

Review of:

Joint Attention: Communication and Other Minds

Naomi Eilan, Christop Hoerlh, Teresa McCormack & Johannes Roessler (Eds.)

Oxford, England: Clarendon Press, 2005

344 pages, ISBN: 0199245649 (pbk); \$35.00

Philosophical Psychology, 20, 543-547.

How do humans gain access to other humans' minds? Once a philosophical problem, this question has inspired a rapidly growing literature over the last two decades, with contributions from philosophy, psychology, linguistics, anthropology, and neuroscience. The main assumption in this literature has been that humans possess a *theory of mind*—a network of concepts and abilities that allow them to represent and reason about their own minds and others' mental states. Initially, this literature was concerned mainly with the particular time in a child's development at which this theory of mind is acquired (e.g., Perner, 1991; Wellman, 1990); the specific cognitive processes with which humans "mentalize" (Carruthers & Smith, 1996); and whether other primates, too, have a theory of mind (Povinelli, 2001; Tomasello & Call, 1997). More recent research suggests, by contrast, that development of a theory of mind occurs on a continuum and that many precursors and many processes have to converge to enable full-blown mentalizing (Malle & Hodges, 2005). As a result, most scholars agree that other primates share some of these precursors, but don't mentalize in the strict sense. There is also growing interest in the child's specific transitions from a set of precursors (such as imitation and emotional contagion) to the complex grasp of mental concepts (e.g., BELIEF and INTENTION), all of it occurring in the context of communication and social interaction. *Joint Attention: Communication and Other Minds* is an excellent example of this recent trend, and it is a must-read for anybody seriously interested in the topics surrounding theory of mind. In 14 chapters, the book offers theoretical insights and empirical research on joint attention, one of the central precursor to a full-blown theory of mind.

A child enters a situation of *joint attention* with another person when both participants attend to an object and are also aware of each other's attending to that object. This capacity, developing in the 9–18 month-old child, relies on the emotional relations between child and caregiver, is intertwined with the earliest capacity to read and express goals, plays a major role in language development, and is a prime contributor to the later development of explicit awareness of one's own and others' mental states. In advancing our knowledge on these topics, the contributors grapple with many conceptual and theoretical challenges, first and foremost with the question of what kind of awareness and understanding of "each other's attending" exists in the child's mind. Does the child grasp a recursive relation such as "I am aware that you are aware that I am aware of O"? Does the child even represent the *mind* of the other or consider attention merely as a behavior? Does the prelinguistic child grasp the difference between pointing as wanting and pointing as an invitation to contemplate an object?

Some of the volume's chapters take on these challenges from a philosophical perspective, some from a psychological perspective. Therein lies one strength of the volume, as it connects philosophers' and psychologists' perspectives in a fittingly joint study of a common phenomenon. (Incidentally, it also unites British and North American scholars in this endeavor, with a stronger weighting of the old world.) The connections between disciplines, however, are not as tight as one would wish for.

Some chapters refer to each other while others have a more solitary position in the book. Most importantly, an introductory chapter is missing that provides an organizing framework, previews the various contributions, and guides the reader through the thicket of questions, data, and theories. (Both the first and the last chapter are too difficult to introduce or integrate what is in between.) A reader without sufficient background knowledge will find especially some of the philosophical papers a bit dense, as they feature elaborate comparisons among the many actual and possible theories of joint attention. Such a reader will find more accessible the chapters that emphasize relationships between theories and existing data or between conceptual analyses and as yet untested phenomena. But all in all, both disciplinary approaches successfully examine the available developmental research and try to tell a coherent theoretical story of what joint attention is and where it comes from. And even though this theoretical story is nowhere made explicit, its major themes emerge from recurring discussions across the chapters. Below are the themes I found most significant.

Social interaction. Several authors place the cognitive feat of joint attention into the context of social interaction, especially prelinguistic and linguistic communication (Heal, Reddy, Sabbagh & Baldwin, Hobson, Healy & McCormack). Joint attention both grows out of dyadic interactions (e.g., mutual gaze, handing objects back and forth) and facilitates the kind of interaction that is necessary for the explosion of word learning in the third year of life. Because social interaction is not merely a cognitive demand but an emotionally significant event (Hobson, Roessler), the behavioral and cognitive coordination between child and adult is inherently rewarding and thus accelerates the child's development toward becoming a full interaction partner.

Origins. Joint attention appears to originate from two important tendencies, one in the child, one in the adult. The first tendency is the child's affective tuning to the adult's expressed attitude towards objects (Hobson, Leekam, Roessler). The child registers the adult's attending to an object and automatically takes on this attention and attitude toward the object, akin to what some have called *emotional contagion*. Out of this tendency also grows what is known as *social referencing*, the child's checking with the adult about the appropriate attitude (mainly approach or avoidance) toward a novel object. The second tendency is the adult's inclination to attend to whatever the child happens to be attending to at the moment, thereby establishing alignment between attention foci (Franco). For example, the child grasps a ball, and the adult comments: "Yeah, look at the ball." This is especially important for 12-month-old infants, who do not yet appreciate that another person may attend to objects different from those that they themselves attend to. Together, these two tendencies cover a large number of situations: When the child already attends to an object, adults align their attention with the child's; when the child is not yet attending to something, the adult's expression of interest can draw the child into aligned attention to a particular object.

Early attention concept. The child's growing understanding of attention is initially an understanding of attention *behavior* (Reddy)—importantly, though, an

understanding of *intentional* behavior (Sabbagh & Baldwin, Call & Tomasello). Assessing that or checking whether another person attends to an object does not require inferences of pure mental states but an understanding that self-propelled agents are *directed to* objects as goals (Woodward). Directedness is indicated by simple cues (head turn, gaze direction) but is more than a bundle of cues; it also predicts revealing actions (e.g., grasp, show) and correlated affect expressions (e.g., satisfaction of reaching the goal).

Richer concepts. The behavioral conception of attention as goal-directedness becomes enriched over time by the child's own experiences of voluntary attention control. As recent research has shown, similar neural pathways are activated when humans perceive others' actions and when they perform those actions themselves (Decety & Grèzes, 2006). Accordingly, the child's experiences of controlling their own attention will be correlated with acts of registering others' attention, bringing them one step closer to the mental layer of attention.

Both attention control and initiation of joint attention with others are also put to work in the service of learning about the world (Eilan, Roessler). The project to grasp (literally and figuratively) the surrounding world is helped by the adult's willingness to evaluate objects in this world and thus to serve as a standard. But discrepancies will emerge between the child's interest and the adult's interest, and they will mark, especially with growing linguistic competence, *differences* in perspectives (just consider the child's refusal to eat certain parent-endorsed food!). Recognizing these differences provides the key step toward a genuine understanding of minds as the mediators between world and action.

Pointing. The child's developing understanding of attention can also be illustrated by the parallel path of increasingly sophisticated pointing (Franco). Early on (at 9 months), the child points to objects as an expression of interest or desire, so pointing stands in for grasping. By 12 months of age, the child also points to objects that are out of reach and begins to express an attitude toward those objects. By 15 months, the child checks the adult's attention *during* the pointing and, by 19 months, *before* pointing. Pointing has now become an act of engaging interest and forming joint attention, and the resulting alignment of affect and perception is inherently reinforcing.

A few chapters in the volume discuss other interesting topics, including the specific deficits that autistic children have in joint attention (Hobson, Leekam) and other primates' capacities to understand others' attention (Tomasello & Call, Gomez). In light of the recent surge of interest in the neural processes underlying theory of mind (e.g., Gallagher & Frith, 2003; Heberlein & Adolphs, 2005), a neuroscientific perspective would have been a welcome addition to the present volume; likewise, a social-psychological analysis of the "end state" of joint attention and communication among interacting adults. But the selection of chapters in this volume strove more for depth of analysis than for broad coverage; as long as the reader recognizes this decision, the book's value is untarnished.

All in all, this is an important volume from which we can learn a great deal about early origins of the human theory of mind. The convergence of philosophers and psychologists is visible, and future direct collaborations may be even more successful in integrating conceptual concerns with empirical research on this fascinating and foundational component of human cognition.

References

- Carruthers, P., & Smith, P. K. (Eds.) (1996). *Theories of theories of mind*. New York: Cambridge University Press.
- Decety, J., & Grèzes, J. (2006). The power of simulation: Imagining one's own and other's behavior. *Brain Research*, 1079, 4–14.
- Gallagher, H. L., & Frith, C. D. (2003). Functional imaging of 'theory of mind'. *Trends in Cognitive Sciences*, 7, 77–83.
- Heberlein, A. S., & Adolphs, R. (2005). Functional anatomy of human social cognition. In A. Easton & N. Emery (Eds.), *The cognitive neuroscience of social behaviour* (pp. 157–194). New York: Psychology Press.
- Malle, B. F., & Hodges, S. D. (Eds.). (2005). *Other minds: How humans bridge the divide between self and other*. New York: Guilford Press..
- Perner, J. (1991). *Understanding the representational mind*. Cambridge, MA: MIT Press.
- Povinelli, D. J. (2001). On the possibilities of detecting intentions prior to understanding them. In B.F. Malle, L.J. Moses, & D.A. Baldwin (Eds.), *Intentions and intentionality: Foundations of social cognition* (pp. 225–248). Cambridge, MA: MIT Press.
- Tomasello, M., & Call, J. (1997). *Primate cognition*. New York: Oxford University Press.
- Wellman, H. M. (1990). *The child's theory of mind*. Cambridge, MA: MIT Press.

BERTRAM F. MALLE
Department of Psychology
Institute of Cognitive and Decision Sciences
1227 University of Oregon
Eugene, OR 97403-1227 USA
Email: bfmalle@uoregon.edu
© 2007, Bertram F. Malle