Developing a Cultural Theory of Mind: The CIAO Approach

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Abstract

The study of children's knowledge about minds is an extremely active area of developmental psychology. This article discusses the reach of this research and the theoretical views guiding it. It then presents some cultural variations (within the United States) in behavior explanation and explains the relevance of that variation to developmental theory. A theory of early mind reading that is presented incorporates culture, introspection, analogy, and ontogeny (CIAO).

Keywords

theory of mind; cultural psychology; social cognition

The ability to posit mental states in other people is among the most subtly remarkable of human feats. Rather than simply detecting behavioral regularities ("A person looking at candy usually proceeds to get candy"), most people readily assume that others have internal mental states ("She sees candy, she wants candy, and she intends to get candy"). And whereas almost all people do this (the really striking exceptions being those with autism), it may be the case that no animals do. Although chimpanzees appear to engage in purposeful deception in the wild, well-controlled studies suggest that they have simply detected behavioral regularities (Povinelli & Giambrone, in press).

Imputing intentions and other mental states is referred to as having a *theory of mind* (Premack & Woodruff, 1978). Understanding of minds is theorylike at least in the sense that mental states are not tangible, and therefore may exist only in theory, as some philosophers argue. A second reason for considering this knowledge a theory is that, like all theories, knowledge of mind appears to have a coherent, causal-explanatory structure, and concepts are defined in terms of other concepts specific to that body of knowledge (Wellman, 1990). For example, surprise is crucially defined in relation to belief or expectation.

Theory-of-mind research has taken developmental psychology by storm in the past decade. One might expect that such fury would run itself dry. Instead, theory of mind is surfacing across the field, because many developmental issues can be profitably viewed from this perspective. In infancy, for example, social referencing[2] depends on knowing that emotions can be about objects and events. Learning new words depends in part on deciphering what adults refer to, given the infinite choices. Pretend play depends on being able to deal in imagined worlds. In childhood and beyond, successful peer interaction depends in part on correctly interpreting the peer's intentions ("Did he bump into me on purpose?"). Providing reliable court testimony depends in part on knowing what it means to remember, and to lie. Because of its broad relevance, the theory-of-mind perspective could even stand a chance of unifying some disparate areas of research under a single conceptual framework, a unification lost when the developmental stages proposed by Jean Piaget, once very influential, became derailed.

MENTAL REPRESENTATION

Theory-of-mind research concerns many issues. A particularly active area of research focuses on children's understanding of mental concepts and activities, like pretense, emotions, and, especially, belief. Understanding belief is a hallmark of understanding minds, because representing the world is quite possibly the most important feature of minds. People respond not to the world as it is, but to the world as they believe it to be. Many of Shakespeare's plays, for example, hinge on this understanding: Lear's belief that the faithful Cordelia is only his "sometime daughter," Romeo's fatal misconception that Juliet is dead, the comedies' mistaken identities. These plays are paradigmatic of our fascination with how people view the world, and how belief drives action.

The *false-belief* task is a common way to assess when in development children come to understand that minds represent the world (Wimmer & Perner, 1983). In one version of this task, children are told of a boy who hides his candy in a drawer. While he is out, his mother moves it to a cupboard. The children are asked where the boy now thinks his candy is. Children ages 4 and older usually realize the boy thinks it is still where he left it. Remarkably, children under 4 usually do not: They often claim that the boy thinks it is in the new location. An active line of inquiry concerns the source of this error, with some research examining contributions of language skills, or a possible bias to report reality. Although such factors probably do contribute, a recent meta-analysis is consistent with the notion that a conceptual acquisition, such as realizing that belief is independent of reality, importantly underpins the ability to perform false-belief tasks correctly (Wellman, Cross, & Watson, 1999).

THEORIES OF DEVELOPMENT

Given the interest in children's knowledge about the mind, there is also much interest in theories about how that knowledge develops. Three dominant theories of development are also theories about the process of mind reading. In the nativist-modular theory, humans are equipped with an innate processing device, similar to Chomsky's language-acquisition device (LAD), whose function is to postulate mental states. When the child sees someone carrying out an action, the processor pops out a mental state, like "trying to do X" (Scholl & Leslie, 1999). Development occurs as additional elements of the processor come on line.

A second theory is that people understand minds by simulating. Upon seeing someone in a situation, a child imagines himself or herself in that situation, and experiences a mental state. The child then assumes the other person experiences that mental state (Harris, 1995). Development occurs as the simulator more accurately renders the other's situation.

The third proposal, dubbed the theory theory, is that people gradually build a theorylike body of knowledge about minds, and interpret behavior with reference to this theory (Wellman, 1990). When a child sees someone drop an ice-cream cone and then cry, the child theorizes that when one loses a treasured object, sadness ensues. Theory theory allows that several processes might inform the child's theory. For example, the process of introspection, which plays heavily in simulation, might create a link between crying and sadness. Further, an innate "starting state" (Gopnik & Meltzoff, 1997) might get infants off on the right foot in formulating their understanding. Indeed, a fourth developmental theory, social-cultural construction, can also be incorporated: Some mentalistic understandings might come from culture-specific experiences. One such source is explicit tutorials in imaginary constructs. Among many African tribes, for example, witches are believed to cause events, like AIDS or fires. Presumably such beliefs are coached by elders in the culture. Thus, important aspects of three other theoretical approaches are incorporated into the theory theory. Two unique points of this approach are that our knowledge about minds has a theorylike structure and that theories change in response to evidence (e.g., an initial theory that actions stem from desires only may later be replaced by a theory that actions stem from beliefs and desires).

THE CONTRIBUTION OF CULTURE

Throughout much of the literature on children's theories of mind, and a parallel literature in philosophy concerning the process by which we read minds, runs an assumption that "our" theory of mind is universal.[3] Common are sentiments that "a fascination with mind and psychological states is fundamental to human intellectual functioning" (Mitchell & Lewis, 1994, p. 1) and that the crux of understanding other people the world over is analyzing behavior in terms of beliefs and desires.

In a review of other cultures' ideas about minds, I suggested that there may be some universals, but that cultural variation exists and is relevant to evaluating and refining developmental theories (Lillard, 1998). Behavior attribution, or how people explain action, is one area of cultural variation. We usually explain why others do things with reference to their minds, but the predominance of this particular way of explaining behaviors may be unique to us. An example of cultural variation in behavior attribution comes from work by Miller (1984), who asked urban U.S. and Indian respondents to explain various behaviors. Explanations were analyzed in terms of whether they referred more to dispositions of the actor or more to situational constraints. Eight-year-olds in the two cultures responded similarly, choosing to name disposition and situation reasons about equally. But among older respondents, the cultures diverged, with Americans becoming increasingly dispositional, and Indians increasingly situational, with age.

Even within the United States there are cultural differences on this measure. My colleagues and I examined rural and urban

American children and found striking differences (Lillard, Zeljo, & Harlan, 1998). The urban children used psychological explanations frequently and early; about 60% of their explanations for others' good and bad behaviors were psychological even at age 7 (e.g., "He helped me to catch bugs, because he and I like to catch bugs"). In contrast, the rural children averaged only 20% psychological explanations, and instead used mostly situational explanations ("She helped me pick up my books, because if she didn't I would have missed the bus"). In this way, rural American children resembled Asian adults. Asian situationism has been traced to Confucian values, and American internalism to the Western philosophical tradition. Yet a sizable group within America, even a group that shares Western European heritage, apparently tends to construe behaviors as stemming from situational factors.

Future research should elucidate factors contributing to our extreme mentalism. Maybe attending to minds is more important when one lives among a greater variety of people, where social rules vary by individual and so knowing "insides" matters more. Or perhaps mentalism is more important for people who are faced with a greater set of possible choices for how to behave. Regardless of what contributes, the phenomenon of cultural patterns in behavior construal has been demonstrated repeatedly, and its existence has implications for theories of how mentalistic understanding develops.

IMPLICATIONS FOR NATIVIST-MODULAR ACCOUNTS

The fact that many people usually do not explain behaviors with reference to minds seems particularly troubling for nativist-modular accounts, those claiming that a genetically specified mind-reading module, like the LAD,[4] leads people to automatically compute certain mental states when observing behavior. If this is correct, why do rural U.S. children give mostly situational explanations? Modularity theorists might respond that the rural children arrived at intention explanations for every behavior, just as the urban children did, but that this module output was overridden or ignored. But it does not make sense that an innately specified module's output could be routinely overridden by cultural influence; the LAD would have little force if most language groups could willy-nilly override the laws of universal grammar and typically used noncanonical grammatical forms. And it strains common sense that urban, more educated, higher income respondents would be more apt to use modular output than would be rural respondents (who, incidentally, are probably more representative of the majority of human beings).

In retreat, one might say that the module at issue is actually a general explanation-finding module. Perhaps people have an innate, modular structure that outputs causes for phenomena, and one type of cause it might output is mental, and another is situational. Early input would cause neural switches to be set, resulting in some cultures attributing mental causes where others attribute physical ones. The problem with such a model is that settings should be fixed for life, as grammar is supposedly fixed by switches in the LAD. Regardless of what culture one is from, one can use all sorts of explanations, even for a single event. The frequencies with which various types of explanations are provided vary by culture, more so than the existence of various types. Either theorists have to postulate a new type of innately specified module, one with much less force than the LAD, or they have to question the very existence of innately specified mind-reading modules.

THE CIAO MODEL: CULTURE, INTROSPECTION, ANALOGY, ONTOGENY

What seems to make more sense than the nativist-modular approach is that children are learning ways of describing behavior in their cultures. The CIAO (culture, introspection, analogy, ontogeny) model ("ciao" being an Italian form of interpersonal acknowledgment) depicted in Figure 1 provides one formulation. In the figure, the shaded area (O) refers to the infant's ontogenesis, or biologically guided development. Within the confines of ontogeny, the infant conducts behaviors and notices his or her own mental states (introspection, I). The infant also notices analogies (A) between his or her own and others' behaviors, and assumes the same mental state exists in the other people as exists in himself or herself (see Meltzoff & Moore, 1995). Meltzoff and his colleagues' notion that infants can, in some limited respect, introspect and draw analogies between self and other is therefore central to the model. Meltzoff et al. have discussed introspection and analogy particularly with reference to imitation, stating that during imitative acts, the infant might think, "'I intend to produce these acts, the adult performs these same acts, they are not chance events; therefore the adult intends his acts'" (Meltzoff & Moore, 1995, p. 89).

The proposal that introspection and analogy guide theory-of-mind development is supported by important new unpublished work from Amanda Woodward and Jessica Sommerville, at the University of Chicago. In this study,

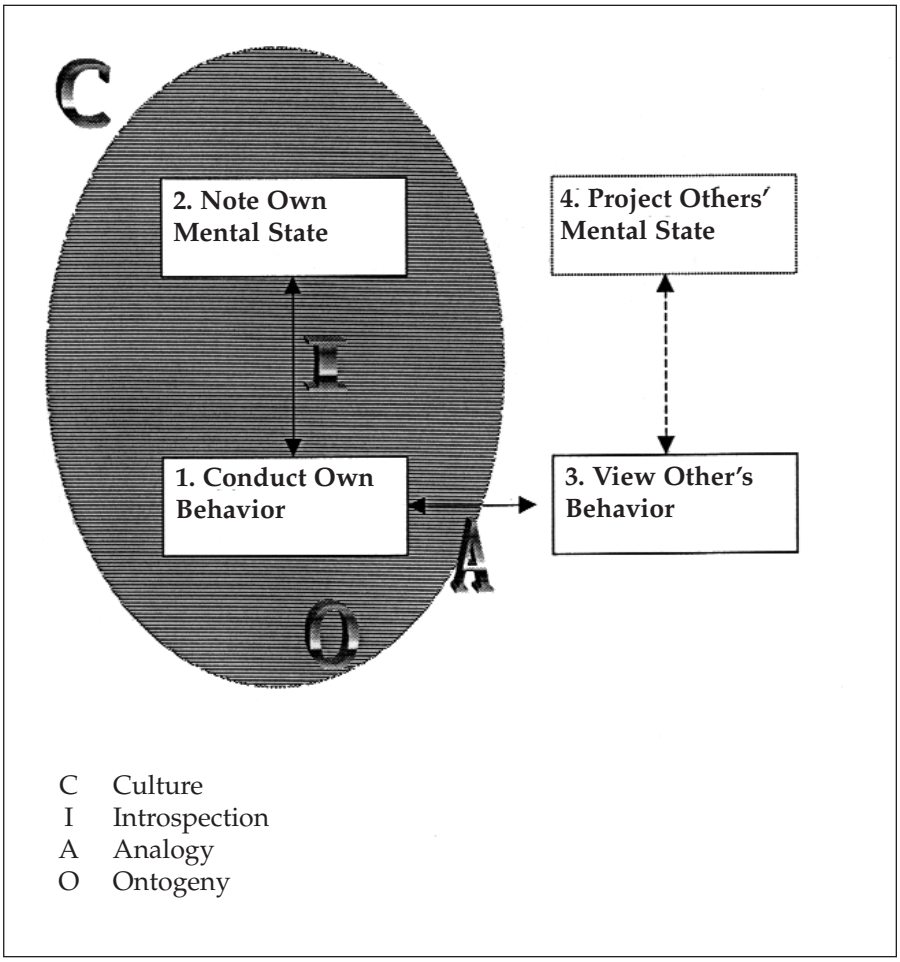

Fig. 1. The CIAO model of the ontogeny of mind reading.

the more reaching experience 5-month-olds had, the more likely they were to (apparently) attribute goals to others. (For details of the method, see Woodward, 1998.) Perhaps it is the case that when the infant engages in reaching behaviors, the infant introspects, noticing his or her own intention to get something; when the infant observes others reaching, he or she draws a self-other analogy, and sees the other as also intending to get something. Obviously, and as reflected in the CIAO model, ontogeny sets a boundary on when reaching behavior begins, and hence on when the infant might begin (if the introspection-analogy possibility is correct) to posit goals in others.

But the CIAO model highlights the importance of culture, depicted by the surround of Figure 1. Culture penetrates interpersonal understanding in many ways. For example, in some cultures, infants are given many toys, which inspire much reaching; in others, infants' arms are swaddled tightly to their sides, preventing reaching. Those infants who are more inspired and permitted, because of cultural practices, to reach out and get objects could come to attribute object-directed goals to other people earlier than would other infants. A host of effects, some related to theory of mind, might follow from precocity in this domain.

In sum, one way to think about how infants come to attribute mental states is via the CIAO model: In a cultural surround, infants introspect and draw an analogy between self and other. What is experienced and how changes with ontogeny. Because of the biological (I, A, and O) roots of this process, people everywhere can posit mental states. Because of the cultural roots, not everyone does it as much as we do. Perhaps there is some iota of truth to Bloom's (1998) claim that Shakespeare invented the human as we know it. We continue to read Shakespeare and his legacy, and we are strongly disposed to view people mainly in psychological terms. Although social understanding is probably built on foundations that are similar the world over, cultural influences intersect with those foundations from birth.

Recommended Reading

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Notes

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2. Social referencing means checking how a trusted person reacts emo-

tionally to something and then adopting the same stance oneself.

3. Precisely delineating the group that holds this theory is an exercise I do not take up here, but it might loosely include Europeans and Americans, or it might include only academic social scientists working in the European-American tradition.

4. Of course, the LAD concept is itself hotly contested in developmental psycholinguistics.

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