

Philosophy of Cognitive Science (2633)

Prof. E. Machery

Fall 2006

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Class Meetings

Wednesday 2.00-4.25 pm

Room: G28

Office Hours

By appointment.

1017CL.

Course Description/Goals

This course will survey the main philosophical questions raised by cognitive science. Students will acquire a comprehensive grasp of the main issues in this field. We will discuss questions such as: Is the mind modular? Is the mind embodied and situated? Do we ascribe mental states by simulation or by means of a theory? What is consciousness?

Prerequisites

Graduate standing or permission of instructor.

Texts

Readings will be available for photocopying in the 'Course Mailbox' in the HPS office, 1017CL or on the gmail account (log-in: HPSGrad; password: grad2005).

Relevant texts include:

Botterill, G. and Carruthers, P. 1999. *The Philosophy of Psychology*. CUP.

Cummins, R. and Cummins D.R. (eds.) 2000. *Minds, Brains, and Computers*. Blackwell.

Bermudez, J.L. 2005. *Philosophy of Psychology*. Routledge.

Davies, M. 2005. Cognitive science. In F. Jackson and M. Smith (eds.), *The Oxford Handbook of Contemporary Philosophy*. OUP. (@ <http://philrssi.anu.edu.au/~mdavies/cogpapers.php3>).

Mason, K., Sripada, C.S. and Stich S. forthcoming. The Philosophy of psychology. In D. Moral (ed.), *Routledge Companion to Twentieth Century Philosophy*. Routledge. (@ <http://www.rci.rutgers.edu/~stich/Publications/publications2.htm>)

Chalmers' annotated bibliography: <http://consc.net/biblio.html>

Cushman, F. ms. Statistics for monkeys. @:
<http://www.wjh.harvard.edu/~cushman/other/stats4monks.pdf>.

Assignments

- (1) Readings and participation;
- (2) At least one seminar presentation;
- (3) A research paper due at the end of the term.

The seminar presentation includes *a powerpoint presentation* (1 hour-long) and the leading of the discussion during the seminar. Students should meet with me at least a week before their presentation with a draft of their powerpoint presentation.

The research paper may be on any subject of relevance to the seminar. To assist you in commencing work, I ask you submit a brief essay proposal by **November 8**. It should contain a short paragraph describing the topic to be investigated and give a brief indication of the sources you intend to use. It may, but need not, be based on the seminar presentation. I advise you to talk to me about possible topics as soon as possible.

The paper should have the form and the length of a short journal article (no less than 4000 and no more than **7000 words**).

It has to be submitted **December 13, by 12 pm, by e-mail**. I do **NOT issue incomplete grades**, save in extraordinary circumstances. In return for the rigidity of the deadline, the seminar will not meet in the final week of term (i.e., *no class December 13*).

Assessment

Your grade will be based on the quality of your research paper due at the end of the term.

Class Organization

This course will be based on the discussion of the readings. Save for a couple of classes that I will lead, one or several seminar participants will present the reading(s) and lead the discussion. Participation in class discussion is expected. Reading the articles is of course mandatory. You are expected to attend every class.

COURSE SCHEDULE

(Subject to revision as the semester proceeds)

Wednesday 08/30

Topic: Syllabus

Wednesday 09/06

Topic: Classical Computationalism and its Alternatives

Readings:

Pylyshyn, Z. 1984. *Computation and Cognition*. MIT Press. Chapter 9.

Fodor, J. & Pylyshyn, Z. 1988. Connectionism and cognitive architecture: A critical analysis. *Cognition* 28: 3-71.

Rumelhart, D.E. 1989. The architecture of mind: A connectionist approach. In M.I. Posner (ed.), 1989, *Foundations of Cognitive Science*.

Van Gelder, T. 1992. What might cognition be, if not computation. *The Journal of Philosophy* 92: 345-281.

Additional Reading:

Newell, A. & Simon, H.A. 1976. Computer science as empirical inquiry: Symbols and search. *Communications of the Association for Computing Machinery* 19:113-126.

Wednesday 09/13

Topic: Explanation in Cognitive Science

Readings:

Fodor, J. 1968. The appeal to tacit knowledge in psychological explanation. *The Journal of Philosophy* 65: 627-640. Reprinted in J.A. Fodor, 1981, *Representations*.

Marr, 1982. *Vision*. Extracts from Cummins, R. and Cummins D.R. 2000. *Minds, Brains, and Computers*. Blackwell.

Clark, A. 1990. Connectionism, competence and explanation. *British Journal for the Philosophy of Science* 41: 195-222.

Churchland, P., Ramachandran, V., & Sejnowski, T. 1994. A critique of pure vision. In C. Koch and J. Davis (eds.) *Large-Scale Neuronal Theories of the Cortex*. MIT Press.

Additional Reading:

Glymour, C. 1994. On the methods of cognitive neuropsychology. *British Journal for the Philosophy of Science* 45: 815-836.

Wednesday 09/20

Topic: Psychology and Reduction I: Classics

Readings:

Putnam, H. 1960. Minds and machines. Reprinted in H. Putnam, 1975, *Mind, Language and Reality*.

- Fodor, J. 1974. Special sciences. *Synthese* 28: 97-115. Reprinted in J. Fodor, 1981, *Representations*.
- Jackson, F. & Pettit, P. 1990. Program explanation: A general perspective. *Analysis* 50: 107-117.
- Kim, J. 1992. Multiple realization and the metaphysics of reduction. *Philosophy and Phenomenological Research* 52: 1-26.

Wednesday 09/27 NO CLASS

Wednesday 10/4

Topic: Psychology and Reduction II: Recent debates

Readings:

- Bechtel, W. and Mundane, J. 1999. Multiple realizability Revisited. *Philosophy of Science* 66: 175-207.
- Bickle, J. 2003. *Philosophy and Neuroscience*. Kluwer. Chap. 2.
- Shapiro, L.A. 2004. *The Mind Incarnate*. MIT Press. Chap. 2 and 4.

Additional Reading:

- Gillett, C. 2003. The metaphysics of realization, multiple realizability and the special sciences. *Journal of Philosophy* 100: 591-603.

Wednesday 10/11

Topic: Mindreading

Readings:

- Gordon, R. M. 1986. Folk psychology as simulation. *Mind and Language* 1: 158-71.
Reprinted in M. Davies & T. Stone (eds.), *Folk Psychology*, Blackwell.
- Goldman, A. 1989. Interpretation psychologized. *Mind and Language* 4: 161-85.
Reprinted in M. Davies & T. Stone (eds.), *Folk Psychology*, Blackwell.
- Stich, S. P. & Nichols, S. 1993. Folk psychology: simulation or tacit theory? *Mind and Language* 7: 35-71. Reprinted in M. Davies & T. Stone (eds.), *Folk Psychology*, Blackwell.
- Saxe, R., Carey, S. & Kanwisher, N. 2004. Understanding other minds: Linking developmental psychology and functional neuroimaging. *Annual Review of Psychology* 55: 87-124.

Additional Readings:

- Wellman, H.M., Cross, D., Watson, J. 2001. Meta-analysis of theory-of-mind development: The truth about false belief. *Child Development* 72: 655-684.
- Bloom, P. & German. T.P. 2000. Two reasons to abandon the false belief task as a test of theory of mind. *Cognition* 2000: B25-B31.
- Rizzolatti G. & Craighero, L. 2004. The mirror neuron system. *Annual Review of Neuroscience* 27: 169-192.

Decety, J., & Grezes, J. 2006. The power of simulation: Imagining one's own and other's behavior. *Brain Research* 1079: 4-14.

Wednesday 10/18

Topic: Innateness: Poverty of Stimulus Argument

Readings

Chomsky, N. 1967. Recent contributions to the theory of innate ideas. *Synthese* 17: 2-11.

Cowie, F. 1999. *What's Within. Nativism Reconsidered*. OUP. Chapters 8-9.

Pullum, G.K. and Scholz, B.C. 2002. Empirical assessment of stimulus poverty arguments. *Linguistic Review* 19(1/2): 9-51.

Crain, S. and Pietroski, P. 2002. Why language acquisition is a snap. *Linguistic Review* 19(1/2): 163-184.

Additional Readings:

Putnam, H. 1967. The "Innateness Hypothesis" and explanatory models in linguistics. *Synthese* 17:12-22. Reprinted in h. Putnam, *Mind, Language, and Reality* (Cambridge University Press, 1975).

Cowie, F. 1999. *What's Within. Nativism Reconsidered*. OUP. Chapter 7.

Laurence, S., & Margolis, E. 2001. The poverty of the stimulus argument. *British Journal for the Philosophy of Science* 52: 217-276.

Wednesday 10/25

Topic: Rationality

Readings:

Tversky, A. & Kahneman, D. 1974. Judgements under uncertainty: Heuristics and Biases. *Science* 185: 1124-1131.

Cohen, L.J. 1981. Can human irrationality be experimentally demonstrated? *Behavioral and Brain Sciences* 4: 317-370.

Stich, S.P. 1985. Could man be an irrational animal? *Synthese* 64: 115-35.

Chase, V. Hertwig, R. & Gigerenzer, G. 1998. Visions of rationality, *Trends in Cognitive Sciences* 2(6): 206-215.

Samuels, R., Stich, S. & Bishop, M. 2002. Ending the rationality wars: How to make disputes about human rationality disappear. In R. Elio (ed.), *Common Sense, Reasoning, and Rationality*. OUP, 236-268.

Additional Readings:

Kahneman, D. & Tversky, A. 1984. Choices, values and frames. Reprinted in Kahneman, D. & Tversky, A. (eds.) *Choices, values and frames*.

Gigerenzer, G. 1996. On narrow norms and vague heuristics: A reply to Kahneman and Tversky (1996). *Psychological Review* 103(3): 592-596.

Kahneman, D. & Tversky, A. 1996. On the reality of cognitive illusions: A reply to Gigerenzer's Critique. *Psychological Review* 103(3): 582-91.

Stanovich, K.E. & West, R.F. 2000. Individual differences in reasoning: Implications for the rationality debate? *Behavioral and Brain Sciences* 23(5): 645-665.

Wednesday 11/1

Topic: Consciousness

Readings:

- Block, N. 1995. On a confusion about a function of consciousness. *Behavioral and Brain Science* 18: 227-247.
- Crick, F. & Koch, C. 1998. Consciousness and neuroscience. *Cerebral Cortex* 8: 97-107. Reprinted in W. Bechtel et al. (eds.), *Philosophy and the Neurosciences*.
- Searle, J.R. 1998. How to study consciousness scientifically. *Philosophical Transactions of the Royal Society B: Biological Sciences* 353: 1935-1942.
- Chalmers, D. 1999. What is a neural correlate of consciousness? In T. Metzinger (ed.), *Neural Correlates of Consciousness: Empirical and Conceptual Questions*. MIT Press.
- Dehaene, S. & Changeux, J-P. 2004. Neural mechanisms for access to consciousness. In M. Gazzaniga, *The Cognitive Neurosciences III*.

Additional Readings:

- Chalmers, D. 2004. How can we construct a science of consciousness? In M. Gazzaniga, *The Cognitive Neurosciences III*.
- Block, N. 2005. Two neural correlates of consciousness. *Trends in Cognitive Sciences*, 9(2): 46-52.

Wednesday 11/08

Topic: Embodied, Situated and Extended Cognition

Readings:

- Brooks, R. 1990. Intelligence without Representation. *Artificial Intelligence* 47: 139-160. Reprinted in R. Brooks, 1999, *Cambrian Intelligence*.
- Vera, A. H. & Simon, H.A. 1993. Situated action: A symbolic interpretation. *Cognitive Science* 17: 7-48.
- Clark, A. & Chalmers, D.J. 1998. The extended mind. *Analysis* 58: 7-19.
- Wilson, M. 2002. Six views of embodied cognition. *Psychonomic Bulletin and Review* 9: 625-636.
- Wilson, R.A. & Clark, A. In press. How to situate cognition: Letting nature take its course. In M. Aydede and P. Robbins (eds.), *The Cambridge Handbook of Situated Cognition*.

Additional Readings

- Haugeland, J. 1998. Mind embodied and embedded. In Haugeland, J. (ed.), *Having Thought*. Cambridge, MA: Harvard University Press.
- Anderson, M.L. 2003. Embodied cognition: A field guide. *Artificial Intelligence* 149(1): 1-130.

Deadline for essay proposal

Wednesday 11/15 NO CLASS

Thanksgiving Break

Wednesday 11/29

Topic: Developmental neuropsychology (Luc Faucher, UQAM)

Readings: TBA

Wednesday 12/06

Topic: Moral Psychology

Readings:

Haidt, J. 2001. The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review* 108: 814-834.

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(14): 2105-2108.

Greene, J. & Haidt, J. 2002. How (and where) does moral judgment work? *Trends in Cognitive Sciences* 6(12): 517-523.

Nichols, S. 2004. *Sentimental Rules: On the Natural Foundations of Moral Judgment*. OUP. Chap. 1.

Doris, J.M. & Stich, S. 2005. As a matter of fact: Empirical perspectives on ethics. In F. Jackson and M. Smith (eds.), *The Oxford Handbook of Contemporary Analytic Philosophy*. OUP.

Wednesday December 13 No Class—Deadline for the term paper