
Children's Acquisition of the Concept of Belief and the Mastery of Folk Psychology

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Until recently, most researchers assumed — based on evidence from the (elicited-answer) false belief test (EA-FBT) — that children acquire the concept of belief around age four (Wellman, Cross, & Watson, 2001). However, the discovery that 15-month-olds track others' beliefs in spontaneous-response false belief tasks (SR-FBTs) (see Baillargeon, Scott, & He, 2010 for a review) undermined this consensus and suggested to place infants' acquisition of this concept in the second year. Against this conclusion, I will argue that a genuine capacity to possess the concept of belief is in place only after age four.

My argument relies on two complementary strategies. On the one hand, I contend that empirical data about infants' performance on SR-FBTs are more fruitfully explained by non-mentalist interpretations. On the other hand, I argue that the capacity to explain people's reasons for action is central to the possession of the concept of belief. Accordingly, empirical research on the acquisition of this concept should focus on children's explanatory, rather than predictive, abilities.

With respect to the first point, researchers traditionally assumed that evidence from SR-FBTs demonstrates infants' possession only of an implicit and rudimentary ability to attribute meta-representational states (e.g., Luo & Baillargeon, 2010). However, nothing forces this interpretation when carefully considering empirical data. First, beliefs are intensional, not only intentional, states (Zawidzki, 2011) — that is, they refer to individuals under a specific mode of presentation. However, infants in SR-FBTs only respond to goal-directed behaviour; nothing shows that they also consider how actors perceive a scene. Therefore, cautions requires distinguishing infants' (documented) sensitivity to others' intentional behaviour from their (unattested) capacity to consider others' intensional states.¹

Second, theoretical parsimony has been suggested as a reason to prefer a mentalist interpretation of infants' performance on SR-FBTs (Onishi & Baillargeon, 2005). However, parsimony per se does not favour mentalist over behaviour-reading interpretations (Perner, 2010) — although carefully-planned empirical investigation may disentangle the issue (Low & Wang, 2011).

Finally, it has been argued that infants possess a genuine concept of belief because the same cognitive processes responsible for their performance on SR-FBTs also underlie their capacity to pass EA-FBTs once that a capacity to inhibit salient (wrong) answers is acquired (Leslie, German, & Polizzi, 2005; Scott & Baillargeon, 2009). However, studies on deaf children (de Villiers, 2005), autistic children (Ozonoff, 1995), and Eastern children (see Sabbagh, Benson, & Kuhlmeier, 2010 for a review) all demonstrate that inhibitory capacities do not grant the ability to pass EA-FBTs. Instead, extended research demonstrated that this capacity importantly relies on language acquisition and social interaction (Astington & Baird, 2005; Milligan, Astington, & Dack, 2007; see Fenici, 2012 for a discussion). This suggests that the develop-

¹ See Scott & Baillargeon (2009) for some evidence about infants' capacity to attribute meta-representational states concerning object identity and Butterfill & Apperly (2013) for a critical discussion.

ment of inhibitory skills is insufficient to grant mature mindreading competences, which are rather scaffolded by linguistic and social interaction.

My rejection of the claim that infants possess the concept of belief does not suggest when this concept is acquired. My answer requires examining the function of the capacity to attribute mental states. Based on influential discussion in philosophy (e.g., Dennett, 1987; Fodor, 1987), both SR- and EA-FBT paradigms have assumed that this capacity has essentially the function of allowing action prediction by scaffolding — either implicitly or explicitly — belief-desire reasoning. However, it is implausible that we predict others' behaviour in such a way. On the one hand, nothing ensures that predictive abilities are based on belief-desire reasoning when we interact with others in our proximate environment. In this context, inter-subjective emotional, sensory-motor, and perceptual practices may account for predictive abilities without the need of attributing non-observable entities (Gallagher, 2001). On the other hand, when we do not share temporal or spatial coordinates with others, predicting their behaviour by attributing mental states to them is often unreliable. Indeed, it requires selecting appropriate belief-desire pairs among an incredibly huge number of possible combinations. This is a computationally intractable, thereby insoluble, problem.

I thus suggest that we are not good at predicting others' actions because we perform belief-desire reasoning, but because, in many situations, people's behaviour conforms to a wide number of social practices that restrain the set of possible actions that a rational agent may perform. We predict what others will do by considering social roles, scripts (Schank & Abelson, 1977), and stereotypes and psychological traits (Bargh, 1994), as well as by relying on social norms and conventions (Castelfranchi, 1999). As a species, we evolved these regular patterns of behaviour in the course of time (Zawidzki, 2008), and we reinforce their learning in our children (McGeer, 2007).

Under this account, attributing mental states to other people to predict their behaviour becomes superfluous once that we correctly identified the situation in which they are. Nevertheless, the capacity to attribute mental states has an important normalising function. By reporting people's reasons for actions, we repair those situations that deviated from common expectations as shaped by the regularities in our social practices (Bruner, 1990; Hutto, 2008).

If the suggested view is correct, a genuine understanding of the normalising function of mental state attribution is necessary to credit a child with the concept of belief. Empirical studies assessing children's capacities to explain others' behaviour have shown that explanatory abilities in the domain of folk psychology gradually improve around the same time when children start passing EA-FBTs (Atance & O'Neill, 2004; Perner, Lang, & Kloo, 2002; Wimmer & Mayringer, 1998). By discussing these data, I will conclude that children acquire the concept of belief after age four.

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