An Advanced Test of Theory of Mind: Understanding of Story Characters' Thoughts and Feelings by Able Autistic, Mentally Handicapped, and Normal Children and Adults

Francesca G. E. Happé
Medical Research Council Cognitive Development Unit

Research has suggested that the core handicaps of autism result from a specific impairment in theory of mind (ToM). However, this account has been challenged by the finding that a minority of autistic subjects pass 1st- and even 2nd-order ToM tests while remaining socially handicapped. In the present study, able autistic subjects who failed ToM tasks, those who passed 1st-order, and those who passed 2nd-order tasks were tested with a battery of more naturalistic and complex stories. Autistic subjects were impaired at providing context-appropriate mental state explanations for the story characters' nonliteral utterances, compared to normal and mentally handicapped controls. Performance on the stories was closely related to performance on standard ToM tasks, but even those autistic subjects who passed all ToM tests showed impairments on the more naturalistic story materials relative to normal adult controls.

INTRODUCTION

The “theory of mind” deficit account of autism suggests that the communication, socialization and imagination handicaps of autistic individuals...
spring from their inability to represent and attribute mental states (Frith, 1989; Leslie, 1987, 1988). Baron-Cohen, Leslie, and Frith (1985) showed that 80% of autistic subjects failed to attribute a false belief to a character in an acted out story. In contrast, 80% of mentally handicapped and normal 4-year-old subjects were able to predict the character's behavior on the basis of their exposure history and resulting (inferred) false belief. Subsequent studies have replicated the failure of a majority of autistic subjects to attribute a false belief (e.g., Sodian & Frith, 1992), and although there are alternatives to the theory of mind account (e.g., Hobson, 1989, 1990), it has been successful at the very least in making concrete predictions about assets and deficits in autism (Frith, 1989; Firth, Morton, & Leslie, 1991).

The finding that only approximately 20% of autistic subjects pass a first-order false belief task has been taken as strong support for an explanation of the autistic handicap in terms of a lack of theory of mind (ToM). However, that even 20% should pass has been seen by some critics (e.g., Bowler, 1992; Ozonoff, Rogers, & Pennington, 1991) as damaging to the explanatory power of the theory. Indeed, these authors have found that in groups of autistic subjects selected for normal verbal IQ, the success rate on theory of mind tasks is much higher, with autistic subjects performing indistinguishably from controls on even second-order tasks. The response to such criticism has taken two directions (discussed further in Happé, 1993). The success of these subjects could be regarded as genuine proof of their possessing a theory of mind—in which case their handicaps may be seen as due to a gross delay in acquisition (Baron-Cohen, 1989) or to an additional, remaining cognitive impairment (Happé, in preparation b). Alternatively, their success could be seen not as proof of theory of mind ability but rather as evidence of the "hacking out" of some strategy for solving the tasks (Frith et al., 1991). If autistic subjects who pass theory of mind tasks succeed using a non-ToM strategy, this would explain why, despite perfect test performance, these subjects are still socially handicapped. The strategy such subjects could be using might be flexible enough to be applied successfully to slightly different surface forms of the same task, or might succeed only if the elements of visual access and information are spelled out (as they are in the false belief and deception tasks, but not in life).

To test these possibilities, the present study presented autistic subjects with a set of vignettes or stories about everyday situations where people say things they do not mean literally. It was hoped that these stories would present a somewhat more naturalistic challenge to the subjects than did the acted out ToM battery tasks. The aim, then, was to extend the range of tasks involving theory of mind to a more contextually embedded and