Psychology 430/530: Cognitive Science with Lab (Spring 1996)

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Cognitive science is a diverse field that is concerned with numerous topics in the study of cognition; for example, attention, language, categorization, cognitive development, language acquisition, and natural language processing, to name just a few. Many disciplines participate in the cognitive science enterprise: psychology, philosophy, linguistics, neurophysiology, ethology, computer science, and anthropology. Further, there is now a diversity of techniques for analyzing cognition -- psychological experimentation, neuropsychological approaches that make use of disorders, neuroimaging, animal research, computational modelling, and research with infants and young children. In this course our goal is to offer you a sampling of these approaches and to acquaint you with some of the cutting-edge questions currently being addressed in the study of cognition.

Our strategy for dealing with the remarkable breadth of the field of cognitive science is to use a general textbook -- Cognition by Stephen Reed -- which provides broad and generally non-technical coverage of the field. The lectures and associated readings will go into greater depth on selected topics, giving you a flavor of how specific issues have been investigated. Laboratory assignments will be structured to give you hands-on experience with the nitty-gritty of cognitive experimentation for a selected range of issues.

Required Reading:

Cognition by Stephen Reed
Selected Readings (on 2-hour reserve at Knight Library)
MEL Lab Manual and Diskette

Course Requirements:

There will be a midterm exam (likely to be held May 7) and a final; both will be short answer/short essay format. The final will cover just the material from the second half of the quarter. Four lab write-ups are also required for the laboratory portion of the course. Participation in discussion during lectures and lab sessions will contribute to your mark. The midterm and final will each contribute equally to your mark for the lecture portion of the course. Your overall mark for the lecture and lab portions of the course will be averaged, and you will receive that same resulting grade for both lecture and lab.

Lecture Topics and Readings:

Apr 2	Introduction	Chp 1, Rdg 1
Apr 4-9	Philosophy of Mind and AI	Rdgs 2-4
Apr 11- May 2	Cognitive Psychology	Chps 2-3, 7-9, Rdgs 5-7
May 7	MIDTERM	
May 9-14	Linguistics	Ch 10, Rdgs 8-10
May 16-30	Developmental Approaches	Rdgs 11-16
June 4-6	Comparative Approaches	Rdgs 17-19
June 12	FINAL (10:15am)	

Readings for Psych 430/530, Cognitive Science with Lab: Spring 1996
Dr. D. Baldwin

1. Johnson-Laird, P. (1988). The computer and the mind: An introduction to cognitive science. (Chapters 1-3) Cambridge, MA: Harvard University Press.

2. Churchland, P. M. (1984). Matter and consciousness. (Chapter 2), Cambridge, MA: MIT Press.

3. Dennett, D. (1991). Explaining consciousness. (Chapters 2 & 14), Boston, MA: Little, Brown, & Co.

4. Searle, J. R. (1992). The rediscovery of the mind. (Chapter 1), Cambridge, MA: MIT Press.

5. Kosslyn, S. M. (1995). Mental imagery. In D. N. Osherson & S. M. Kosslyn (Eds.), An invitation to cognition science: Visual cognition. Volume 2, (pp. 267-296), Cambridge, MA: MIT Press.

6. Farah, M. (1992). Is an object an object an object? Cognitive and neuropsychological investigations of domain specifity in visual object recognition. Current Directions in Psychological Science, 1, 164-169.

7. Pashler, M. (1992). Attentional limitations in doing two tasks at the same time. Current Directions in Psychological Science, 1, 44-48.

8. Chomsky, N. (1990). On the nature, use, and acquisition of language. In W. G. Lycan (Ed.), Mind and cognition: A reader, Cambridge, MA: Basil Blackwell.

9. Pinker, S. (1994). The language instinct. (Chapters 1 and 2), New York: Harper-Collins.

10. Tomasello, M. Language in not an instinct. Cognitive Development, 10, 131-156.

11. Gleitman, L. R., & Newport, E. L. (1995). The invention of language by children: Environmental and biological influences on the acquisition of language. In L. R. Gleitman & M. Liberman (Eds.), An invitation to cognitive science: Language. Volume 1, (pp. 1-24), Cambridge, MA: MIT Press.

12. Markman, E. M. (1990). Constraints children place on word meanings. Cognitive Science, 14, 55-77.

13. Baldwin, D. A. (1995). Understanding the link between joint attention and language. In C. Moore & P. Dunham (Eds.), Joint attention: Its origins and role in development (pp. 131-158), Hillsdale, NJ: Lawrence Erlbaum.

14. Carey, S. (1991). Cognitive development. In D. N. Osherson & E. E. Smith (Eds.), An invitation to cognitive science: Thinking. Volume 3, (pp. 147-176), Cambridge, MA: MIT Press.

15. Gelman, S. A., & Coley, J. D. (1991). Language and categorization: The acquisition of natural kind terms. In S. A. Gelman & J. P. Byrnes (Eds.), Perspectives on language and thought: Interrelations in development (pp. 146-196). New York: Cambridge University Press.

16. Leslie, A. (1989). Children's understanding of the mental world. In R. L. Gregory (Ed.), The Oxford companion to the mind (pp. 139-142). Oxford: Oxford University Press.

17. Gallup, G. G. (1985). Do minds exist in species other than our own? Neuroscience & Behavioral Reviews, 9, 631-641.

18. Seyfarth, R. M., & Cheney, D. L. (1992). Meaning and mind in monkeys. Scientific American, 122-128.

19. Savage-Rumbaugh, E. S., Murphy, J., Sevcik, R. A., Brakke, K. E., Williams, S. L., & Rumbaugh, D. (1993). Language comprehension in ape and child. Monographs of the Society for Research in Child Development, Vol 58, Serial No. 233, pp. 1-110.