development must at least in part reflect children's growing experience of situations that lend themselves to varying interpretations and evaluations. In particular, peer interactions are likely to encourage children to gain the mature insight that exposure to the *same* information can lead to varying beliefs about the world.

Recent theoretical and empirical work on children's use and understanding of self-presentation is consistent with this emphasis on peer interactions. Self-presentational behaviour involves an attempt to control the way one is evaluated by others, and success in this goal depends largely on an appreciation of how characteristics and events are represented by others. Hence, as children grow older and peer-group acceptance becomes an increasingly important goal (e.g., Parker & Gottman 1989), others' beliefs must be judged with regard not just to their informational content but also to their evaluative content. Consistent with this evidence, Banerjee and Yuill (1999) found that children's spontaneous identification of self-presentational motives for deceptive emotional displays (e.g., not wanting to appear babyish or stupid) emerged at around eight years of age, lagging behind their identification of prosocial motives. Furthermore, such identification of self-presentational motives was found in a separate study to be associated with the attribution of embarrassment (Banerjee 2002a). In a similar vein, children's tendency to make appropriate use of information about an audience's preferences when choosing between self-descriptive options also increased at eight years. Importantly, within-age-group variability in this tendency was positively associated with a sociometric measure of reciprocated peer nominations (Banerjee 2002b). Although work on this topic is in its early stages, there is good reason to suppose that children's reasoning about self-presentational motives and related social emotions, such as embarrassment, depends on their experience of specific types of social interaction. Indeed, this argument is consistent with Higgins and Parsons's (1985) broader discussion of how changes in children's social lives – including the increasing exposure to social agents with different dispositions, intentions, and preferences – are likely to play a critical role in shaping their cognition about the social world.

The appreciation of evaluative beliefs is just one of many aspects of social understanding that continue to develop in middle childhood and beyond. Researchers have already begun to identify social experience – involving various social agents (e.g., parents, siblings, and peers) – as playing a significant role in this developmental process. Two important related issues should be considered in any examination of this area. First, with respect to ambiguities about causal direction, we must recognise that children's social understanding necessarily develops *in the context of* their social experience. Even if we were able to specify context-general prerequisites (e.g., understanding recursive mental representations), it simply does not make sense to talk about children's reasoning about self-presentation, or faux pas, or embarrassment without emphasising the social dimension. In these and other instances of reasoning about socio-emotional and socio-motivational processes, social understanding has to develop out of, and feed back into, children's social experience. Second, a major strength of the theoretical orientation presented by C&L lies in its potential ability to explain both between- and within-age-group variability. Such variability has been observed in early mental-state reasoning, and researchers have found predictive value in children's interactions with parents, siblings, and peers. Now we are beginning to identify substantial variability in responses to more advanced tasks, not just between younger and older primary school children, but also within any given classroom of children. C&L's framework provides further impetus to investigate the social experiences that give rise to these differences. Such work will help us meet the further challenge of predicting and intervening in the development of problems in social understanding.

Even an "epistemic triangle" has three sides

John Barresi and Chris Moore

Department of Psychology, Dalhousie University, Halifax, Nova Scotia B3H 4J1, Canada. **jbarresi@dal.ca** **moorec@dal.ca**
http://jbarresi.psychology.dal.ca

Abstract: By focusing primarily on communication between adult and child and on adult-set criteria for appropriate action, Carpendale & Lewis's (C&L's) account of the development of social understanding in the epistemic triangle tends toward an enculturation view, while diminishing the role of individuals. What their proposed mechanism fails to acknowledge is that the two agents in the epistemic triangle necessarily have independent perspectives of the object and of each other.

We strongly agree with Carpendale & Lewis (C&L) that the child develops social understanding primarily through engagement with other individuals in what Chapman (1991) called the "epistemic triangle." But we fail to see how their use of this triangle provides them with a way to chart a middle course between the Scylla of individualism and the Charybdis of enculturation. When it comes to describing actual mechanisms of development in the epistemic triangle, we find their account both incomplete and potentially biased in the direction of enculturation.

C&L's discussion of mechanisms involved in the development of social understanding tends to use a particular interpretation of Wittgenstein's views on language learning. According to this account, it is socially implemented feedback involving behavioral "criteria" that shapes the child's use and understanding of language in general and mental language in particular. But if this is the primary mechanism for the development of social understanding of mental life, it fails to satisfy. Despite the authors' claims to the contrary, it does not differentiate their account from a general model of learning based on enculturation. For, even if particular triadic interactions are the locus of language and other learning, this mechanism appears to use teachers as carriers of linguistic and other social or cultural knowledge. Hence, the particular agents in the interaction, with their individual uniqueness, play an unclear role in the acquisition of language, and, presumably, in the development of social understanding in general.

The authors claim that their view is not an enculturation view because it allows for certain basic-level "shared practices" in social understanding of "seeing, looking, intentions, desires, and beliefs" that are fundamentally universal, hence not culture-relative. How this could save them from the socially constituted pole of enculturation is not obvious, unless it implies that the learning of such practices does not depend on language learning. But then, what does it depend on? One is tempted to answer: "a theory of mind"; but obviously this is not their answer. They also argue that they have a constructive account of development because the epistemic triangle is combined with the concept of criteria. Again their description here fails to explain adequately how the epistemic triangle plays a role different from that of criteria. This is apparent in their final summation: "We suggest that children understand talk about the psychological world in terms of the patterns of activity that are criterial for the use of such mental state terms – that is, the pattern of interaction for which we use these words" (sect. 3.2, last para.). Nothing is stated here about universal practices or of the role of epistemic states – just culturally defined criteria. It may be that a richer interpretation of Wittgenstein could save this account, one which recognizes first-person criteria for mental meanings to go along with public third-person criteria, but this is not the Wittgenstein that C&L provide.

The nub of the problem is that C&L fail to take seriously the triadic structure of the epistemic triangle. This structure involves three vertices (i.e., the infant, the adult, and the object) as well as three sides (i.e., the dyadic communicative relation between infant and adult, the infant's relation to the object, and the adult's relation to the object). By focusing on the communication between adult and infant and on adult-set criteria for appropriate action toward the object, they fail to recognize that the two agents

https://doi.org/10.1017/S0140525X04240031 Published online by Cambridge University Press

in the epistemic triangle necessarily have independent perspectives of the object, and of each other.

The same problem arises elsewhere in their account, particularly in the section dealing with the infant's initial entry into the epistemic triangle toward the end of the first year of life. In this section they briefly describe our own theory of social understanding (Barresi & Moore 1996). Because we talk of "first-person information" as one component entering into the epistemic triangle, C&L claim that our model, despite pretensions otherwise, must be individualistic. But this claim both misrepresents our model and refuses to recognize an essentially individualistic aspect of the epistemic triangle – the two agents who, even in shared activity, necessarily have distinct intentions, goals, and perspectives in their relations with each other and to the object.

We believe that the account in Barresi and Moore (1996) is more sensitive to the structure of the epistemic triangle and to the mechanisms involved in social understanding than that given by C&L. We argue that the infant first comes to understand mental phenomena by sharing with another individual an activity toward an object, whether that activity involves actions, emotional or motivational relations, or epistemic relations, all of which we treat as various forms of what we call "intentional relations." This sharing, whether initially achieved through behavioral or emotional contagion, conditioning, imitation, or any other means, provides the ground for developing a reflective representation of that form of intentional activity. The key point is that such a representation involves the joining together of both first-person information and third-person information about the common intentional relations involved in such triadic interactions.

We further suggest that in integrating information about two sides of the epistemic triangle (i.e., each agent's intentional relation to the object), in the context of an interaction about this common activity, the infant does not initially represent this activity as involving independent actions of self and other. Instead, at this early phase in development, the sources of information are not yet distinguished as originating from distinct individuals, and the understanding of the intentional relation is best described as one of understanding what "we" are doing. So, on our account, it is fundamentally an understanding of a shared activity, not one of understanding that self and other, as distinct agents, share in an activity. Nevertheless, it is from such initial understanding of common activities in triadic situations that the infant eventually develops an understanding of self and other as distinct agents with their own individual intentional relations. Moreover, it is always out of shared activity with others that advances in understanding of mental phenomena are first made (see Barresi & Moore 1993). This is because it is only in such shared activities that the first- and third-person aspects of such mental phenomena may be recognized as belonging together, thus laying a foundation for eventually using either the first- or third-person aspect alone to recognize the mental state of self or other.

Articulating the role of experience in mental state understanding: A challenge for theory-theory and other theories

Karen Bartsch and David Estes

Psychology Department, University of Wyoming, Laramie, WY 82071.
bartsch@uwyo.edu **estes@uwyo.edu**

Abstract: Carpendale & Lewis's (C&L's) proposal of a social interaction account makes clear the need for researchers of all theoretical orientations to get specific about how social experience influences children's developing understanding of mind, but it is premature to reject other theories, such as theory-theory, which also attribute a major role to experience.

Carpendale & Lewis (C&L) make clear that researchers, regardless of theoretical orientation, need to get specific about *how* children's social experiences affect mental state understanding. Drawing on an impressive array of studies showing that social experiences and social factors play a role in this important area of psychological development, C&L argue that a new explanation of development is needed to account for these observations. Yet, few extant theories reject the descriptive claim that social experience and context matter. Theory-theory (Gopnik 1993; Gopnik & Wellman 1992; 1994; Wellman 1990), for example, contends that children's experience in the relevant domain (presumably including people's psychological states and actions as revealed in social interactions) is the primary instigator of development, chiefly when children encounter phenomena that do not fit their current explanatory framework and must reconstruct that framework. It may be premature to reject current theories (and specifically theory-theory) without examining closely the implications of existing theories for the data.

We have previously noted that an understanding of some mental states seems directly dependent on observing what people say and do (Bartsch & Estes 1993). False belief, the "neurotic" focus of theory of mind (TOM) researchers, can be recognized in real time only through such observation. I cannot recognize my own current belief as false, but I can witness someone else proclaim a belief I know to be false and then act on it. Perhaps one could eventually comprehend the representational (and thus imperfect) nature of beliefs merely by reflecting on one's own past false beliefs, but it seems likely that talking with others and watching their goofy actions based on erroneous convictions contributes to this recognition. Children's earliest talk about beliefs supports this supposition. For example, Adam (age four years, two months) explained that the dog barked on hearing footsteps because "She thought that was a tiger" (Bartsch & Wellman 1995, p. 114). According to theory-theory, experience drives conceptual development; if experience concerning false belief occurs (in this important sense) only in social encounters, then it seems to us that theory-theory necessarily accords an important role to such encounters. Perhaps theory-theorists have not yet offered sufficiently extensive analyses of how experience (social or otherwise) translates into conceptual development, but that does not mean that such experience is any less than the primary engine of development on this account (see Bartsch 2002, for further discussion of the role of experience in theory-theory).

C&L argue that the nature, as well as the fact, of the effects of social factors on mental state understanding mandates a new explanatory account. They point to murkiness across research results from studies employing different tasks and contexts: On some tasks, two-year-olds appear to engage in belief reasoning, whereas on others, only much older children do. We have encountered such findings in our own research. To examine children's use of belief understanding in persuasion, we administered hypothetical story tasks requiring them to select an argument that would persuade a story character (e.g., a child's parent) to do something, such as permit a child to get a puppy (Bartsch & London 2000). Only children over seven consistently chose arguments relevant to the character's belief, such as "the puppy is quiet" in response to a parent's stated belief that puppies are noisy. However, in comparable tasks involving interactive dialogue with puppets, even four-year-olds consistently chose belief-relevant arguments (Bartsch et al. 2003). The interactive format not only increased children's attention to belief information, it seemed to squeeze belief reasoning even out of children who did not pass a "gold-standard" false-belief task. This is precisely the sort of finding that C&L regard as evidence that there is a gradual development of understanding that is dependent on social factors and social contexts.

Our interpretation is different. Despite the messiness of the empirical data, we think that it is true and useful to characterize the older children in our studies as having a concept of belief and the youngest children as not having the concept, consistent with a theory-theory perspective. We agree with C&L that the variation observed across methodologies deserves close examination. The fact that young children sometimes succeed on tasks and older

https://doi.org/10.1017/S0140525X04240031 Published online by Cambridge University Press