UNIVERSITI SAINS MALAYSIA

Peperiksaan Semester Kedua
Sidang Akademik 2000/2001

Februari/Mac 2001

HET 324 – Computational Linguistics

Masa : 3 jam

THIS EXAMINATION PAPER CONTAINS **FIVE [5]** QUESTIONS IN **THREE [3]** PAGES.

Answer **FOUR** questions.

1.   Study the examples below:

> *I decided to go.*
> ** I decided Mary to go.*
> ** I encouraged to go.*

The examples illustrate that a computer program would need to know more than just the parts of speech to analyse or generate a sentence correctly.

[a]   What would the program need to know for a correct and successful analysis or generation of the sentences above?

[b]   Discuss four other types of information that would have to be included in a good computational lexicon.

[25 marks]

2.   In English, the verb and its subject have to agree in number, that is, they are either both singular or both plural. Given two forms of the noun phrase, and one form each of the verb phrase and the prepositional phrase below, write a Prolog parsing program that takes into account number agreement. Please provide a key for any short forms that you might adopt (e.g. N=noun).

    noun phrase - article + adjective + noun

    noun phrase - article + noun

    verb phrase - verb + prepositional phrase

    prepositional phrase - preposition + noun phrase

    [25 marks]

3.   Write a Prolog program using DCG notation to address recursion, using the sentence below:

    The boy said the girl thought the cat ate the bird.

    [25 marks]

4.   Broadly speaking, there are two ways of implementing morphological processes using computational methods: *stripping algorithm* and *two level approach.* Discuss both these approaches, using appropriate examples.

    [25 marks]

5.   Discuss the following terms:

   [a]   syntactic analysers

   [b]   terminal nodes

   [c]   speech synthesis

   [d]   concordance

   [e]   language generation

[25 marks]

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