

## Infants' minds, mothers' minds, and other minds: How individual differences in caregivers affect the co-construction of mind

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**Abstract:** Carpendale & Lewis's (C&L's) constructivist account needs greater emphasis on how individual differences in caregivers' impact on the efficacy of epistemic triangle interaction in fostering children's understanding of mind. Caregivers' attunement to their infants' mental states and their willingness to enable infants to participate in exchanges about the mind are posited as important determinants of effective epistemic triangle interaction.

Carpendale & Lewis (C&L) argue that children are active participants in acquiring mentalising abilities, constructing an understanding of mind during social interaction within the epistemic triangle. Their account represents an advance on individualistic and enculturation approaches to theory of mind (ToM) development, but would benefit from a greater consideration of how individual differences in caregivers influence the efficacy of interaction in the epistemic triangle in fostering an understanding of mind. In order for children to benefit most from social interaction in constructing a ToM, the interlocutor should be sensitive to and cognisant of the child's current state of mind. For example, in one of our longitudinal studies on the social determinants of ToM performance, we found that mothers' use of mental state language that commented appropriately on their 6-month-olds' putative mental states was an independent predictor of children's ToM performance at age 4 (Meins et al. 2002). In contrast, indices of the general quality of the mother-infant relationship (maternal sensitivity and attachment security) did not predict children's subsequent ToM.

What is perhaps most interesting about this study's findings is that ToM performance was related to only certain kinds of early mental state language, and not to exposure to mental state talk in general. Mothers' use of mental state language that appeared inappropriate to the infant's current mental state, indicating that they were misreading their infants' minds, was unrelated to later ToM understanding. Hence, although C&L claim that their "approach to the development of children's social understanding focuses on the *relations* between people" (sect. 2.1, para. 8, emphasis in original), they need to move beyond the assumption that the same form of relationship (e.g., mother-infant, child-sibling) will result in the same form of interaction. At present, C&L provide a detailed description of prerequisites required by the child to engage in constructive interaction in the epistemic triangle (e.g., joint attention skills, a certain level of linguistic competence), but individual differences in caregivers are not considered. Their account therefore places too much burden on the child's attributes in explaining individual differences in ToM understanding. Indeed, C&L need to consider the possibility that the child's attributes may initially be rather unimportant beyond giving the caregiver an indication of basic competence.

There is also the issue of timescale. In setting up the epistemic triangle as the context in which children construct an understanding of mind, the authors focus exclusively on infancy. Yet, they seek to use their account to explain social influences on ToM that come into play much later in development (sect. 4.2). For example, the facilitative effects of sibling (Dunn et al. 1991b) and peer (Brown et al. 1996) interactions have been found only in the preschool period, and the sorts of parenting style found to relate to ToM performance (Ruffman et al. 1999) would appear to be applicable only to children beyond infancy. Preschool children's social interactions involve complex abilities, such as pretense, with perhaps several playmates, whereas the classic epistemic triangle interaction involves a much more pared-down form of triadic exchange. It therefore seems that in focusing on preschool influ-

ences, C&L are trying to explain the "wrong" evidence. If epistemic triangle interaction is the means by which children construct a ToM, the authors need to concentrate more clearly on social-environmental factors that act during an earlier period of development.

Of course, this is a difficult task, because very little long-term longitudinal research on the social determinants of ToM exists. C&L mention one early social factor that has been linked to ToM (attachment security), but they need a much more thorough critical appraisal of how such differences in attachment are related to the child's active construction of mind. For example, no author has proposed a direct link between attachment security and children's ToM. Rather, certain precursors of attachment security, such as maternal mind-mindedness (Lundy 2003; Meins et al. 2001) or mothers' internal working models of attachment relationships (Fonagy et al. 1991), are likely to be at the root of any observed security-related differences in ToM. The epistemic triangle is an ideal context for highlighting how caregiver attributes – their mind-mindedness, their willingness to interpret their infants' behaviours as having intention, their representations of their own childhood experiences – are brought to bear on what they say to their infants and how they manage early dyadic and triadic interactions. Such a focus would also enable C&L to discuss in greater detail how atypical development (e.g., deafness, autism) may affect the caregiver's ability to interact within the epistemic triangle, and thus, children's ToM development.

In order for the constructivist account to explain how the social environment influences ToM, it needs to address how the attributes of the caregiver work in concert with those of the infant to provide early interactions that will foster the child's understanding of mind. Such interactions need to do more than merely ensure that the child is exposed to mental state language. It is likely that our finding that mothers' mind-related language at 6 months predicts later ToM performance is due in part to the fact that such language is one facet of a broader picture of general attunement between mother and infant (e.g., Lundy 2003). An insufficient attention to the child- and caregiver-centred determinants of this attunement means that C&L's account is in danger of suffering from the very failing that they complain about in traditional accounts of ToM development, namely, the lack of an "integrated system" within which social-environmental influences on ToM can be understood. A more careful emphasis on caregivers' attributes (as well as those of the child), and their willingness to allow children to participate in exchanges about the mind, would provide the authors' account with precisely such integration with the wider context of social-cognitive development.

## Structure, genesis, and criteria

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**Abstract:** We agree that social interaction is crucial for understanding the development of theory of mind, but suggest that further elaboration of certain issues is needed. Detailed description of the knowledge structure of a developing theory of mind is necessary, and the notion of criteria for the use of mental state terms requires consideration of the sentence structures in which such terms appear.

Carpendale & Lewis (C&L) make a timely contribution to current debates regarding the development of theory of mind. C&L's emphasis on the gradual development of theory of mind in the context of interactions between child, other, and object provides a much-needed balance to the extremes of current accounts of theory of mind development, which focus narrowly on processes