

# Social Cognitive Science: An Interdisciplinary Seminar on the Social Mind

Brown University PSYC2250  
Tuesday 1:00-4:00 p.m., 168 Hunter

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**Goal.** This seminar will synthesize theoretical and empirical research on the “social mind” — the cognitive capacities that enable humans to be successful social creatures and, in particular, to deal with others’ minds and intentional agency. The seminar will build towards a multidisciplinary field of Social Cognitive Science in which the social mind is studied in all its complexity, without prior methodological or theoretical commitments, and with contributions from many different disciplines—including evolutionary, developmental, cognitive, and social psychology, as well as philosophy, linguistics, and neuroscience.

**Recommended:** For graduate students in Psychology and CLS; other students with permission.

**Background.** Cognitive science is a celebrated interdisciplinary field that has given us remarkable insights into the human mind: from its basic information processing capacities to its dynamic ability to communicate; from the mind’s neural make-up to its higher-level functions of will and consciousness; and from real mental operations to the prospects of modeling and building an artificial mind. The success of cognitive science can be traced to at least two features: its interdisciplinary commitment and the guiding force of a core concept — that of the information processing machine. Social cognitive science can be equally successful if it holds two parallel features: an open, interdisciplinary orientation that fosters creativity, integrative insights, and both methodological and theoretical pluralism; and a few guiding principles that help organize and integrate the pluralistic research. We will discuss and put to the test a few candidate principles—such as the distinction between concepts and processes, the distinction between functional phenomena and material implementation, and the human search for meaning.

## Requirements:

- Weekly reading: all required papers; one of the optional papers
- Weekly attendance (only one session may be missed).
- Participation in discussions, short presentation of about 1-2 articles.
- Only for those who take the graded option, a term paper (many options, arranged with me).

**Grading:** The course may be taken graded or pass/no-pass. If taken graded, your attendance/participation and presentation will be weighted 50% and your paper, 50%.

**Readings** will be available electronically. Each weekly session, seminar participants will read a set of required papers and prepare notes for discussion. In addition, each student reads one optional article and provides a short summary for the group.

**Seminar sessions** are set for up to 3 hours to leave ample time for detailed discussions of the papers and topics and to develop implications for each participant’s own research.

## SCHEDULE OVERVIEW

- Feb 2      **The Emergence of Social Cognitive Science**  
Disciplinary-focused, methodological, and theoretical traditions on “social cognition” and the contrasting vision of a social cognitive science.
- Feb 9      **The Fundamental Capacities of the Social Mind I**  
The major theoretical positions on the nature of social-cognitive faculties (theory theory, modularity theory, simulation theory, phenomenological theory, interaction theory..].
- Feb 16     **The Fundamental Capacities of the Social Mind II: The Toolbox**  
The elements that make up the social mind, including concepts of agency and intentionality, processes of goal recognition, imitation, joint attention, empathy, as well as projection, simulation, explicit inferences of mental states (perspective taking), and personality judgments.
- Mar 2      **Development of the Social Mind I**  
The magical growth of social-cognitive capacities from hours after birth through to the pre-school period.
- Mar 9      **Development of the Social Mind II**  
Continuation: From the classic pre-school period across the life span.
- Mar 16     **Evolution of the Social Mind**  
Explorations of primate research and evolutionary anthropology to sketch a picture of how human social-cognitive capacities emerged over 6(?) million years.
- Mar 23     **Doing it Together: Communication and Interaction**  
How social-cognitive capacities guide and enable social interaction and communication.
- Apr 6      **Minding the Good and Bad: Moral Cognition I**  
The origin and role of moral judgment and its relationship with social cognition.
- Apr 13     **Minding the Good and Bad: Moral Cognition II**  
Moral judgment and its political legal implications; morality of group agents.
- Apr 20     **The Dark Side: Limitations of the Social Mind**  
Limitations of mental state inferences in clinical and normal populations, primarily autism and schizophrenia.
- Apr 27     **What is the Matter for the Mind: Searching for the Social Brain**  
From mirror neurons in monkeys to fMRI in humans. Scope and limitations of social neuroscience.
- May 4      **Evolving Forward: Social Cognitive Science Fiction I (Science)**  
Exploring the direction into which biological, cultural, and technological evolution may push the social mind. Artificial intelligence, mind uploading, posthumans.
- May 11     **Evolving Forward: Social Cognitive Science Fiction II (Fiction)**

# READING LIST

## *Feb 2: The Emergence of Social Cognitive Science*

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### Required Readings

- ✓ Malle, B. F. (2010). From social cognition to Social Cognitive Science. In B. F. Malle, *Social cognitive science: Understanding the social mind* (chap. 1). Monograph in preparation for Guilford.
- ✓ Ostrom, T. (1994). Foreword. In R. S. Wyer, Jr. & T. K. Srull (Eds.). *Handbook of social cognition* (2nd ed., pp. vii-xii). Hillsdale, NJ: Erlbaum. [\[Original from which I quote\]](#)
- ✓ Editorials for the journal *Social Cognition* in 2001, 2005, and 2006 [\[Originals from which I quote\]](#)
- ✓ Nichols, S. (2004). Folk concepts and intuitions: From philosophy to cognitive science. *Trends in Cognitive Sciences*, 8, 514-518. [\[From an experimental philosopher\]](#)
- ✓ Higgins, E. T., & Pittman, T. S. (2008). Motives of the human animal: Comprehending, managing, and sharing inner states. *Annual Review of Psychology*, 59, 361-385. [\[An early contributor to social cognition going beyond old social cognition\]](#)
- ✓ Lieberman, M. D. (2005). Principles, processes, and puzzles of social cognition: An introduction for the special issue on social cognitive neuroscience. *NeuroImage*, 28, 745-756.

### Optional

#### Different approaches

- Beer, J. S., & Ochsner, K. N. (2006). Social cognition: A multi level analysis. *Brain Research*, 1079, 98-105. [\[Young social psychologists reframing social cognition in interdisciplinary terms, very neuro excited. Similar to Liberman, 2005\]](#)
- Mason, M. F., & Macrae, C. N. (2008). Perspective-taking from a social neuroscience standpoint. *Group Processes Intergroup Relations*, 11, 215-232. [\[Illustrates the distinct approaches to social cognition of social psychology and all the other disciplines; reviewing considerable material for sessions 3 and 4.\]](#)
- Adolphs, R. (2006). How do we know the minds of others? Domain-specificity, simulation, and enactive social cognition. *Brain Research*, 1079, 25-35.
- Higgins, E. T. (2000). Social cognition: Learning about what matters in the social world. *European Journal Of Social Psychology*, 30, 3-39. [\[Could be seen as a precursor to Higgins & Pittman, 2008. Sweeping review, verbose and all-inclusive, but definitely no longer narrow social cognition. \]](#)
- Dunham, Y., & Olson, K. R. (2008). The importance of origins: Why cognitive development is central to a mature understanding of social cognition. *The Open Psychology Journal*, 1, 59-65. [\[Trying to build bridges between social psychology and cognitive development; groups theory of mind under "Integration Waiting to Happen"\]](#)

### Meaning

Molden, D. C., & Dweck, C. S. (2006). Finding “meaning” in psychology: A lay theories approach to self-regulation, social perception, and social development. *The American Psychologist*, 61, 192-203. [Attempt to cash out the role of meaning; partially successful]

Heine, S. J., Proulx, T., & Vohs, K. D. (2006). The meaning maintenance model: On the coherence of social motivations. *Personality and Social Psychology Review*, 10, 88-110. [Most relevant passages about meaning are on pp. 88-98.]

### **More social in cognition**

Smith, E. R. (2008). Social relationships and groups: insights on embodied and distributed cognition. *Cognitive Systems Research*, 9, 24-32.

Fiske, S. T., Cuddy, A. J. C., & Glick, P. (2007). Universal dimensions of social cognition: Warmth and competence. *Trends in Cognitive Sciences*, 11, 77-83.

### **Classic social cognition reviews (you can focus on the table of contents)**

Fiske, S. T. (1993). Social cognition and social perception. *Annual Review of Psychology*, 44, 155-194.

Higgins, E. T., & Bargh, J. A. (1987). Social cognition and social perception. *Annual Review of Psychology*, 38, 369-425.

Schneider, D. J. (1991). Social cognition. *Annual Review of Psychology*, 42, 527-561.

## **Feb 9: The Fundamental Capacities of the Social Mind I: Broad Perspectives**

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### **Required Readings**

✓ Malle, B. F. (2010). Excerpt: The fundamental tools of social cognition. In B. F. Malle, *Social cognitive science: Understanding the social mind* (chap. 2, part I). Monograph in preparation for Guilford.

✓ Leslie, A. M., Friedman, O., & German, T. P. (2004). Core mechanisms in ‘theory of mind’. *Trends in Cognitive Sciences*, 8, 529-533.

Gopnik, A., Capps, L., & Meltzoff, A. N. (2000). Excerpt from: Early theories of mind: What the theory can tell us about autism. *Understanding other minds: Perspectives from developmental cognitive neuroscience (2nd ed.)*, 50-72.

✓ Ravenscroft, I. (n.d.). Folk psychology as a theory (Stanford Encyclopedia of Philosophy). <http://plato.stanford.edu/entries/folkpsych-theory/>.

✓ Gordon, R. M. (n.d.). Folk psychology as mental simulation (Stanford Encyclopedia of Philosophy). <http://plato.stanford.edu/entries/folkpsych-simulation/>.

✓ Apperly, I. A. (2008). Beyond Simulation-Theory and Theory-Theory: Why social cognitive neuroscience should use its own concepts to study “theory of mind”. *Cognition*, 107, 266-283.

✓ Gallagher, S. (2009). Two problems of intersubjectivity. *Journal of Consciousness Studies*, 16, 289-308.

### **Optional**

#### **Simulation vs. Theory**

- Keyesers, C., & Gazzola, V. (2007). Integrating simulation and theory of mind: From self to social cognition. *Trends in Cognitive Sciences*, 11, 194-196.
- Muthukumaraswamy, S. D., & Johnson, B. W. (2007). A dual mechanism neural framework for social understanding. *Philosophical Psychology*, 20, 43-63.
- Davies, M., & Stone, T. (2000). Simulation theory. In E. J. Craig (ed.), *Routledge Encyclopedia of Philosophy (Online)*. London: Routledge. [\[another summary/review\]](#)
- Rockwell, T. (2008). Dynamic empathy: A formulation for the simulation theory of mind reading. *Cognitive Systems Research*, 9, 52-63.
- Goldman, A. (2009). Précis of Simulating Minds: The Philosophy, Psychology, and Neuroscience of Mindreading. *Philosophical Studies*, 144, 431-434.
- Perner, J., & Brandl, J. (2009). Simulation à la Goldman: pretend and collapse. *Philosophical Studies*, 144, 435-446.
- Saxe, R. (2009). The neural evidence for simulation is weaker than I think you think it is. *Philosophical Studies*, 144, 447-456.

### **Phenomenological/Interaction/Narrative theory**

- De Jaegher, H., & Froese, T. (2009). On the role of social interaction in individual agency. *Adaptive Behavior*, 17, 444-460.
- Gallagher, S., & Hutto, D. D. (2008). Understanding others through primary interaction and narrative practice. In J. Zlatev, T. P. Racine, C. Sinha, & E. Itkonen (Eds.), *The shared mind: Perspectives on intersubjectivity*. (pp. 17-38). Amsterdam, Netherlands: John Benjamins.
- Gallagher, S. (2008). Inference or interaction: Social cognition without precursors. *Philosophical Explorations: An International Journal for the Philosophy of Mind and Action*, 11, 163. [\[less critique, more construction of own theory\]](#)
- Gallagher, S. (2008). Direct perception in the intersubjective context. *Consciousness and Cognition: An International Journal*, 17, 535-543. [\[the paper I quoted in my chapter\]](#)

## *Feb 16: The Fundamental Capacities of the Social Mind II: The Toolbox*

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### **Required Readings**

- ✓ Malle, B. F. (2010). Excerpt: Finding meaning in social behavior: The fundamental tools of social cognition. In B. F. Malle, *Social cognitive science: Understanding the social mind* (chap. 2, part II). Monograph in preparation for Guilford.
- ✓ Baldwin, D. A., & Baird, J. A. (2001). Discerning intentions in dynamic human action. *Trends in Cognitive Sciences*, 5, 171-178.
- ✓ Iacoboni, M. (2009). Imitation, empathy, and mirror neurons. *Annual Review of Psychology*, 60, 653-670.
- ✓ Barr, D. J., & Keysar, B. (2005). Mindreading in an exotic case: The normal adult human. In B. F. Malle, & S. D. Hodges (Eds), *Other minds: How humans bridge the divide between self and others* (pp. 271-283). York: Guilford Press.

✓ [http://anthropomorphism.org/img/Heider\\_Flash.swf](http://anthropomorphism.org/img/Heider_Flash.swf) or quicktime movie on Bb.

From Heider, F. & Simmel, M. (1944). An experimental study of apparent behavior. *American Journal of Psychology*, 57, 243-59.

## **Optional**

### **General approach**

Mitchell, J. P. (2006). Mentalizing and Marr: An information processing approach to the study of social cognition. *Brain Research*, 1079, 66-75.

Frith, U., & Blakemore, S. J. (2005). *Social Cognition*. Unpublished Research Review for Foresight Cognitive Systems Project.

Happaney, K. R., & Zelazo, P. D. (2007). Less specificity in higher cognitive mechanisms: Evidence from theory of mind. *Integrating the mind: Domain general vs domain specific processes in higher cognition.*, 257-273.

Sharrock, W., & Coulter, J. (2004). ToM: A critical commentary. *Theory & Psychology*, 14, 579-600.

### **Agency, intentionality, goal directedness**

Molden, D. C. (2009). Finding meaning in others' intentions: The process of judging intentional behaviors and intentionality itself. *Psychological Inquiry*, 20, 37-43.

Langton, S. R. H., Watt, R. J., & Bruce, V. (2000). Do the eyes have it? Cues to the direction of social attention. *Trends in Cognitive Sciences*, 4, 50-59.

Wheatley, T., Milleville, S. C., & Martin, A. (2007). Understanding animate agents: Distinct roles for the social network and mirror system. *Psychological Science*, 18, 469-474.

### **Mirror neurons, imitation, empathy, synchrony**

Russell, J. A., Bachorowski, J., & Fernandez-Dols, J.. (2003). Facial and vocal expressions of emotions. *Annual Review of Psychology*, 54, 329-349.

Jacob, P. (2008). What do mirror neurons contribute to human social cognition? *Mind & Language*, 23, 190-223.

Gallese, V. (2007). Before and below 'theory of mind': Embodied simulation and the neural correlates of social cognition. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 362, 659-669.

Adams, F. (2001). Empathy, neural imaging and the theory versus simulation debate. *Mind and Language*, 16, 368-392.

Mirror neuron paper collection: <http://www.interdisciplines.org/mirror/papers/>

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

### **Mental state inference**

Ames, D. R. (2004). Inside the mind reader's tool kit: Projection and stereotyping in mental state inference. *Journal of Personality and Social Psychology*, 87, 340-353.

Apperly, I. A., Riggs, K. J., Simpson, A., Chiavarino, C., & Samson, D. (2006). Is belief reasoning automatic? *Psychological Science*, 17, 841-844.

Van Boven, L., & Loewenstein, G. (2005). Empathy gaps in emotional perspective taking. In B. F. Malle and S. D. Hodges (Eds.), *Other minds: How humans bridge the divide between self and others* (pp. 284-297). York, NY: Guilford Press.



- Zaki, J., Bolger, N., & Ochsner, K. (2008). It takes two: The interpersonal nature of empathic accuracy. *Psychological Science*, 19, 399-404.
- Lozano, S. C., Hard, B. M., & Tversky, B. (2007). Putting action in perspective. *Cognition*, 103, 480-490.

## Mar 2: Development of the Social Mind I: Early Beginnings

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### Required

- ✓ Poulin-Dubois, D., Brooker, I., & Chow, V. (2009). The developmental origins of naïve psychology in infancy [\[excerpt: Early tools\]](#). *Advances in Child Development and Behavior*, 37, 55-104.
- ✓ Johnson, S. C. (2000). The recognition of mentalistic agents in infancy. *Trends in Cognitive Sciences*, 4, 22-28.
- ✓ Woodward, A. L., Sommerville, J. A., & Guajardo, J. J. (2001). How infants make sense of intentional action. In B. F. Malle, L. J. Moses, & D. A. Baldwin (Eds.), *Intentions and intentionality: Foundations of social cognition* (pp. 149-170). Cambridge, MA: MIT Press.
- ✓ Onishi, K. H., & Baillargeon, R. (2005). Do 15-month-old infants understand false beliefs? *Science*, 308, 255-258.
- ✓ Perner, J., & Ruffman, T. (2005). Infants' insight into the mind: How deep? *Science*, 308 : 214-216. [\[reply to Onishi\]](#)
- ✓ Song, H., & Baillargeon, R. (2008). Infants' reasoning about others' false perceptions. *Developmental Psychology*, 44, 1789-1795.
- ✓ Sirois, S., & Jackson, I. (2007). Social cognition in infancy: A critical review of research on higher order abilities. *European Journal of Developmental Psychology*, 4, 46-64. [\[skeptical about all the data on mentalizing capacities in the 2<sup>nd</sup> year or life\]](#)

### Optional

[Articles especially recommended as your own optional contribution are asterisked]

- Simion, F., Leo, I., Turati, C., Valenza, E., & Dalla Barba, B. (2007). How face specialization emerges in the first months of life. *Progress in Brain Research*, 164, 169-185. [Abstract]
- \*Hamlin, J. K., Hallinan, E. V., & Woodward, A. L. (2008). Do as I do: 7-month-old infants selectively reproduce others' goals. *Developmental Science*, 11, 487-494.
- \*Poulin-Dubois, D., Sodian, B., Metz, U., Tilden, J., & Schoeppner, B. (2007). Out of sight is not out of mind: developmental changes in infants' understanding of visual perception during the second year. *Journal of Cognition and Development*, 8, 401-425. [\[doesn't find the same geniuses among her infants as Baillargeon does\]](#)
- \*Surian, L., Caldi, S., & Sperber, D. (2007). Attribution of beliefs by 13-month-old infants. *Psychological Science*, 18, 580-586.
- \*Sodian, B., Thoermer, C., & Metz, U. (2007). Now I see it but you don't: 14-month-olds can represent another person's visual perspective. *Developmental Science*, 10, 199-204. .

- Feldman, R. (2007). Parent-infant synchrony: Biological foundations and developmental outcomes. *Current Directions in Psychological Science*, 16, 340-345.
- Saylor, M. M., Baldwin, D. A., Baird, J. A., & LaBounty, J. (2007). Infants' on-line segmentation of dynamic human action. *Journal of Cognition and Development*, 8, 113-128.
- Malle, B. F. (2007). Review of Joint attention: Communication and other minds. *Philosophical Psychology*, 20, 543-547.
- Wilkerson, W. S. (1999). From bodily motions to bodily intentions: The perception of bodily activity. *Philosophical Psychology*, 12, 61-77. [[Nice philosophical companion piece to Baldwin & Baird \(2001\)](#)]
- \*Meltzoff, A. N. (1995). Understanding the intentions of others: Re-enactment of intended acts by 18-month-old children. *Developmental Psychology*, 31, 838-850. [[A classic, over 800 citations...](#)]
- Grossmann, T., & Johnson, M. H. (2007). The development of the social brain in human infancy. *European Journal of Neuroscience*, 25, 909-919. [[the early toolbox in the brain](#)]
- Johnson, S. C., Shimizu, Y. A., & Ok, S. (2007). Actors and actions: The role of agent behavior in infants' attribution of goals. *Cognitive Development*, 22, 310-322.
- Hauf, P., & Prinz, W. (2005). The understanding of own and others' actions during infancy: "You-like-Me" or "Me-like-You"? *Interaction Studies*, 6, 429-445.
- \*Gergely, G., & Csibra, G. (2003). Teleological reasoning in infancy: The naive theory of rational action. *Trends in Cognitive Sciences*, 7, 287-292. [[summarizing classic work on infants' "rationality" assumption](#)]

## *Mar 9: Development of the Social Mind II: Advances*

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### **Required**

- ✓ Poulin-Dubois, D., Brooker, I., & Chow, V. (2009). The developmental origins of naïve psychology in infancy [[excerpt: Later tools](#)]. *Advances in Child Development and Behavior*, 37, 55-104.
- ✓ Colonnese, C., Koops, W., & Terwogt, M. M. (2008). Young children's psychological explanations and their relationship to perception- and intention-understanding. *Infant and Child Development*, 17, 163-179.
- ✓ Russell, J. (2005). Justifying all the fuss about false belief. *Trends in Cognitive Sciences*, 9, 307-308.
- ✓ Yazdi, A. A., German, T. P., Defeyter, M. A., & Siegal, M. (2006). Competence and performance in belief-desire reasoning across two cultures: The truth, the whole truth and nothing but the truth about false belief? *Cognition*, 100, [[4 pp. excerpt](#)] 343-368.
- ✓ Dumontheil, I., Apperly, I. A., & Blakemore, S. (2010). Online usage of theory of mind continues to develop in late adolescence. *Developmental Science*, 13, 331-338.



## Optional

- Boseovski, J. J., Shallwani, S., & Lee, K. (2009). It's all good: Children's personality attributions after repeated success and failure in peer and computer interactions. *British Journal of Developmental Psychology*, 27, 783-797.
- Carlson, S. M., Moses, L. J., & Breton, C. (2002). How specific is the relation between executive function and theory of mind? Contributions of inhibitory control and working memory. *Infant and Child Development*, 11, 73-92.
- Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition*, 13, 103-128.
- Astington, J. W. (2001). The paradox of intention: Assessing children's metarepresentational understanding. In B. F. Malle, L. J. Moses, and D. A. Baldwin (Eds.), *Intentions and intentionality: Foundations of social cognition* (pp. 85-103). Cambridge, MA: MIT Press.
- Mitchell, P. (1991). Children's early understanding of false belief. *Cognition*, 39, 107-127.
- Perner, J., Sprung, M., Zauner, P., & Haider, H. (2003). Want that is understood well before say that, think that, and false belief: a test of de Villiers's linguistic determinism on German-speaking children. *Child Development*, 74, 179-188.
- Wellman, H. M., Lopez-Duran, S., LaBounty, J., & Hamilton, B. (2008). Infant attention to intentional action predicts preschool theory of mind. *Developmental Psychology*, 44, 618-623.

## Mar 16: Evolution of the Social Mind

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### Required

[This is a considerable number of papers, but most are between 3 and 5 pages short.]

- ✓ Bolhuis, J. J., & Wynne, C. D. L. (2009). Can evolution explain how minds work? *Nature*, 458(7240), 832-833.
- ✓ Malle, B. F. (2002). 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.
- ✓ Dunbar, R. I. M., & Shultz, S. (2007). Evolution in the social brain. *Science*, 317, 1344-1347.
- ✓ Hauser, M., & Wood, J. (2010). Evolving the capacity to understand actions, intentions, and goals. *Annual Review of Psychology*, 61, 303-324.
- ✓ Holecamp, K. E. (2007). Questioning the social intelligence hypothesis. *Trends in Cognitive Sciences*, 11, 65-69.
- ✓ Povinelli, D. J., & Bering, J. M. (2002). The mentality of apes revisited. *Current Directions in Psychological Science*, 11, 115-119.
- ✓ Call, J., & Tomasello, M. (2008). Does the chimpanzee have a theory of mind? 30 years later. *Trends in Cognitive Sciences*, 12, 187-192.

### Optional

### Experimental

- Ferrari, P. F., Visalberghi, E., Paukner, A., Fogassi, L., Ruggiero, A., & Suomi, S. J. (2006). Neonatal imitation in rhesus macaques. *PLoS Biology*, 4, 1501-1508.
- Wood, J. N., Glynn, D. D., Phillips, B. C., & Hauser, M. D. (2007). The perception of rational, goal-directed action in nonhuman primates. *Science*, 317(5843), 1402-1405.
- Call, J., Hare, B., Carpenter, M., & Tomasello, M. (2004). 'Unwilling' versus 'unable': Chimpanzees' understanding of human intentional action. *Developmental Science*, 7, 488-498.
- Kaminski, J., Call, J., & Tomasello, M. (2008). Chimpanzees know what others know, but not what they believe. *Cognition*, 109, 224-234.
- Call, J. (2005). Chimpanzees are sensitive to some of the psychological states of others. *Interaction Studies*, 6, 413-427.
- Call, J., Brauer, J., Kaminski, J., & Tomasello, M. (2003). Domestic dogs (*Canis familiaris*) are sensitive to the attentional state of humans. *Journal of Comparative Psychology*, 117, 257-263.

### **Theoretical**

- Lyons, D. E., Santos, L. R., & Keil, F. C. (2006). Reflections of other minds: How primate social cognition can inform the function of mirror neurons. *Current Opinion in Neurobiology*, 16, 230-234.
- Penn, D. C., & Povinelli, D. J. (2007). On the lack of evidence that chimpanzees possess anything remotely resembling a 'theory of mind.' *Philosophical Transactions of the Royal Society, B*, 362, 731-744.
- Povinelli, D. J. (2004). Behind the ape's appearance: escaping anthropocentrism in the study of other minds. *Daedalus*, 133, 29-41.
- Andrews, K. (2005). Chimpanzee theory of mind: Looking in all the wrong places? *Mind & Language*, 20, 521-536.
- Whiten, A. (1996). When does smart behaviour-reading become mind-reading? In P. Carruthers and P. K. Smith (Eds.) *Theories of theories of mind* (pp. 277-292). Cambridge University Press: Cambridge, MA. [\[highly-cited contributor to the 80s and 90s' discussion of ToM\]](#)
- 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, England: Cambridge University Press. [\[a classic formulation of the "social brain" hypothesis\]](#)
- Mameli, M. (2001). Mindreading, mindshaping and evolution. *Biology and Philosophy*, 16, 597-628. [\[my summary available in Optional readings folder\]](#)

### **Dolphins**

- Tschudin, A. J.-P. C. (2001). 'Mindreading' mammals? Attribution of belief tasks with dolphins. *Animal Welfare*, 10, S119-S127.
- Pack, A. A., & Herman, L. M. (2006). Dolphin social cognition and joint attention: Our current understanding. *Aquatic Mammals*, 32, 443-460.
- Marino, L. (2002). Convergence of complex cognitive abilities in cetaceans and primates. *Brain, Behavior and Evolution*, 59(1-2), 21-32.
- Morisaka, T. Current cognitive studies on cetaceans. *Japanese Journal of Animal Psychology*, 57, 41-51.

### **Additional reviews**

- Emery, N. J., & Clayton, N. S. (2009). Comparative social cognition. *Annual Review of Psychology*, 60(1), 87-113.
- Stone, V. E. (2006). Theory of mind and the evolution of social intelligence. In J. T. Cacioppo, P. S. Visser, & C. L. Pickett (Eds.), *Social neuroscience: People thinking about thinking people*. (pp. 103-129). Cambridge, MA US: MIT Press. Retrieved from .
- Santos, L. R., Flombaum, J. I., & Phillips, W. (2006). The evolution of human mind reading. In S. Platek (Ed.), *Evolutionary cognitive neuroscience* (pp. 433-456). Cambridge, Mass: MIT Press.
- Flinn, M. V. (2005). Culture and developmental plasticity: Evolution of the social brain. In R. L. Burgess and K. MacDonald (Eds), *Evolutionary perspectives on human development* (2nd ed., pp. 73-98). Thousand Oaks, CA: Sage.
- Bjorklund, D. F., Cormier, C. A., Rosenberg, J. S. (2005). The evolution of theory of mind: Big brains, social complexity, and inhibition. In W. Schneider, R. Schumann-Hengsteler, & B. Sodian (Eds.), *Young children's cognitive development: Interrelationships among executive functioning, working memory, verbal ability, and theory of mind* (pp. 147-174). Mahwah, NJ: Erlbaum.
- Dunbar, R. (2007). Evolution of the social brain. In S. W. Gangestad and J. A. Simpson (Eds.), *The evolution of mind: Fundamental questions and controversies* (pp. 280-286). York, NY: Guilford. [\[a little longer than required readings\]](#)
- Dunbar, R. I. M. (2003). The social brain: Mind, language, and society in evolutionary perspective. *Annual Review of Anthropology*, 32, 163-181. [\[longest of Dunbar chapters here\]](#)
- Steele, J. (1989). Hominid evolution and primate social cognition. *Journal of Human Evolution*, 18, 421-432.

## *Mar 23: Doing it Together: Communication and Interaction*

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### **Required**

- ✓ Astington, J. W., & Filippova, E. (2005). Language as the route into other minds. In B. F. Malle and S. D. Hodges (Eds.), *Other minds: How humans bridge the divide between self and others* (pp. 209-222). York, NY: Guilford Press.
- ✓ Malle, B. F., & Pearce, G. E. (2001). Attention to behavioral events during social interaction: Two actor-observer gaps and three attempts to close them. *Journal of Personality and Social Psychology*, 81, 278-294.
- ✓ Bavelas, J. B., & Coates, L. (1992). How do we account for the mindfulness of face-to-face dialogue? *Communication Monographs*, 59, 301-305. [\[Appropriate follow-ups: Gibbs & Bryant \(2008\); Clark & Krych \(2004\)\]](#)
- ✓ Malle, B. F. (2005e). Three puzzles of mindreading. In B. F. Malle & S. D. Hodges (Eds.), *Other minds: How humans bridge the divide between self and other* (pp. 18-35). York: Guilford Press. [\[pp. 36-39 take on the puzzle Bavelas & Coates noted in their short 2002 paper\]](#)
- ✓ Bangerter, A., & Clark, H. H. (2003). Navigating joint projects with dialogue. *Cognitive Science: A Multidisciplinary Journal*, 27, 195-225.

✓ Haslam, N., & Fiske, A. P. (2004). Social expertise: Theory of mind or theory of relationships? In N. Haslam (Ed.), *Relational models theory: A contemporary overview* (pp. 147-163). Mahwah, NJ: Erlbaum.

## Optional

Wolff, P., Jeon, G. & Yeh, K. (2006). *Causal agents and the individuation of events in English, Chinese, and Korean*. Proceedings of the 5th International Conference on Cognitive Science (p. 213–214). Mahwah, NJ: Lawrence Erlbaum. [[Empirical evidence related to the age-old Sapir-Whorf hypothesis.](#)]

Willems, R. M., Hagoort, P., & Casasanto, D. (2010). Body-specific representations of action verbs. *Psychological Science*, 21, 67-74. [[An “embodied” or simulation-like account of action verb comprehension](#)]

Gibbs Jr., R. W., & Bryant, G. A. (2008). Striving for optimal relevance when answering questions. *Cognition*, 106, 345-369. [[Detailed evidence for “audience design”—speaking with the other’s mind in mind](#)]

Clark, H. H., & Krych, M. A. (2004). Speaking while monitoring addressees for understanding. *Journal of Memory and Language*, 50, 62-81. [[More evidence for careful audience design](#)]

Newton, A. M., & Villiers, J. G. D. (2007). Thinking while talking: Adults fail nonverbal false-belief reasoning. *Psychological Science*, 18, 574-579. [[Another argument for the role of language in mental state inference?](#)]

Hancer, M. (1978, November). *Grice’s “implicature” and literary interpretation: Background and preface*. Twentieth Annual Meeting of the Midwest Modern Language Association. Minneapolis, MN. [[nice, short introduction to Grice’s theory](#)]

Sperber, D., & Wilson, D. (2002). Pragmatics, modularity and mind-reading. *Mind & Language*, 17, 3-23. [[Relevance theory more explicitly connected to mental state inference](#)]

Horowitz, L. M., Wilson, K. R., Turan, B., Zolotsev, P., Constantino, M. J., & Henderson, L. (2006). How interpersonal motives clarify the meaning of interpersonal behavior: A revised circumplex model. *Personality and Social Psychology Review*, 10, 67-86. [[a classic model of interpersonal behavior, going back to Timothy Leary!](#)]

Hobson, R. P. (2007). Communicative depth: Soundings from developmental psychopathology. *Infant Behavior & Development*, 30, 267-277. [[communication in autistic children](#)]

Edwards, D., & Potter, J. (2005). Discursive psychology, mental states and descriptions. In H. te Molder & J. Potter (Eds.), *Conversation and cognition* (pp. 241-259). York: Cambridge University Press. [[A very different school of thought—British conversational analysis tradition](#)]

de Rosnay, M., & Hughes, C. (2006). Conversation and theory of mind: Do children talk their way to socio-cognitive understanding? *British Journal of Developmental Psychology*, 24, 7-37. [[Extensive review on the relationships between language and theory of mind](#)]

Watson, A. C., Nixon, C. L., Wilson, A., & Capage, L. (1999). Social interaction skills and theory of mind in young children. *Developmental Psychology*, 35, 386-391. [[Argue for predictive relevance of FB understanding for social skills.](#)]

## *Apr 6: Minding the Good and Bad: Moral Cognition I*

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### **Required**

- ✓ Shaver, K. G. (1996). Too much of a good thing? *Psychological Inquiry*, 7, 244-247.
- ✓ Figure from Weiner, B. (1995). *Judgments of responsibility: A foundation for a theory of social conduct*. York, NY: Guilford Press.
- ✓ Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review*, 108, 814-834.
- ✓ Huebner, B., Dwyer, S., & Hauser, M. (2009). The role of emotion in moral psychology. *Trends in Cognitive Sciences*, 13, 1-6.
- ✓ Cushman, F. (2008). Crime and punishment: Distinguishing the roles of causal and intentional analyses in moral judgment. *Cognition*, 108, 353-380.
- ✓ Guglielmo, S., Monroe, A. E., & Malle, B. F. (2009). At the heart of morality lies folk psychology. *Inquiry*, 52, 449-466.

### **Optional**

#### **1 Moral judgment as reasoning or emotion**

- Greene, J. D., Sommerville, R. B., Nystrom, L. E., Darley, J. M., & Cohen, J. D. (2001). An fMRI investigation of emotional engagement in moral judgment. *Science*, 293, 2105-2108.
- McGuire, J., Langdon, R., Coltheart, M., & Mackenzie, C. (2009). A reanalysis of the personal/impersonal distinction in moral psychology research. *Journal of Experimental Social Psychology*, 45, 577-580.
- Greene, J. D. (2009). Dual-process morality and the personal/impersonal distinction: A reply to McGuire, Langdon, Coltheart, and Mackenzie. *Journal of Experimental Social Psychology*, 45, 581-584.
- Greene, J., & Haidt, J. (2002). How (and where) does moral judgment work? *Trends in Cognitive Sciences*, 6, 517-523.
- Fine, C. (2006). Is the emotional dog wagging its rational tail, or chasing it? *Philosophical Explorations*, 9, 83-98.
- Pizarro, D. A., Detweiler-Bedell, B., & Bloom, P. (2005). The creativity of everyday moral reasoning: Empathy, disgust, and moral persuasion. In J. C. Kaufman and J. Baer (Eds.), *Creativity and reason in cognitive development* (pp. 81-98). York, NY: Cambridge University Press.

#### **2 Varia**

- Woolfolk, R. L., Doris, J. M., & Darley, J. M. (2006). Identification, situational constraint, and social cognition: Studies in the attribution of moral responsibility. *Cognition*, 100, 283-301.
- Astington, J. W. (2004). Bridging the gap between theory of mind and moral reasoning. *Directions for Child & Adolescent Development*, 103, 63-72.

## Required

- ✓ Guglielmo, S., Monroe, A. E., Malle, B. F. (2009). At the heart of morality lies folk psychology. *Inquiry*, 52, 449-466.
- ✓ Pettit, P., & Knobe, J. (2009). The pervasive impact of moral judgment. *Mind and Language*, 24, 586-604. [\[see next article and optional section 2 for more on this debate\]](#)
- ✓ Mikhail, J. (2008). Moral cognition and computational theory. In *Moral psychology, Vol. 3: The neuroscience of morality* (pp. 81-92). Cambridge, MA: MIT Press.
- ✓ Dupoux, E., & Jacob, P. (2007). Universal moral grammar: a critical appraisal. *Trends in Cognitive Sciences*, 11, 373-378.
- ✓ Wigley, S. (2007). Automaticity, consciousness and moral responsibility. *Philosophical Psychology*, 20, 209-225.

## Optional

### 1 Does moral judgment bias intentionality and mental state inferences?

- Malle, B. F. (2006). The relation between judgments of intentionality and morality. *Journal of Cognition and Culture*, 6, 61-86.
- Guglielmo, S., & Malle, B. F. (under revision). *Can unintended side-effects be intentional? Solving a puzzle in people's judgments of morality and intentionality*.
- Guglielmo, S., & Malle, B. F. (under review). *Enough skill to kill: Intentionality judgments and the moral valence of action*.
- Guglielmo, S., & Malle, B. F. (2009). *The timing of blame and intentionality: Testing the moral bias hypothesis*. Unpublished manuscript, Brown University.

### 2 Legal questions

- Levinson, J. D. (2005). Mentally misguided: How state of mind inquiries ignore psychological reality and overlook cultural differences. *Howard Law Journal*, 49, 1-29.
- Kroeber, H. (2007). The historical debate on brain and legal responsibility—revisited. *Behavioral Sciences and the Law*, 25, 251–261.
- Greene, J. D., and Cohen J. D. (2004). For the law, neuroscience changes nothing and everything. *Philosophical Transactions of the Royal Society of London B*, (Special Issue on Law and the Brain), 359, 1775-17785.

### 3 Origins and evolution

- Abarbanell, L., & Hauser, M. D. (2010). Mayan morality: An exploration of permissible harms. *Cognition*, 115, 207-224. .
- Sunstein, C. R. (2005). Moral heuristics. *Behavioral and Brain Sciences*, 28, 531-573.
- Mikhail, J. (2007). Universal moral grammar: Theory, evidence and the future. *Trends in Cognitive Sciences*, 11, 143-152.



## Required

- ✓ Malle, B. F. (2004). Short excerpt from: 'Foundation: The folk theory of mind.' In B. F. Malle, *How the mind explains behavior* (ch. 2, pp. 36-42). Cambridge, MA: MIT Press.
- ✓ Langdon, R. (2005) Theory of mind in schizophrenia. In B. F. Malle & S.D. Hodges (Eds.), *Other minds: How humans bridge the divide between self and others* (pp. 323-342). York: Guilford. [Overview of both autism and schizophrenia research regarding ToM deficits. Reports data from a visual perspective taking tasks that suggest a not so simple story of ToM in schizophrenia.]
- ✓ Hirschfeld, L., Bartmess, E., White, S., & Frith, U. (2007). Can autistic children predict behavior by social stereotypes? *Current Biology*, 17, R451-R452. [Very brief article suggesting that autistic individuals have intact stereotyping as one component of social cognition]
- ✓ Begeer, S., Malle, B. F., Nieuwland, M. S., & Keysar, B. (2010). Using Theory of Mind to represent and take part in social interactions: Comparing individuals with high-functioning autism and typically developing controls. *European Journal of Developmental Psychology*, 7, 104-122. [Examining adolescent autistic individuals on two tasks and find diagnostic differences on only one. More evidence for a component view of ToM.]
- ✓ Badgaiyan, R. D. (2009). Theory of mind and schizophrenia. *Consciousness and Cognition*, 18, 320-322. [comments on inconsistencies in the schizophrenia literature. Refers to Bosco et al. (2009), which is in the Optional list below.]

## Optional

### Autism

- \* Frith, U., & De Vignemont, F. (2005). Egocentrism, allocentrism, and Asperger syndrome. *Consciousness and Cognition: An International Journal*, 14, 719-738.
- \* Back, E., Ropar, D., & Mitchell, P. (2007). Do the eyes have it? Inferring mental states from animated faces in autism. *Child Development*, 78, 397-411. [Another piece showing autistic individuals performing well on some tasks, not well on others (here, inferring emotions from several parts of faces)]
- White, S., Hill, E., Winston, J., & Frith, U. (2006). An islet of social ability in Asperger Syndrome: Judging social attributes from faces. *Brain and Cognition*, 61, 69-77. [More evidence for intact social cognitive abilities in autism: inference of traits and social categories.]
- Rajendran, G., & Mitchell, P. (2007). Cognitive theories of autism. *Developmental Review*, 27, 224-260.
- Blackburn, J., Gottschewski, K., George, E., and L—, N. (2000). *A Discussion about theory of mind: From an autistic perspective*. Autism Europe's 6th International Congress, Glasgow, May 19–21, 2000. Available at: <<http://www.autistics.org/library/AE2000-ToM.html>>. [a fascinating discussion among autistic individuals about autism and theory of mind. Source of several quotes from my 2004 chapter]

## Schizophrenia

- \* Harrington, L., Langdon, R., Siegart, R. J., & McClure, J. (2005). Schizophrenia, theory of mind, and persecutory delusions. *Cognitive Neuropsychiatry*, 10, 87-104.
- \* Bosco, F. M., Colle, L., De Fazio, S., Bono, A., Ruberti, S., & Tirassa, M. (2009). Th.o.m.a.s.: An exploratory assessment of Theory of Mind in schizophrenic subjects. *Consciousness and Cognition: An International Journal*, 18, 306-319.
- Bora, E., Yucel, M., & Pantelis, C. (2009). Theory of mind impairment in schizophrenia: Meta-analysis. *Schizophrenia Research*, 109, 1-9.
- Brüne, M. (2005). "Theory of mind" in schizophrenia: A review of the literature. *Schizophrenia Bulletin*, 31, 21-42.

## Stereotypes and Prejudice

- Macrae, C. N., & Bodenhausen, G. V. (2000). Social Cognition: Thinking Categorically about Others. *Annual Review of Psychology*, 51, 93-120. [\[You can speed-read this through one to get a feel for the very different conception of the dark side of social cognition that much of social psychology relies on.\]](#)
- Eberhardt, J. L., Davies, P. G., Purdie-Vaughns, V. J., & Johnson, S. L. (2006). Looking deathworthy: Perceived stereotypicality of black defendants predicts capital-sentencing outcomes. *Psychological Science*, 17, 383-386.
- Hewstone, M., Rubin, M., & Willis, H. (2002). Intergroup bias. *Annual Review of Psychology*, 53, 575-604.
- Haslam, N. (2006). Dehumanization: An integrative review. *Personality and Social Psychology Review*, 10, 252-264.

## Other topics

- \* Gini, G. (2006). Social cognition and moral cognition in bullying: What's wrong? *Aggressive Behavior*, 32, 528-539.
- Peterson, C. C. (2003). The social face of theory of mind: The development of concepts of emotion, desire, visual perspective and false belief in deaf and hearing children. In B. Repacholi and V. Slaughter (Eds), *Individual differences in theory of mind: Implications for typical and atypical development* (pp. 171-196). York, NY: Psychology Press.

*Apr 27: What is the Matter for the Mind: Searching for the Social Brain*

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## Required Reading

- ✓ Adolphs, R. (2009). The social brain: Neural basis of social knowledge. *Annual Review of Psychology*, 60, 693-716.
- ✓ Amodio, D. M., & Frith, C. D. (2006). Meeting of minds: The medial frontal cortex and social cognition. *Nature Reviews Neuroscience*, 7, 268-277.
- ✓ Montgomery, K. J., Seeherman, K. R., & Haxby, J. V. (2009). The well-tempered social brain. *Psychological Science*, 20, 1211-1213.

- ✓ Young, L., Camprodon, J. A., Hauser, M., Pascual-Leone, A., & Saxe, R. (2010). Disruption of the right temporoparietal junction with transcranial magnetic stimulation reduces the role of beliefs in moral judgments. *Proceedings of the National Academy of Science*, 107, 6753-6758.
- ✓ Gallese, V. (2009). Motor abstraction: A neuroscientific account of how action goals and intentions are mapped and understood. *Psychological Research/Psychologische Forschung*, 73, 486-498. [[The newest from the mirror neuron discoverer](#)]
- ✓ Richeson, J. A., Baird, A. A., Gordon, H. L., Heatherton, T. F., Wyland, C. L., Trawalter, S., & Shelton, J. N. (2003). An fMRI investigation of the impact of interracial contact on executive function. *Nature Neuroscience*, 6, 1323-1328.

## Optional

### Studies on locations and systems

- Aichhorn, M., Perner, J., Weiss, B., Kronbichler, M., Staffen, W., & Ladurner, G. (2009). Temporo-parietal junction activity in theory-of-mind tasks: falseness, beliefs, or attention. *Journal of Cognitive Neuroscience*, 21, 1179-1192. [[a good experiment](#)]
- Gobbini, M. I., Koralek, A. C., Bryan, R. E., Montgomery, K. J., & Haxby, J. V. (2007). Two takes on the social brain: a comparison of theory of mind tasks. *Journal of Cognitive Neuroscience*, 19, 1803-1814. [[so many places...](#)]
- Siegal, M., & Varley, R. (2002). Neural systems involved in 'theory of mind'. *Nat Rev Neurosci*, 3, 463-471. [[...or one core place?](#)]
- Saxe, R., Moran, J. M., Scholz, J., & Gabrieli, J. (2006). Overlapping and non-overlapping brain regions for theory of mind and self reflection in individual subjects. *Social Cognitive and Affective Neuroscience*, 1, 229-234.
- Völlm, B. A. et al. (2006) Neuronal correlates of theory of mind and empathy: A functional magnetic resonance imaging study in a nonverbal task. *Neuroimage*, 29, 90-98.
- Tamietto, M., Adenzato, M., Geminiani, G., & de Gelder, B. (2007). Fast recognition of social emotions takes the whole brain: Interhemispheric cooperation in the absence of cerebral asymmetry. *Neuropsychologia*, 45, 836-843.
- Blakemore, S.-J., Wolpert, D. M., & Frith, C. D. (2000). Why can't you tickle yourself? *Neuroreport*, 11, R11-R16. [[isn't really directly related to social cognition, but it's a cool study](#)]

### Mirror and other systems

- Agnew, Z. K., Bhakoo, K. K., & Puri, B. K. (2007). The human mirror system: A motor resonance theory of mind-reading. *Brain Research Reviews*, 54, 286-293.
- Decety, J., & Grèzes, J. (2006). The power of simulation: Imagining one's own and other's behavior. *Brain Research*, 1079, 4-14.
- Kaplan, J. T., Iacoboni, M. (2006). Getting a grip on other minds: Mirror neurons, intention understanding, and cognitive empathy. *Social Neuroscience*, 1, 175-183.
- Stuss, D. T., Gallup, G. G. Jr., & Alexander, M. P. (2001). The frontal lobes are necessary for "theory of mind." *Brain: A Journal of Neurology*, 124, 279-286. [[The original paper featured in the Siegal and Varley \(2002\) review.](#)]

### Critical considerations

- Coltheart, M. (2004). Brain imaging, connectionism, and cognitive neuropsychology. *Cognitive Neuropsychology*, 21, 21-25.

Neurocritic on “voodoo correlations”: <http://neurocritic.blogspot.com/2009/01/voodoo-correlations-in-social.html>

Neurocritic on “justice centers” in the brain: <http://neurocritic.blogspot.com/2008/12/crime-punishment-and-jerry-springer.html>

Chatham, C. (2009). *fMRI of a dead salmon: Why dead fish have almost nothing to do with “voodoo correlations” in neuroimaging*. Retrieved from [http://scienceblogs.com/developingintelligence/2009/09/fmri\\_of\\_a\\_dead\\_salmon\\_why\\_dead.php](http://scienceblogs.com/developingintelligence/2009/09/fmri_of_a_dead_salmon_why_dead.php)

Vul, E., Harris, C., Winkielman, P., & Pashler, H. (2009a). Puzzlingly high correlations in fMRI studies of emotion, personality, and social cognition. *Perspectives on Psychological Science*, 4, 274-290. [The original. Made a big splash a couple of years ago, even before publication – when it was dubbed the “voodoo correlation paper”]

Vul, E., Harris, C., Winkielman, P., & Pashler, H. (2009b). Reply to comments on “Puzzlingly high correlations in fMRI studies of emotion, personality, and social cognition”. *Perspectives on Psychological Science*, 4, 319-324.

## General

Todorov, A., Harris, L. T., & Fiske, S. T. (2006). Toward socially inspired social neuroscience. *Brain Research*, 1079, 76-85.

Keysers, C., & Gazzola, V. (2007). Integrating simulation and theory of mind: from self to social cognition. *Trends in Cognitive Sciences*, 11, 194-196. [already in Week 3]

Gallagher, H. L., & Frith, C. D. (2003). Functional imaging of ‘theory of mind’. *Trends in Cognitive Sciences*, 7, 77-83. [review first 5 years of fMRI work on ToM]

Frith, C. D. (2007). The social brain? *Philosophical Transactions of the Royal Society of London Series B - Biological Sciences*, 362, 671–678.

Grossmann, T., & Johnson, M. H. (2007). The development of the social brain in human infancy. *European Journal of Neuroscience*, 25, 909-919. [already in Week 5]

Insel, T. R., & Fernald, R. D. (2004). How the brain processes social information: Searching for the social brain. *Annual Review of Neuroscience*, 27, 697-722. [a low-level neuroscience perspective]

## May 4: Evolving Forward: Social Cognitive Science Fiction

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### Required Reading

- ✓ Smart, J. (2003). Considering the Singularity: A coming world of autonomous intelligence (A.I.) Retrieved from <http://accelerating.org/articles/consideringsingularity.html>. Orig. publ. in H. F. Didsbury (Ed.), *21st Century Opportunities and Challenges* (pp. 256-262). World Future Society.
- ✓ Gray, J., & Breazeal, C. (2005). Toward helpful robot teammates: A simulation theoretic approach for inferring mental states of others. *Proceedings of the AAAI 2005 workshop on modular construction of human-like intelligence*. Pittsburgh, PA.
- ✓ Roese, N. J., & Amir, E. (2009). Human-android interaction in the near and distant future. *Perspectives on Psychological Science*, 4, 429-434.

- ✓ Cox, T. (2007). Pondering the future of humanity: Reflections on John Glad's 'Future Human Evolution: Eugenics in the Twenty-First Century'. *Journal of Psychiatric and Mental Health Nursing*, 14, 325-329.
- ✓ Pohl, F. (1966). Day Million. *Rogue Magazine*. (Reprinted in *Platinum Pohl: The collected best stories*. Tor/Forge, 2005.)
- ✓ Nagata, L. (1995). *The Bohr Maker*. Bantam Spectra. [annotated excerpt]
- ✓ Gibson, W. (1984). *Neuromancer*. York: Ace Books. [annotated excerpt]
- ✓ Bear, G. (2003). *Darwin's children*. HarperCollins. [annotated excerpt]

## Optional Reading

### Science

- \*Gallagher, S. (2007). Social cognition and social robots. *Pragmatics & Cognition*, 15, 435-453. [focus on pp. 442-449, where he applies an “embodied/interactive” approach to robot social cognition.]
- McCarthy, J. (2002). *Making robots conscious of their mental states*. Unpublished Manuscript, Computer Science Department, Stanford University. Retrieved from <http://www-formal.stanford.edu/jmc/>
- Minsky, M. (1985). Communication with alien intelligence, In E. Regis (Ed.), *Extraterrestrials: Science and alien intelligence*. Cambridge University Press. Retrieved May 1, 2010, from <http://web.media.mit.edu/~minsky/papers/AlienIntelligence.html>.
- CBS 60 minutes. *How technology may soon "read" your mind*. June 28, 2009. Retrieved May 1, 2010 from <http://www.cbsnews.com/stories/2008/12/31/60minutes/main4694713.shtml>.
- Jansen, B., de Boer, B., & Belpaeme, T. (2004). You did it on purpose! Towards intentional embodied agents. In F. Iida et al. (Eds.), *Embodied artificial intelligence*, LNAI 3139 (pp. 271–277). Berlin, Heidelberg: Springer.
- Duffy, B. R. (2003). Anthropomorphism and the social robot. *Robotics and Autonomous Systems*, 42, 177-190.

### Futurology, Post-humanism

- \*Anissimov, M. (2009). What are the benefits of mind uploading? Retrieved May , 2010, from <http://www.acceleratingfuture.com/michael/blog/category/uploading/>.
- \* McMahan, J. (2009). Cognitive disability and cognitive enhancement. *Metaphilosophy*, 40, 582-605. [excerpt: on moral responsibility of posthumans]
- \*Sterling, B. (2002). *Tomorrow now: Envisioning the next fifty years*. York, NY: Random House. [Excerpt pp. 288-305. A somewhat critical take on posthumans.]
- Godwin, M. (2007). Superhuman imagination. Vernor Vinge on science fiction, the Singularity and the state. *Reason Magazine*, May 2007. Retrieved May 1, 2010, from <http://reason.com/archives/2007/05/04/superhuman-imagination>.
- Vinge, V. (1993). The coming technological singularity. Retrieved May 1, 2010, from <http://accelerating.org/articles/comingtechsingularity.html>. Original version was presented at the VISION-21 Symposium sponsored by NASA Lewis Research Center and the Ohio Aerospace Institute, March 30-31, 1993. [the original formulation of the singularity hypothesis.]
- Joy, B. (2000). Why the future doesn't need us. *Wired Magazine*, 8.04 (Apr 2000). [a pessimistic view of humans being overwhelmed by technology.]

## About Science Fiction

Miller, J. D. (1989). Neuroscience fiction. In G. E. Slusser and E. S. Rabkin (Eds.), *Mindscales The geographies of imagined worlds* (ch. 13., 195-207). Carbondale, IL: Southern Illinois University Press.

Gunn, J. E. (1988). *The encyclopedia of science fiction*. York, N.Y: Viking.  
(Entries on *Evolution, Psychology, Society, Social Sciences*.)

Bainbridge, W. S. (1986). The structure of science fiction. In W. S. Bainbridge, *Dimensions of science fiction* (ch. 2, pp. 28-50). Cambridge, MA: Harvard University Press. [\[major trends in 20<sup>th</sup>-century SF.\]](#)

Asch, B. (1975). Beyond humanity. In B. Asch, *Faces of the future* (ch. 9, pp. 129-143). York: Taplinger. [\[introduces core works from the first three fourths of the 20<sup>th</sup> century\]](#)

## Science Fiction I (Directly relevant)

\*Di Filippo, P. (2007). Personal Jesus. In G. Mann (Ed.), *The Solaris Book of Science Fiction* (pp. 115-130). Solaris.

Rajaniemi, H. (2005). Deus ex homine. In N. Williamson and A. J. Wilson (Eds.), *Nova Scotia: Scottish speculative fiction* (pp. 16-30). Edinburgh: Crescent.

Beckett, C. (2002). The Turing test. *Interzone*, October 2002.

## Science Fiction II (Simply great)

Bester, A. (1951/1997). Of time and third avenue. In A. Bester, *Virtual unrealities The short fiction of Alfred Bester* (pp. 127-135). York: Vintage Books.

Lovergrove, J. (2007). The Bowdler strain. In *The Solaris Book Of Science Fiction*. Nottingham, UK: Solaris.

## Other recommended science fiction novels:

Greg Bear, *Slant*; Joe Haldeman, *Mindbridge*; Robert J. Sawyer, *Mindscan*. Charles Stross, *Glasshouse*; Tony Ballantyne, *Capacity*.