theory of mind, we mean a conceptual system involving mental state categories, such as beliefs, desires, and intentions. These categories provide the conceptual means to explain and predict the behavior of agents, including both others and the self. Thus, we might say that John intends to go to the mall because he thinks Mary will be there and he wants to see her. Or, I sent my dad the CD because I thought he would like it. This kind of conceptual system develops during the preschool years and is clearly evident by five years of age (see Astington, Harris, and Olson, 1988).

The literature devoted to theory of mind is now so voluminous that a single chapter cannot do it justice. Here we pick out two points that are relevant to our immediate concern: how theory of mind may be related to prudence and altruism. The first point is that intrinsic to theory of mind is the notion that mental states vary across different agents or within the same agent at different times. As has been pointed out from the earliest days of theory-of-mind research, the key categories of theory of mind, such as belief, desire, and intention, presuppose diversity in the content of the mental states. Any representational mental state may differ from reality and may differ across individuals and within the same individual across time (Forguson and Gopnik, 1988). The most commonly used versions of theory-of-mind tasks—false belief and representational change—trade on this aspect of the conceptual system. False-belief tasks ask the child to predict what another person will think based on misleading exposure to some state of affairs in the world. Representational change tasks ask the child to report his or her own previous beliefs about the world based on similar misleading exposure. In both cases, a conflict between the content of the current belief and that to be reported is set up. To succeed in each case, the child must be aware of the conflict or diversity between the current (or true) state of affairs and the state of affairs as represented in the mind following exposure to misleading information. Results from numerous studies (Gopnik and Astington, 1988; Moore, Pure, and Furrow, 1990) have shown that at about four years of age, children start to be able to succeed in these kinds of tasks, thereby giving evidence that they understand that mental states may diverge across persons and across time.

The second point is that a theory of mind is equally applicable to self and others. This is perhaps most easily demonstrated by the fact that the subject of mental state propositions can be in either the first person or the second or third person. As a number of authors have pointed out (Barresi and Moore, 1996; Meltzoff and Gopnik, 1993; Moore and Barresi, 1993), this self-evident aspect of theory of mind actually conceals the nub of a profound developmental problem. Because the information available to any individual about his or her own mental states and those of others is qualitatively different (for example, we never have direct access to other people’s mental content), there has to be some mechanism whereby those qualitatively
different sources of information can be conceptualized in the same form. Various suggestions for this mechanism have been proposed (Barresi and Moore, 1996; Meltzoff and Gopnik, 1993), and we will not delve further into them here. For present purposes, it is important to note the parallelism between self and other in theory of mind.

The two issues identified here are not independent and are bound together by the fact that both depend on the operation of the imagination (Harris, 2000). It is the imagination that makes possible the representation of states of affairs and states of mind that are different from those currently experienced. Thus, representing diversity requires the operation of the imagination. It is the imagination that allows the individual to contemplate states of affairs that are different from those currently experienced, either because they belong to some other person or because they belong to the self at another time. Thus, it is the imagination that allows the individual to range cognitively across persons and across time.

How to Be Interested in Noncurrent Mental States

We now return to the parallel between prudence and altruism. How is it possible for action to be guided by the interests or concerns of another person or of the self at some future time? Even a cursory analysis suggests that a variety of psychological processes must be involved. First, the actor must be able to represent those noncurrent concerns, including the concerns of others and the concerns of self in the future. The simple idea is that the ability to imagine noncurrent mental states of self or other as distinct from current experience will allow the actor to implement behavior designed to bring about or prevent those future circumstances. Certainly, it would seem necessary that if the individual is going to act in the interests of another person, at least in those cases where the interests are not transparent in the other’s behavior, then he or she must be able to represent those interests. To us, it seemed that this mapped closely onto theory of mind. In that sense, theory of mind must be a component of behavior designed to facilitate others’ achievements. Similarly, to make a prudent choice, the individual should be able to represent the future circumstances of the self and compare those to the current circumstances.

However, representing the diversity of mental states of self and other cannot be enough. Given that in any social situation, both cooperation and competition are potential tactics, it must be the case that accompanying the representation of the noncurrent interests, there is a desire to act in their favor. If not, then the actor would automatically implement the action that was in the best immediate interests of himself or herself. In short, the individual must be able not only to represent the mental states of others and the future self but also to care about them. There must be a way in which the imagined state of affairs can achieve sufficient motivational power for it to override the motives provided by the current state of affairs.
We suggest that the natural tendency to empathize or "feel into" imagined states of affairs provides the necessary motivational power. Just as the mental states of others that are evident in their behavior, such as emotions, may lead to an empathic response, so the mental states of others that are imagined may similarly produce empathy for those states. Importantly, we claim that the imagined mental states of self in the future may also produce empathy. In short, imagining the noncurrent mental states of anyone, whether self or other, may produce an empathic reaction, and it is this reaction that guides behavior.

It is tempting to speculate on the factors that may influence such caring. It is likely, for example, that, other things being equal, perception of another's emotional state engenders a more intense empathic reaction than the imagination of that state. It may also be the case that, other things being equal, empathy for one's own future is a more powerful motivator than empathy for the imagined future circumstances of others. However, many other factors will moderate such comparisons. Indeed it is likely that more often than not, the other-things-being-equal clause does not hold, and empathy for another person's future circumstances can outweigh even one's own immediate motives.

This simple distinction between the representational and the motivational components of action organized toward noncurrent interests masks considerable complexity, and we do not claim to have identified all the psychological processes that are involved. For example, it is presumably the case that executive functions such as inhibitory control, attentional flexibility, and working memory play a part in allowing the actor to implement action organized toward imagined interests. It may also be that some ability to represent time's arrow, at least in the sense that the present is causally connected to the future, may be required (see Moore and Lemmon, 2001; Povinelli, 1995). These are important considerations, but to pursue them further here will distract us from our main purpose, which is to illustrate empirically the distinction between the representational and motivational components raised above.

**Empirical Approaches**

For our investigation into altruism and prudence, we have used a modification of the delay-of-gratification procedure. The traditional delay of gratification procedure presents children with an opportunity to take a small reward or, by resisting the impulse to take the small reward, to receive a larger reward. In our terms, delay of gratification reflects prudence. Mischel and colleagues have investigated a number of the parameters associated with delay of gratification, including age, length of delay, and effective strategies for delay (see Mischel, 1974). We changed the traditional procedure to a trial-based format and at the same time introduced choices that involved prosocial sharing options or, in our terms, altruism. In an initial
study (Thompson, Barresi, and Moore, 1997), we sought to explore any changes in performance in our task that were associated with age, as well as to examine the relation between prudence and altruism. We presented three to five year olds with a series of two alternative choices for which the rewards were stickers. Along with a delay-of-gratification choice for which children could choose between one sticker immediately or two stickers later, children were presented with a variety of choices involving sharing. In two of these choice types, there was no delay. To assess sharing without cost, children were asked to choose between one sticker for self or one sticker each for both self and another person (a teenage confederate acting as a play partner). To assess sharing with cost, children were asked to choose between two stickers for self or one sticker each for self and partner. In a third sharing choice type, children were given a choice between one sticker for self now or one sticker for self and partner later. This third choice involved the same quantities as the sharing-without-cost choice, but the delay imposed for the sharing option meant that there was now a cost to sharing, albeit not a material one.

The results showed clear developmental effects for the choice types involving a delayed option, with three year olds tending to opt for the immediate rewards and five year olds opting to delay. For the choice types involving sharing without delay, there were no developmental effects. Three year olds were as likely as five year olds to opt to share with the play partner. While the tendency to share was lower in the case where there was a cost to sharing, there was still no effect of age. In addition to the developmental effects, there was also a significant association between the two trial types involving a delay. Children who tended to choose to share the stickers in the future also tended to delay their own gratification.

This initial study established the developmental period of interest for altruism and prudence in our sticker choice task. Perhaps not surprisingly, the critical developmental effects appeared at about four years of age, exactly the age when performance in standard theory-of-mind tasks improves. To explore this association empirically, in a follow-up experiment (Moore, Barresi, and Thompson, 1998) we presented three and four year olds with similar choice tasks and with theory-of-mind tasks (misleading contents version of the false-belief task and a conflicting-desire task). The results showed that for the four year olds, theory-of-mind performance was significantly correlated with the tendency to share in delay situations. That is, children who did well on theory-of-mind tasks tended to choose to share stickers with another even if it meant not being able to have the sticker now. These results were the first to indicate that theory of mind may be related to giving up one's own immediate gratification when that gratification conflicts with another's future interests.

These experiments were promising in showing that altruism and prudence did show changes from three to five years and that there was some evidence of a relation between theory of mind and future-oriented altruism.
However, there were clear limitations on the inferences possible from these initial experiments. Most obviously, there were no control variables apart from age. In addition, we were concerned about the nature of the variability observed in the sticker choice task. In fact, the distinction between the conceptual and motivational components of prudence and altruism requires us to take notice of two potential sources of variability in children’s behavior. Much of the research on theory of mind has focused on developmental variability in the representation of diversity in mental states, and, as is well known, the period from three to five years has been identified as a time of significant developmental change. However, all normally developing children relatively quickly attain the same level of conceptual ability. In short, variability in theory of mind seen during the period from three to five years is largely attributable to developmental differences. Such may not be the case for the variability in the motivational component of social behavior. Indeed, it is likely that there are individual differences in the tendency to care about others or about one’s own future that are relatively stable across age. So even if there is developmental variability in performance on these tasks around four years of age, it is likely that there is residual individual difference variation even after development is essentially complete.

These concerns led us to undertake a larger-scale longitudinal study of these tasks over the critical period of developmental transition. The rationale was that a longitudinal study would allow us to examine individual consistency over time as well as individual development. In the longitudinal study of about fifty-eight preschoolers, we tested children at three age points, six months apart, from about three and a half to about four and a half years. Children were brought to the laboratory at each age and given a battery of individual tasks. Not all children completed all tasks. At each age, they were tested on the sticker choice task using three trials of each of three choice types:

- Two for self now, one for each now
- Two for self now, one for each later
- One for self now, two for self later

Note that both sharing choice types in this study involved a cost to the self in sharing. In this way, the task is structured so that each choice type presents the child with a potential conflict between the interests of self and other or between the present and the future. Rewards were again small stickers. Those stickers that were taken immediately were placed into a sticker book by the child. Those that were saved were placed in an envelope for later. For the sharing choice types, the potential recipient was a research assistant who had played with the child during the visit in advance of the actual testing session. One point was allocated to the child each time he or she chose to share or to delay, yielding a possible score of 0 to 3 for each trial type.
During the visit at four years, the testing session also included five different theory-of-mind tasks. These tasks were modeled on standard protocols (Gopnik and Astington, 1988; Moore, Pure, and Furrow, 1990) and assessed false belief using both misleading objects and displaced objects as well as representational change using misleading objects. Performance on each task was scored as correct or incorrect, and scores were summed across the five tasks to yield an aggregate theory-of-mind score ranging from 0 to 5. To control for general verbal intelligence, we assessed the children using the Peabody Picture Vocabulary Test—III (PPVT-III, Dunn and Dunn, 1997) at age three and a half and four and a half.

Descriptive statistics for the sticker choice tasks and for the theory-of-mind measure are shown in Table 4.1. Performance on both sharing choice types increased significantly with age from three and a half to four and a half, but at each age, sharing in the present was a more favored option than delayed sharing. However, performance on the prudence choice type did not change across the year of the study. Performance on the theory-of-mind measure showed variability typical of that normally found at four years of age. A number of correlational analyses were performed. First, we examined consistency in performance on the sticker choice tasks across age. These results showed that whereas there was good consistency in all three choice types from four to four and a half years ($r$ ranged from .337 to .495, $p < .01$), performance at three and a half years did not correlate significantly with performance on the same task at the two older ages. These results suggest that at least by four years of age, children are relatively consistent in how they make their choices in the three choice types.

Second, we examined correlations among the choice types at each age (see Table 4.2). Here we found different patterns of correlation at each age. At three and a half years, the two sharing choice types were significantly

<table>
<thead>
<tr>
<th></th>
<th>Three and a Half Years (N = 57)</th>
<th>Four Years (N = 53)</th>
<th>Four and a Half Years (N = 51)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two for self now, one for each now</td>
<td>1.44 (1.07)</td>
<td>1.70 (1.17)</td>
<td>2.04 (1.00)</td>
</tr>
<tr>
<td>Two for self now, one for each later</td>
<td>1.19 (0.99)</td>
<td>1.17 (1.05)</td>
<td>1.73 (1.22)</td>
</tr>
<tr>
<td>One for self now, two for self later</td>
<td>1.56 (1.07)</td>
<td>1.30 (1.20)</td>
<td>1.49 (1.14)</td>
</tr>
<tr>
<td>Theory of mind</td>
<td>2.68 (1.49)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Standard deviations are in parentheses.
correlated, indicating that at least performance was not random at this age and that children were consistent in their sharing across the two types of sharing opportunity. However, there was no relation between the sharing choice types and prudence. Our feeling here is that the children at this age simply did not understand the prudence choice type well enough to answer reliably. Indeed, many of them tended to choose two stickers in the prudence choice but then appeared disappointed when they did not get the stickers immediately. In short, despite very explicit instructions, they appeared not to be able to treat this task as a choice between now and later. Nevertheless, there was evidence of individual differences in sharing.

By four years, a consistent pattern of correlations across choice tasks had arisen. All three of the tasks were significantly correlated with each other. These correlations remained significant even after the PPVT-III score was controlled in partial correlations. One inference from this pattern is that there was some common psychological capacity underlying performance in all three trial types. This inference is bolstered by the finding that at this age, performance on the delayed-sharing choice was significantly correlated with theory-of-mind score ($r = .331; p < .05$), as we had found in our earlier study (Moore, Barresi, and Thompson, 1998). Interestingly, the significance of the correlation between theory of mind and delayed sharing did not survive controlling for PPVT score. In short, it appears that there is

Table 4.2. Zero-Order Correlations Among Three Trial Types at Ages Three and a Half, Four, and Four and a Half

<table>
<thead>
<tr>
<th>Age three and a half (N = 57)</th>
<th>Two for Self Now, One for Each Now</th>
<th>Two for Self Now, One for Each Later</th>
<th>One for Self Now, Two for Self Later</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two for self now, one for each now</td>
<td>1.000</td>
<td>.492*</td>
<td>−.081</td>
</tr>
<tr>
<td>Two for self now, one for each later</td>
<td>1.000</td>
<td>−.070</td>
<td></td>
</tr>
<tr>
<td>One for self now, two for self later</td>
<td></td>
<td>1.000</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age four (N = 53)</th>
<th>Two for Self Now, One for Each Now</th>
<th>Two for Self Now, One for Each Later</th>
<th>One for Self Now, Two for Self Later</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two for self now, one for each now</td>
<td>1.000</td>
<td>.540*</td>
<td>.377*</td>
</tr>
<tr>
<td>Two for self now, one for each later</td>
<td>1.000</td>
<td>.635*</td>
<td></td>
</tr>
<tr>
<td>One for self now, two for self later</td>
<td></td>
<td>1.000</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age four and a half (N = 51)</th>
<th>Two for Self Now, One for Each Now</th>
<th>Two for Self Now, One for Each Later</th>
<th>One for Self Now, Two for Self Later</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two for self now, one for each now</td>
<td>1.000</td>
<td>.376*</td>
<td>−.017</td>
</tr>
<tr>
<td>Two for self now, one for each later</td>
<td>1.000</td>
<td>.519*</td>
<td></td>
</tr>
<tr>
<td>One for self now, two for self later</td>
<td></td>
<td>1.000</td>
<td></td>
</tr>
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</table>

Note: *p < .05.
developmental variability in sticker choice performance and that this variability is related to mental state understanding, although whether this relation is mediated by general verbal ability is an open question.

Finally, at four and a half years, a different pattern of correlations among the sticker choice tasks emerged. Now the two choices involving sharing were significantly correlated, as were the two choices involving delay, but there was no relation between simple sharing and simple delay of gratification. Furthermore, there were no relations with theory of mind or with PPVT score. Our interpretation of these results is that once the critical transition period for understanding conflicting mental states at about four years is over, there still remains significant residual individual variability in the willingness to share with others and in the willingness to delay gratification. This finding is consistent with the idea that the motivational components of action organization are separable from the representational component. It is possible, although by no means demonstrated, that the individual variability in the motivational component remains relatively stable from this point on.

If the latter interpretation is valid, then two obvious lines of research are opened up. First, it will be of considerable interest to explore the factors that may be related to the individual variability in sharing or prudence. We have started to explore the possibility that this variability may be related to aspects of the children’s relationships (Moore and Symons, forthcoming). In particular, prudence appears to be quite strongly related to security of attachment. Second, the longer-term stability of these patterns and their correlates in children’s social functioning will be of significant interest (Mischel, Shoda, and Rodriguez, 1990; Shoda, Mischel, and Peake, 1989).

**Conclusion**

In sum, children’s ability to act in favor of the interests of another person and of themselves in the future develops around age four in parallel with their developing understanding of the diversity of mental states. However, there is reason to doubt on both theoretical and empirical grounds that the organization of social behavior with respect to noncurrent interests or goals is tightly tied to theory-of-mind development. For a child to act in favor of a person’s noncurrent interests, he or she must be able not only to represent those goals but also to care about them. Our results suggest that the latter component of the organization of social behavior likely shows individual differences throughout development that are independent of the more cognitive aspects of theory of mind.

**References**


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