Other Minds: An Interdisciplinary Seminar

Bertram F. Malle

This seminar is partially based on a conference held September 27-28 in Eugene, Oregon. In line with the conference, we will discuss multiple perspective and approaches to one of the most fascinating problems of social and cognitive science: how people gain access to the mind of others. In doing so, we will read cutting-edge work in the various disciplines (not just summaries of previously published work) and discuss the problems that will engage researchers over the next decade. Furthermore, I hope that you will experience — as ordinary people and as scientists — the fascination that surrounds the problem of other minds.

Course Format. Each **Wednesday** I will give an introductory lecture on a new topic, reviewing concepts, methodologies, and classic research findings and offering brief comments on the articles to be read for the coming **Monday**, the Discussion session. Thus, each student will have time over the weekend to read the assigned articles. In addition, before **Monday** students get together (electronically or in person) with their "team" and develop questions and issues relevant to the articles. Each **Monday** we begin the session by asking teams to tell us about the major issues and questions they identified and thus set the agenda for an open discussion. Typically we will also watch a recording of a conference presentation and discuss it.

Teams are formed during the first week of class. Each group will be composed of 4-5 students. Please sign up for the teams on Monday Jan 5 and Wednesday Jan 7. I prefer to have teams contribute to Discussion sessions freely, but there will also be a default team each week in case the free-wheeling contributions don't get the discussion started. (Which team is default during which week is randomly assigned after everybody has signed up with their team.)

Grade. Your grade consists of (1) your reliable presence in class (100 points), (2) your contributions to your team (200 points), (3) your contributions to the class sessions, especially the discussions on Monday and/or electronic contributions (200 points), and (4) a project that you develop in the context of your team but write up as a final paper yourself (500 points). You can earn extra credit by taking part in the Psychology department human subjects pool, up to 4 experiments with 5 points each.

Project. Each team has a topic emphasis that corresponds to one of the major themes of the course. This emphasis is a guideline (but not a binding restriction) for the kinds of projects that team members will develop. A "project" can involve, but is not limited to: empirical data collection, theoretical proposal, technological or policy implications, critique, integrative review. Each project is drafted with feedback from me and other team members and is written up as a final paper (up to 15 pp.) by each student independently. All papers should be peer-edited (by members of your team) and revised before turned in for grading. That means that each member of a team edits one other team member's paper. There will be a separate handout on tips for writing and peer-editing.

The *Course web page* (http://www.darkwing.edu/~bfmalle/OMH.html) contains lecture handouts, discussion summaries, information on the writing contribution, and links to relevant resources.

Schedule and Readings

Main Reading

Additional Relevant Literature

- *Theories of theories of mind* (edited by Peter Carruthers and Peter K. Smith. Cambridge, New York: Cambridge University Press, 1996).

     The book is dominated by the debate between "simulation theorists" and "theory theorists" (12 chapters) but it also touches on primate behavior (3 chapters), autism (3 chapters), and language (2 chapters).

- *Machiavellian intelligence II: Extensions and evaluations* (edited by Andrew Whiten and Richard W. Byrne. Cambridge, New York: Cambridge University Press, 1997).

     A strong successor to the classic from 1988, this one is a good reader on primatology and the evolution of social intelligence.

- *Intentions and Intentionality: Foundations of social cognition* (edited by Bertram F. Malle, Louis J. Moses, & Dare A. Baldwin. Cambridge, MA: MIT Press, 2001).

- *Everyday Mind Reading: Understanding what other people think and feel* (by William Ickes. Amherst, MA: Prometheus Books, 2003).

     A monograph written by a social psychologist (who also contributes to our volume), with an attempt for broad appeal. The treatment of the problems is not interdisciplinary but social-psychological.

- *Understanding other minds: Perspectives from developmental cognitive neuroscience* (edited by Simon Baron-Cohen, Helen Tager-Flusberg, and Donald J. Cohen. New York: Oxford University Press, 2000.)

Mon Jan 5: *Introduction to Cognitive Science*

Wed Jan 7: *Approaches to Research;* Introduction to *Language and Other Minds*

Mon Jan 12: *Language and Other Minds* (Discussion)

The ability to infer other people's mental state is a central component of human communication and is closely tied to the ability to use any language. Language acquisition, in fact, presupposes basic abilities of joint attention, imitation, and turn taking — all precursors of understanding other minds. Moreover, the syntactic tools of language allow people to represent complex mental states in self and other and thereby enable connections to other minds.

Basic Readings:

➢ Baldwin, D. A. (2000). Interpersonal understanding fuels knowledge acquisition. *Current Directions in Psychological Science*, *9*, 40-45. [FirstSearch ECO ✔]

➢ Sperber, D., & Wilson, D. (2002). Pragmatics, modularity and mind-reading. *Mind and Language, 17*, 3-23. [FirstSearch ECO✔]

VIDEO:

Janet Astington (Psychology, OISE, University of Toronto)
Co-Construction of Theory of Mind: The Role of Language [disc 1 ✔]

Both language and theory of mind are broad terms for multifaceted systems, each comprised of a number of components. Consequently, the different components may be related to one another in different ways; these relations may change over developmental time, and there may be significant individual differences in the relations. This chapter presents a developmental view of the relations between language and theory of mind in the first five years of life. Theory of mind is grounded in infant social cognition, which facilitates language acquisition. Language then plays a crucial role in the construction of theory of mind. Participation in conversation leads to awareness of mental states, and children's own linguistic abilities facilitate meta-representational interpretations of human behavior.

Further Reading:
Baldwin, D. A., & Moses, L. J. (2001). Links between social understanding and early word learning: Challenges to current accounts. *Social Development*, *10,* 309-329. [FirstSearch ECO ✔]

***Wed** Jan 14:* Introduction to *Reading Behavior, Reading Minds*

***Wed** Jan 21: Reading Behavior, Reading Minds* (Discussion)

An important road toward understanding others' minds is to analyze their behavior. From behavior people infer motives to form impressions, get clues about the person's intended actions, and can monitor such states as confusion or deliberation. However, in all these contexts, it is difficult to distinguish the perceiver's mere behavioral analysis from a genuine inference of mental states. Just as apes have the ability to carefully track behaviors to predict subsequent behaviors without apparently inferring mental states, humans, too, might often merely track behavior without grasping the other mind.

Basic Readings:

➢ Baird, J. A., & Baldwin, D. A. (2001). Making sense of human behavior: Action parsing and intentional inference. In B. F. Malle, L. J. Moses, & D. A. Baldwin (Eds.), *Intentions and intentionality: Foundations of social cognition* (pp. 193-206). Cambridge, MA: MIT Press. [prepub ✓]

➢ 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. [prepub ✓]

➢ Baron-Cohen, S., Wheelwright, S., Hill, J., Raste, Y., & Plumb, I. (2001). The "Reading the Mind in the Eyes" Test Revised Version: A study with normal adults, and adults with Asperger syndrome or high-functioning autism. *Journal of Child Psychology and Psychiatry, 42,* 241-251. [FirstSearch ECO ✓]

VIDEO:

Daniel Povinelli (Institute of Cognitive Science, University of Louisiana at Lafayette)
Thinking About Behavior [disc 3 ✓]

Like humans, chimpanzees undoubtedly possess a psychological system for forming concepts related to the statistical regularities in behavior: Simply put, they think about behavior. But do they also construe behavior in terms of mental states — that is, do they possess a 'theory of mind'? Although both anecdotal and experimental data have been marshaled to support this idea, this chapter shows that no explanatory power or economy of expression is gained by such an assumption. Additional experiments will be unhelpful as long as they continue to rely upon determining whether subjects interpret behavioral invariances in terms of mental states. A paradigm shift is proposed to overcome this limitation.

Further reading:

➢ Povinelli, D. J., Bering, J. M., & Giambrone, S. (2000). Toward a science of other minds: Escaping the argument by analogy. *Cognitive Science*, *24*, 509-542.

Mon *Jan 26:* Introduction to *Explaining Behavior, Explaining Minds*

Wed *Jan 28. Explaining Behavior, Reading Minds* (Discussion)

One of the most sophisticated roles for mental-state inferences can be found in explanations of behavior. People ascribe beliefs, desires, emotions, and many other mental states in order to make sense of observable behavior. But how do they do that? Emerging models imply the operation of a number of cognitive processes and the reliance on vast stores of knowledge. In addition, explanations may be one of the most basic forms of mental state inference, perhaps available to very young children who are on the path from reading behavior to reading minds.

Basic Readings:

➢ Malle, B.F. (in press). A history of research on attribution and behavior explanation. From *How the mind explains behavior: Folk explanations, meaning, and social interaction* (chapter 1). Cambridge, MA: MIT Press. [author ✓]

➢ Wellman, H., Hickling, A. K., & Schult, C. A. (1997) Young children's psychological, physical, and biological explanations. In H. M. Wellman and K. Inagaki (Eds.). *The emergence of core domains of thought: Children's reasoning about physical, psychological, and biological phenomena* (pp. 7-25).. [New directions for child development, No. 75.] [**ILL requested**].

➢ Kalish, C. W. (1998). Reasons and causes: Children's understanding of conformity to social rules and physical laws. *Child Development, 69*, 706-720. [author-posted ✓]

➢ Malle, B. F. (2001). Folk explanations of intentional action. In B. F. Malle, L. J. Moses, & D. A. Baldwin (Eds.), *Intentions and intentionality: Foundations of social cognition* (pp. 265-286). Cambridge, MA: MIT Press. [prepub ✓]

No VIDEO

Further Reading:

➢ Malle, B. F. (in press). Attributions as behavior explanations: Toward a new theory. Chapter to appear in D. Chadee and J. Hunter (Eds.), *Current themes and perspectives in social psychology.*

Mon Feb 2: Prepare Project Proposals and Meet in Teams

Wed *Feb 4:* Introduction to *Limits of Mindreading*

Mon *Feb 9: Limits of Mindreading* (Discussion)

The existence of conceptual and cognitive tools that allow people to infer others' mental states provides no guarantee for the accuracy of those inferences or even for the reliable use of those tools in social situations. At times, people may be motivated *not* to infer what the other one is thinking, and at other times they may be caught within their own perspective of the world and assume that the other person shares that perspective. But those limitations are nothing compared to those of the autistic or schizophrenic person who may be missing the concepts of mind and the capacity to switch perspectives.

Basic Readings:

➢ Malle, B.F. (in press). Theory of mind, autism, and development. [Abridged]. In Malle, B.F. (in press). *How the mind explains behavior: Folk explanations, meaning, and social interaction.* Cambridge, MA: MIT Press. [prepub ✔]

➢ Baron-Cohen, S. (1997). Mindblind. *Natural History*, *106*, 62ff. [QH 1 .N13 ✔]

➢ Carruthers, P. (1996) *Autism as mindblindness: An elaboration and partial defence*, in P. Carruthers and P. K. Smith (Eds.), *Theories of theories of mind* (chapter 16, pp. 257-276). Cambridge: Cambridge University Press. [web posted on CogPrints ✔]

➢ Oliver Sacks **SCAN from RC351 .S1948 1995 or**
Baron-Cohen, S. (1992). The girl who shouted in the church. In R. Campbell (ed.), *Mental lives: Case studies in cognition* (pp. 11-23). Oxford: Blackwell. **[SCAN from RC394.C64 M46 1992**]

VIDEO:

Boaz Keysar (Psychology, University of Chicago)
  What do Adults do With Their Theory of Mind?
    The ability to distinguish between one's own and other people's beliefs emerges in childhood and is fully in place by adulthood. But people do not always use their "theory of mind" when they interpret another's actions. Instead, adults often initially interpret the other person's actions egocentrically, in terms of their own beliefs, and only later might make allowances for the other's divergent beliefs. In one particular study, we monitored the eye movements of adult participants who played the role of "addressee" in a communication game. A confederate director instructed addressees to move objects around in a grid. The addressee knew about objects that were unknown to the director. Despite this knowledge, addressees considered objects that were unknown to the director when attempting to follow her instructions; they viewed the situation initially from their own perspective and only later (if at all) corrected this initial perspective in light of the other person's limited knowledge. Additional studies support the conclusion that people have a theory of mind but do not reliably use precisely when it would be most helpful — when the other person has different beliefs than they themselves.

Robyn Langdon (Cognitive Science, Macquarie University, Australia)

Limits of Mindreading in Schizophrenia

Studies of mindreading in people with schizophrenia may provide important insights into the normal cognitive processes that healthy adults use to understand the subjective lives of other people. People with schizophrenia begin to show difficulties with inferring the contents of other people's mental states long after they have acquired a normal "theory of mind." They are aware that people possess minds, but they are impaired in inferring what a particular person might be thinking in a particular situation. This impairment is independent of general intellectual deterioration and/or executive dysfunction. People with schizophrenia also have trouble imagining other visual perspectives and other people's feelings in certain situations. Overall, a body of work supports the view that people with schizophrenia are poor at mindreading because they suffer a domain-specific difficulty with taking on in imagination the point of view of another person in order to appreciate what that other person might think, see, or feel.

Wed Feb 11: Introduction to *Other Minds in Social Context*

Mon Feb 16. Other Minds in Social Context (Discussion)

The perception of other people's minds occurs primarily in the context of social interactions and has direct benefits for the success of social interactions. Such success can sometimes lie in the simple fact that the target person feels better understood by the perceiver, whether this understanding is accurate or not (Hodges video). Sometimes the social context even dictates whether the perceiver will "try" to be accurate in inferring the other person's thoughts and feelings (Ickes & Simpson), though in general people understand that more empathy of perspective taking has positive consequences for an interaction.

Basic Readings:

➢ Ickes & Simpson article (Journal of Personality and Social Psychology) **SCAN?**

➢ Hodges, S. D., & Klein, K. J. K. (2001). Regulating the costs of empathy: The price of being human. *Journal of Socio-Economics, 30*, 437-452. [EBSCO ✓]

➢ Davis, M. H. (1994). Social relationships and social behavior. In M. H. Davis, *Empathy: A social psychological approach* (chapter 9, pp. 176-200). Westview Press. [e-document ✓]

VIDEO:

Sara Hodges (Psychology, University of Oregon)

Is How Much You Understand Me in Your Head or Mine?

People assume they'll understand another person better if they've had similar experiences (e.g., "I've been in your shoes and know just how you feel"), and the targets of their understanding make the same assumption (e.g., "I wish I could talk to someone who's been through it"). However, two recent studies suggest that having had similar life experiences (motherhood; divorced parents) may not affect empathy in this straightforward way. First, performance on three different measures of empathic accuracy (i.e., accurately guessing what the other is thinking or feeling) did not significantly improve with shared

experience. Second, reported empathic concern for the other person was associated with shared experience in only one of the two studies. Third, the *targets'* perceptions of how understood they felt did increase with shared experience, but only for targets who were actually aware of the perceiver "having been there too."

Daniel Ames (Business School, Columbia University)
Mind-Reading in Social Judgment: Strategies and Consequences

The present chapter presents a model of everyday mind-reading that integrates three processes that were previously studied in isolation: the causal analysis of behavior, stereotyping, and social projection. Perceivers are portrayed as moving between these bottom-up and top-down approaches: analyzing behavioral evidence when it is available and moving to stereotyping and social projection when the evidence is unclear. Further, the model suggests that perceivers are guided by their general sense of similarity to a target: They use projection more toward those they believe are similar and use stereotypes for those they believe are different. This preliminary model draws attention to the conditions under which different mind-reading strategies are employed and provides a framework for discussing the emergence of accuracy as well as distortion in everyday social judgment.

Wed Feb 18: Introduction to *Self and Other Minds*

Mon Feb 23: *Self and Other Minds* (Discussion)

The perception of other people's minds is intimately related to the perception of one's own mind. For one thing, the switching of perspectives always begins with one perspective (one's own) and may not sufficiently be altered to truly "correct for" the other mind. Moreover, humans appear to rely on their own mental system in an even more fundamental way when grasping others — by mirroring, reproducing, or simulating the apparent mental state that is indicated in the other person's behavior. Already in infancy we see this capacity in the child's imitation and empathic distress; but it may take several further developmental steps until humans truly represent their own mental states and those of others.

Basic Readings:

➢ Gordon, R. M. (2001). Folk psychology as mental simulation. In Edward N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Spring 2001 Edition). URL = http://plato.stanford.edu/entries/folkpsych-simulation/ ✓

➢ Meltzoff, A. N., & Brooks, R. (2001). "Like me" as a building block for understanding other minds: Bodily acts, attention, and intention. In B. F. Malle, L. J. Moses, & D. A. Baldwin (Eds.), *Intentions and intentionality: Foundations of social cognition* (pp. 171-191). Cambridge, MA: MIT Press. [prepub ✓]

➢ (1998), Projection as False Consensus. *Advances in experimental social psychology,* 30, 165 (18 pages)??? HM 251 .A3

➢ Nickerson, R. S. (2001). The projective way of knowing: A useful heuristic that sometimes misleads. *Current Directions in Psychological Science, 10*, 168-172. [ECO ✔]

VIDEO:

> Alvin Goldman (Philosophy, Rutgers University)
> **Emotion Mindreading, Simulation, and Modularity**

Evidence from clinical neurology suggests that for three types of emotions (fear, disgust, and anger/aggression), both production and recognition of each specific emotion (but of no other emotion) are jointly deficient. At the same time, the relevant patients have a normal conceptual understanding of the emotion in question. These results support a simulationist account of face-based emotion inferences, according to which inferences about others' emotions are mediated through the perceiver's own emotion states. The circumscribed deficits also suggest that normal recognition for any specific emotion is executed by the same neural substrate that is responsible for the experience of that emotion. Such a specific substrate bears some earmarks of modularity. To some extent, then, simulationist theories of emotion inference may be compatible with a modularist theory.

Further Reading:

Resource Page from NEH Seminar on Mental Simulation
http://www.umsl.edu/~philo/Mind_Seminar/New%20Pages/papers.html. ✔

Goldman, A. I. (1993). The psychology of folk psychology. *Behavioral and Brain Sciences, 16,* 15-28. [prepub ✔].

Carruthers, P. (1996). Simulation and self-knowledge. In P.Carruthers and P.K. Smith (Eds.),*Theories of theories of mind* (pp. 22-38). Cambridge: Cambridge University Press. [prepub ✔]

Wed Feb 25: Introduction to *Cognitive and Neural Substrates*

Mon Mar 1. *Cognitive and Neural Substrates* (Discussion)

A complex phenomenon such as mental state inference is apt to subsume multiple components and substrates. Some of these components will be automatically activated, others will be modulated by the perceiver's goals and social relations. Some may be neurologically identifiable (and resemble modules in the classic sense); others may consist of distributed networks of learned, strategic behaviors. In the development of theory of mind, too, we may distinguish earlier-emerging, more basic processes from later-emerging, more complex ones. Perspectives from social, cognitive, and neuroscience are concurrently accumulating insights that will help build a comprehensive model of mental state inference.

Basic Readings:

- Levenson & Ruef (1997). **[SCAN]**

- Levenson, R. W., & Ruef, A. M. (1992). Empathy: A physiological substrate. *Journal of Personality and Social Psychology*, *63*, 234-246. [author-posted] ✓

- Blakemore, S., & Decety, J. (2001). From the perception of action to the understanding of intention. *Nature Reviews Neuroscience*, *2*, 561-567. [public domain of nature.com]

- Chaminade, T., & Decety, J. (2001). A common framework for perception and action: Neuroimaging evidence. *Behavioral and Brain Sciences, 24*, 879-882. [ECO ✓]

VIDEO:

Ralph Adolphs (University of Iowa and California Institute of Technology)

A Neural System for Reconstructing Social Knowledge through Simulation

Lesion and functional imaging studies in humans have begun to outline the components of a neural system whereby an observer's own emotional reaction to socially relevant stimuli can be used to reconstruct knowledge about other people's emotional states. How we model other people may rely on specific functional components, to which we can begin to assign specific neural structures that implement them. I will review work from our laboratory and others that highlights the roles played by 3 such structures: the amygdala, the orbitofrontal cortex, and the somatosensory cortices.

Further Readings:

- Adolphs R (1999). Social cognition and the human brain. *Trends in Cognitive Sciences, 3,* 469-479.

- Ruby, P., & Decety, J. (2001). Effect of the subjective perspective taking during simulation of action: A PET investigation of agency. *Nature Neuroscience, 4*, 546-550. [public domain of nature.com]

Wed Mar 3: Introduction to *Evolutionary Processes*

Mon Mar 8: Evolutionary Processes (Discussion)

In many models of the evolutionary history of the human mind, social-cognitive capacities such as mental-state inference play an central role. Here we address just a few important questions. Did humans evolve mindreading capacities to outfox their competitors or to be better cooperators? Are mindreading capacities restricted to the human mind or is there a continuity to capacities in the animal world? And what would a more evolutionary-minded research of mindreading look like?

Basic Readings:

- Brief introduction from SEAL website of the Cambridge Zoology Department

➢ Humphrey, N. (1976). The social function of intellect. In P. P. G. Bateson and R. A. Hinde (Eds.), *Growing Points in Ethology* (pp. 303- 317). Cambridge: Cambridge University Press. [CogPrints ✔]

➢ Malle, B. F. (2002a). The relation between language and theory of mind in development and evolution. In T. Givón & B. F. Malle (Eds.), *The evolution of language out of pre-language* (pp. 265-284). Amsterdam: Benjamins. [prepub ✔]

VIDEO:

John Orbell (Political Science, University of Oregon)
"Machiavellian" Intelligence as a Basis for the Evolution of Cooperative Dispositions

According to the "Machiavellian intelligence" paradigm, social-cognitive capacities such as mindreading have evolved primarily for capturing adaptive advantage from within-group competition. However, well-established laboratory results show that people often act cooperatively, even at significant cost to themselves, and these results suggest that cooperative *dispositions* might be an evolved part of human nature. We use computer simulation to reconcile the evolutionary relationship between basic social-cognitive capacities (e.g., recognizing cooperative intentions in the other person) and cooperative dispositions. Results show that selection on such capacities can: (a) permit the spread of cooperative dispositions even in cooperation-unfriendly worlds; and (b) support transitions to populations with high mean cooperative dispositions. A major spark in the upward spiral of cooperative behavior in a community appears to be the combination of well-developed mindreading, modest mistrust of defectors, and high cooperative dispositions.

Further Reading:

➢ Preston, S. D. , & de Waal, F. B. M. (2001). Empathy: Its ultimate and proximate bases. Behavioral and Brain Sciences, *25,* 1-20. [ECO file ✔] [also in BBS public domain]

➢ Davis, M. H. (1994). Evolutionary origins of empathic capacities. In M. H. Davis, *Empathy: A social psychological approach* (chapter 2, pp. 23-45). Westview Press.

➢ Reader, S. M., & Laland, K. N. (2002). Social intelligence, innovation, and enhanced brain size in primates. *Proceedings of the National Academy of Sciences, 99, 4436-4441*. [PNAS Online ✔]

Wed Mar 10: Project Presentations I

Fri? **Mon** *Mar 15: Project Presentations II*

Dead Week: Mar 8 and Mar 10   Finals Week Mar 15 and 17