



Comment

Language influences social cognition  
Comment on “Words as social tools: Language, sociality and inner  
grounding in abstract concepts” by Anna M. Borghi et al.

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The word as social tool (WAT) theory has always acknowledged that language may also serve as a cognitive tool [5,6]. In the current version, Borghi and her colleagues write [4, p. 9], “words are tools to perform actions modifying the state of our social environment and are tools that change the state of our inner processes, helping us formulate predictions and facilitating perception, categorization, and thought. As such they are tools for shaping the internal state of our minds/brains.” As someone who has defended the idea that language augments and extends the reach of grounded cognition [14–17], I wholeheartedly agree. In this commentary, though, I want to highlight the way in which language seems to shape social cognition. To be more specific, I hope to show that there are good reasons to think that, as a cognitive tool, it contributes to the development of theory of mind.

Human social cognition depends crucially on our ability to infer, imagine, and reason about the mental states of others [22]. Recognizing this, developmental psychologists have sought to uncover the development course of these abilities. They have examined the way in which children attribute beliefs, particularly false ones, to others [34]. What has emerged in the course of this research is evidence suggesting that language plays an important causal role in the development of theory of mind [13]. In fact, this evidence suggests three types of influence: First, the acquisition of words for mental states appears to shape and transform social cognition – an idea that is consistent with other proposals suggesting that labels shape emotion [3] and perception [24]. Second, word-to-word associations appear to be an important resource in the development of theory of mind. Finally, certain syntactic competences appear to play an instrumental role in the acquisition of theory of mind skills.

According to the first of our proposed influences, learning to apply mental state terms provides children with a helpful leg up with respect to the acquisition of theory of mind skills. This proposal is supported by the observation that frequent use of mental terms by young children with parents, siblings, and friends correlates with success on false belief tasks [7,18,31].

In the second of our proposed influences, conversations provide essential input for learning about the mental states of others [21,28]. The idea is that certain kinds of conversations help children become aware of the ways in which the thoughts of others can diverge from their own. Learning to talk about mental states not only requires mastering certain

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concepts it also requires learning the pragmatic dynamics of everyday discourse. Studies involving deaf participants provide compelling evidence for this proposal [8,27]. Pronounced delays in the acquisition of theory of mind skills have been observed in the deaf children of hearing parents who are not fluent signers [8,27,28,32]. Studies comparing children who have non-signing hearing parents with children who have at least one signing deaf parent find that the former lag behind the latter on theory of mind measures [29,35]. This finding fits well with evidence that the interactions between deaf mothers and deaf children are similar in content, extent, and frequency with those between hearing mothers and children [25]. Access to relevant conversations provides a compelling explanation for the lag in the acquisition theory of mind skills in late signers when compared to early signers. This hypothesis is supported by research involving hearing children that demonstrates the effectiveness of conversation-based interventions on false belief tasks [1].

The third of our proposed influences connects the emergence of theory of mind abilities to the mastery of certain syntactic constructions [2,9]. In particular, complement clauses appear to provide a useful means of representing the contents of other people's minds. The ability to handle complement syntax is a robust predictor of performance on false-belief tasks [10,12,23]. Strikingly, this relationship holds for several populations of children who experience language delays such as deaf children of hearing parents [12,30,32], children with specific language impairment [11,19,26], and high-functioning individuals with an autism spectrum disorder [33]. Hale and Tager-Flusberg [20] compared the effectiveness of three interventions on preschoolers: (1) training on false belief tasks, (2) training on sentential complements, and (3) training on relative clauses (which are similar in syntactic complexity to sentential complements). Children trained on false beliefs showed improvement on these tasks but did not show a corresponding improvement on language tasks. Children trained on sentential complements, on the other hand, showed improvement in both areas. Finally, children trained on relative clauses showed no appreciable improvement in theory of mind understanding.

In sum, language appears to be involved in the acquisition of theory of mind in three distinct ways, each of which is compatible with the WAT theory. This should not be surprising since theory of mind clearly requires access to abstract concepts. Nevertheless, the influence of language on theory of mind suggests that it may not be so easy to disentangle language's role as a social tool from its role as a cognitive one. Indeed, I would go as far as to say that these roles are fundamentally intertwined.

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