

9.59, 24.905: Psycholinguistics
Problem Set 3

Handed out: April 12, 2005
Due: April 26, 2005

Answer all questions. Total number of points: 65. You are encouraged to work in groups, but do the write-up independently.

1. (6 points) Give a phonemic transcription of poems 2 and 3 on page 199 of the Tartter (1998) chapter 6 reading, using the International Phonetic Alphabet.

2. (4 points) Translate the phonemic transcription in study question 2 on page 236 of the Tartter (1998) reading back into the English writing system.

3. (3 points) Give the articulatory features of the following consonants using the following features: voiced/voiceless, place of articulation, manner of articulation (fricative, stop, nasal):

/k/, /n/, /f/, /t/, /zh/, /b/

(Note: /zh/ is my diacritic for the middle consonant sound in “vision”.)

4. (3 points) Here is a potential morphophonemic rule describing the regular plural formation in English:

a. If the place of articulation of the final consonant /C/ of a word is alveolar then:

/C/ ___ → /Cəz/

(Note: “ə” is the closest word symbol I have for the schwa, the upside down e which is pronounced with the mouth in the neutral position.)

b. Otherwise:

If the final consonant /C/ of a word is voiced then:

/C/ ___ → /Cz/

c. Otherwise:

/C/ ___ → /Cs/

This is not quite the right rule for regular plural formation in English. Give an example of a regular plural formation which doesn't work according to the rule. Also, adjust the rule so that it gives the right behavior.

5. (2 points) What acoustic cues are used to detect the sound /t/? /z/?

6. (3 points) Why is the discrimination task important in establishing categorical perception? Put another way, why could you not conclude that a signal is perceived categorically by data from the identification task only (like the identification experiment done in class)?

7. (3 points) What does the motor theory of speech perception predict for chinchilla's categorization of stop consonants? Are the data from the relevant experiments (e.g., those done by Kuhl, 1981, and Kuhl & Miller, 1978) consistent with the motor theory? Why or why not?

8. (4 points) Briefly describe two sets of experimental results that show that phoneme perception is context sensitive.

9. (4 points) Consider a display with four objects: a paddle, a dollar, a padlock, and a saddle.

a. Describe the pattern of eye-movements to each of the objects that results averaging across participants when native English speakers are asked to “look at the paddle”.

b. What aspects of these results are consistent with the cohort theory of lexical processing?

c. What aspects of these results are consistent with a theory of lexical processing which is not rigidly left-to-right (such as the TRACE model, which was mentioned briefly in class)?

10. (4 points) Function words like prepositions and determiners are usually spoken quickly and without stress. For example, the preposition “to” is typically spoken quickly and without stress in the sentence “John gave the book to Mary.”

Describe a way in which the context can be manipulated so that the preposition “to” would be lengthened in such a context.

Describe a way in which the word order can be manipulated so that the preposition “to” would be lengthened.

11. (5 points) Consider the following sentence with respect to the Left Constituent / Right Constituent Boundary (LRB) Hypothesis:

Two guests from New York ridiculed the host’s introduction of the president of the major corporation to the crowd.

Provide the relative weight assigned by the LRB to the following positions:

- a. After “guests”
- b. After “New York”
- c. After “ridiculed”
- d. After “introduction”
- e. After “corporation”

Which of these positions does the LRB hypothesis therefore predict is the most likely location for an intonational boundary?

12. (4 points) There is a syntactic ambiguity in sentence (12a):

- a. There were some old men and women sitting on the porch.

The adjective “old” can modify either “men” or “men and women”. What does the Anti-Attachment Hypothesis (AAH) predict would be the default interpretation of this ambiguity, with no intonational phrase boundaries anywhere in the sentence?

What would be a good location to put an intonational boundary if one wanted to produce the alternative interpretation of the ambiguity? Why?

13. (3 points) Consider the following ambiguous sentence:

- a. Visiting relatives can be boring.

This sentence is globally ambiguous. It can either indicate that an act of visiting is boring, or that some relatives are boring.

It turns out to be difficult to disambiguate this sentence structure using intonational boundaries. Speculate on why this might be the case.

14. (3 points) Suppose that people place exactly one intonational boundary in the following sentence:

- a. The artist gave a portrait of the president to the manager.

Provide a location in this sentence that the sense unit constraint (Selkirk, 1984) predicts will be an impossible place to put this intonational boundary. Explain your answer.

15. (4 points) Consider the sentence below. Notice that there is a temporary ambiguity upon processing the NP “the passengers”.

a. Although the chauffeur thought he would stop the passengers were worried.

What does the anti-attachment hypothesis predict will be the preferred interpretation of the temporary ambiguity which is created following the words “the passengers” in each of two situations?

i. If there is no intonational boundary between “stop” and “the passengers”.

ii. If there is an intonational boundary between “stop” and “the passengers”.

Provide explanations with your answers.

16. (4 points) Provide a piece of cross-linguistic evidence for the assembled route hypothesis in visual word recognition. Provide a piece of evidence for the assembled route hypothesis from within one language.

17. (3 points) What is the word superiority effect in visual word recognition? How does the PDP model of McClelland & Rumelhart (1981) account for the effect?

18. (3 points) Describe the expected pattern of data from a lexical decision experiment with the following four subgroups:

high frequency, regular spelling. e.g., STOP

high frequency, irregular spelling. e.g., SAYS

low frequency, regular spelling. e.g., PLUMP

low frequency, irregular spelling. e.g., CASTE

What do these data suggest with respect to the dual route hypothesis?