

UNIVERSITY OF EDINBURGH

FACULTY OF SCIENCE

ARTIFICIAL INTELLIGENCE 4

Date: 2 June 1989

Time: 2.00 - 3.30

Examiners:     Chairman     - J.A.M. Howe  
                 External     - A.G. Cohn

COGNITIVE PSYCHOLOGY

INSTRUCTIONS TO CANDIDATES

1. Answer TWO questions
2. Each question is marked out of 100%. The marks at the side of the questions show how these are apportioned.
3. If more than two questions are attempted, candidates should cross out the answer which is NOT to be marked. Otherwise, the examiners will mark only the first two answers which appear in the script.

Von Neumann - 3 units  
- division  
- units

### Question 1

Answer EITHER

- (a) Compare and contrast the general computational characteristics of human beings with conventional von Neumann computers. Illustrate your answer with some human behavioural evidence.

OR

- (b) How do psychologists' assumptions about 'representations' and representational theories of mind contrast with those common in AI? Illustrate your answer (at least) from some psychological work on representations.

discernability

### Question 2

Answer EITHER

- (a) Does the Human Sentence Processing Mechanism have structural preferences? Include psycholinguistic evidence in your answer.

OR

- (b) Why is automatic speech recognition so difficult when speech recognition is so quick and automatic for human listeners?

ambiguity in phrases - words, features  
- lack word ellipsis at boundaries.

chunking 7 clauses.

historical only  
so you can  
mishear.

X Question 3 Normalization of speakers' Texan word speeds

Is the meaning of a word selected or generated? Support your answer with specific examples.

Serial case process go  
perceptual code

Pick up cans

binocular - vision

- task planning. Neurons - and analysis

- search strategies, phonics - hooks behaviour based approach

Minsky's frame

compositionality, inheritance.

many like join

red apples

1  
2  
3