

2 Buccleugh Place 11 am - 12:30 Tues 11 am - 12:30

## 5. Cognitive psychology

### 5.1. Autumn term

#### Part I: Computational Theories of Mind in Psychology of Memory and Reasoning

##### Week 1:

###### 1. Computation, information and idealisation (Keith Stenning)

\*Fodor 1975.: chapters 1 & 2.

Marr 1982, Dennett 1978, Putnam 1975.

###### 2. Psychologists' concepts of representation (Keith Stenning)

\*Rumelhart and Norman 1975.

Conrad 1964, Gibson 1979.

##### Week 2:

###### 1. Different styles of computation: PDP vs Von Neumann (Keith Stenning)

\*Rumelhart & McClelland (1986): chapter 1.

###### 2. Knowledge richness: the psychology of form and content (Keith Stenning)

\*Johnson-Laird and Wason 1972: chapters 13 & 14.

DeGroot 1965.

##### Week 3:

###### 1. Human memory and content dependence (Keith Stenning)

\*Miller 1956.

Ebbinghaus 1855, Bartlett 1932, Sachs 1967, Bransford and Johnson 1972.

###### 2. Language and thought or, Would you rather be aphasic or amnesic? (Keith Stenning)

\*Tulving 1983.

Sherry and Schacter 1987, Humphreys, McBain and Pike 1988.

##### Week 4: Methodology week (Keith Stenning)

\*Newell 1973.

#### Part II: Recognizing speech and understanding sentences

##### Week 5:

###### 1. The speech code and why it's hard to crack (Ellen Bard)

Or why psychology and linguistics are different subjects.

\*Klatt 1980

###### 2. The old and new cohort models (Ellen Bard)

Strong and weak interactions in word recognition.

\*Marslen-Wilson 1987.

Cole and Jakimik 1980.

##### Week 6:

###### 1. A computational model of interactive parallel processing (Ellen Bard)

\*McClelland and Elman 1986

###### 2. Sentence processing - processing for what? (Ellen Bard)

Marslen-Wilson, Tyler and Seidenberg 1978

##### Week 7:

Autonomy, interaction, and incremental interpretation (Ellen Bard)

\*Altmann 1988, \*Altmann and Steedman 1988.

Ferreira and Clifton 1986

Shillcock, Bard and Spensley 1988

#### Part III: Words and Concepts

##### Week 8: Concepts and word meaning (Terry Myers)

\*Armstrong, Gleitman and Gleitman 1983.

Dunbar and Myers 1988, Fodor et al. 1980.

##### Week 9: Conceptual coherence and partiality (Terry Myers)

\*Murphy and Medin 1985.

Cohen and Murphy 1984, Franks, Myers and McGlashan 1988.

##### Week 10: Conceptual flexibility and context (Terry Myers)

\*Chater, Lyon and Myers 1988.

Barsalou 1987, Chater, Lyon and Myers 1988, McClelland 1986.

### 5.2. Spring Term

Weeks 1 - 6: Modelling methods and the study of memory and inference (David Willshaw, Joe Levy, Mike Oaksford)

Weeks 7 - 10: Research methods in lexical access (Ellen Bard)

### 5.3. References

- Altmann, G. T. M. and Steedman, M. J. (1988) Interaction with Context during Human Sentence Processing. *Cognition*, 30.
- Altmann, G. T. M. (1988) Ambiguity, Parsing Strategies, and Computational Models. *Language and Cognitive Processes*, 3.
- Armstrong, S. L., Gleitman, L. R. and Gleitman, H. (1983) What Some Concepts Might Not Be. *Cognition*, 13, 263-308.
- Barsalou, L. W. (1987) The instability of graded structure: implications for the nature of concepts. In Neisser, U. (ed.) *Concepts and conceptual development*. Cambridge: Cambridge University Press.
- Bartlett, F. C. (1932) *Remembering: a study in experimental and social psychology*. Cambridge: Cambridge University Press.
- Bransford, J. D. and Johnson, M. (1972) Contextual prerequisites for understanding: some investigations of comprehension and recall. *Journal of Verbal Learning and Verbal Behavior*, 11, 717-726.
- Chater, N., Lyon, K. and Myers, T. (1988) Overextension of conjunctive concepts: Hampton reconsidered.
- Cohen, B. and Murphy, G. L. (1984) Models of Concepts. *Cognitive Science*, 8, 27-58.
- Cole, R. A. and Jakimik, J. (1980) A Model of Speech Perception. Chapter 6 in Cole, R. (ed.) *Perception and production of fluent speech*, pp133-163. Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Conrad, R. (1964) Acoustic confusion in immediate memory. *British Journal of Psychology*, 55, 75-84.
- DeGroot, A. D. (1965) *Thought and Choice in Chess*. The Hague: Mouton.
- Dennett, D. C. (1978) *Brainstorms: Philosophical Essays on Mind and Psychology*. Montgometry, Vermont: Bradford.
- Dunbar, G. and Myers, T. (1988) Concept Combination and the Characterization of Lexical Concepts. In *Understanding the lexicon: Meaning, sense and world knowledge in lexical semantics*.
- Ebbinghaus, H. (1855) *Über das Gedächtnis*. Leipzig: Duncker & Humblot.
- Ferreira, F. and Clifton, C. (1986) The independence of syntactic processing. *Journal of Memory and Language*, 25, 348-368.
- Fodor, J. A. (1975) *The Language of Thought*. New York: Thomas Crowell.
- Fodor, J. A., Garrett, M. F., Walker, E. C. T. and Parkes, C. H. (1980) Against definitions. *Cognition*, 8, 263-367.
- Franks, B., Myers, T. F. and McGlashan, S. (1988) Defeasibility in concept combination: a criterial approach. Paper to The Tenth Annual Conference of the Cognitive Science Society, Montreal..
- Gibson, J. J. (1979) *The Ecological Approach to Visual Perception*. Boston, Mass.: Houghton Mifflin.
- Humphreys, M. S., McBain, J. D. and Pike, R. (1988) Different ways to cue a coherent memory system: a theory of episodic, semantic and procedural tasks. *Psychological Review*.
- Johnson-Laird, P. N. and Wason, P. C. (1972) *Psychology of Reasoning: Structure and Content*. Cambridge, Mass.: Harvard University Press.
- Klatt, D. H. (1980) Speech Perception: A Model of Acoustic-Phonetic Analysis and Lexical Access. Chapter 10 in *Perception and Production of Fluent Speech*. Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Marr, D. (1982) *Vision: A Computational Investigation in the Human Representation of Visual Information*. San Francisco: Freeman.
- Marslen-Wilson, W. D., Tyler, L. K. and Seidenberg, M. S. (1978) The Semantic Control of Sentence Segmentation. In Levelt, W. J. M. and Flores-d'Arcais, G. (eds.) *Studies in the Perception of Language*. New York: John Wiley and Sons.
- Marslen-Wilson, W. (1987) Parallel processing in spoken word recognition. *Cognition*, 25, 71-102.
- McClelland, J. L. and Elman, J. L. (1986) The TRACE Model of Speech Perception. *Cognitive Psychology*, 18, 1-86.
- McClelland, J. L. (1986) The Programmable Blackboard Model of Reading. Chapter 16 in *Parallel Distributed Processing: Explorations in the Microstructure of Cognition*, Volume 2: *Psychological and Biological Models*. Cambridge, Mass.: MIT Press.
- Miller, G. A. (1956) The magical number seven plus or minus two, or, some limits on our capacity for processing information. *Psychological Review*, 63, 81-96.
- Murphy, G. L. and Medin, D. L. (1985) The role of theories in conceptual coherence. *Psychological Review*, 92, 289-316.

Newell, A. (1973) Why you can't play twenty questions with nature and win. In Chase, W. G. (ed.) *Visual Information Processing*. N.Y.: Academic Press.

Putnam, H. (1975) The Meaning of 'Meaning'. In Gunderson, K. (ed.) *Language, Mind and Knowledge*, Volume 7. Minnesota: University of Minnesota Press.

Rumelhart, D. E. and Norman, D. A. (1975) Representation of knowledge. In *Explorations in Cognition*. San Francisco: W. H. Freeman.

Rumelhart, D. E. and McClelland, J. L. (1986) *Parallel Distributed Processing*, Volume 1: *Explorations in the Microstructure of Cognition*. Cambridge, Mass.: MIT Press.

Sachs, J. S. (1967) Recognition memory for syntactic and semantic aspects of connected discourse. *Perception and Psychophysics*, 2, 437-442.

Sherry, D. F. and Schacter, D. L. (1987) The evolution of multiple memory systems. *Psychological Review*, 94, 439-454.

Shillcock, R., Bard, E. G. and Spensley, F. (1988) Some prosodic effects on human word recognition in continuous speech. In *SPEECH88*, 1988.

Tulving, E. (1983) *Elements of Episodic Memory*. N.Y.: Oxford University Press.

GARDNER "THE MINDS NEW SCIENCE".

## 6. Computer support course

Starting during induction week and continuing throughout the first term, there will be a demand-driven course the aim of which is to familiarize the students with the computer facilities at the Centre. Possible topics include:

- how to use the Macintoshes
- an introduction to screen editors (Macwrite, emacs)
- reading news, sending files, mailing overseas
- the Centre's facilities for document preparation
- the automatic bibliography database

Required reading for this course, copies of which will be distributed at the start of induction week, is:

Farvis, K. M. and Macintosh, A. L. (1988): *An Introduction to UNIX Systems in the University of Edinburgh*.