

Psychology 5054: The Psychology of Language
Spring, 2002
Final Exam

Part 1: Multiple Choice. Circle the letter corresponding to the correct answer. Only one answer is correct for each question. (1 point each)

1. According to the _____ the language that you speak determines how you perceive, think about, and remember the world around you.
(a) Sapir-Whorf Hypothesis
(b) Derivational Theory of Complexity
(c) Principle of Minimal Attachment

2. If Rumelhart & McClelland (1982) had *not* found that letters are recognized more quickly when they are presented in _____ than when they are presented in _____, the Interactive Activation Model would have been disconfirmed.
(a) isolation/pronounceable non-words
(b) pronounceable non-words/unpronounceable non-words that do share letter combinations with many real words
(c) unpronounceable non-words that do share letter combinations with many real words / unpronounceable non-words that don't share letter combinations with many real words

3. Like people, HEARSAY has a more difficult time identifying speech sounds when it is not able to use _____ cues.
(a) syntactic
(b) semantic
(c) either syntactic or semantic

4. Which of the following models assumes that text comprehension is primarily a bottom-up process?
(a) van Dijk and Kintsch's (1983) cyclical model
(b) Schank and Abelson's (1977) script-based model
(c) Mandler and Johnson's (1977) story grammar model

5. If a speaker tried to say "jump and shout" but instead said "jump and jout" it would be an example of a type of speech error called a _____.
(a) consonant perseveration
(b) morpheme reversal
(c) voicelessness anticipation

6. In Hayes & Flower's (1980) model of the cognitive processes involved in writing, individual differences are caused primarily by differences in _____.

(a) short-term memory capacity

(b) stored writing plans

(c) **goal setting**

7. Dell's (1986) model of speech production is formulated at the level of analysis that Marr (1982) calls the _____.

(a) computational theory

(b) **representation and algorithm**

(c) implementation

8. Processing in both Forster (1981) model of lexical access and Fromkin's (1971) Utterance Generator Model of speech production (1971) is _____.

(a) interactive

(b) bottom-up

(c) **sequential**

9. MacWhinney, Bates, and Kliegl's (1984) animacy strategy suggests that the agent of the pseudo-sentence _____ is _____.

(a) "The students rides the motorsycle."/"motorcycle"

(b) **"Ride the motorcycle the student."/"student"**

(c) "The student the motorcycles rides."/"cakes"

10. McClelland and Rumelhart's (1981) Interactive Activation Model, unlike PANDEMONIUM, includes _____.

(a) sequential processing within each level of representation

(b) local representations of letters and features

(c) **inhibitory connections between inconsistent alternatives**

Part 2: Definitions. In just 1 or 2 sentences, give an operational definition for each of the following concepts. Your definition may come from an experiment you are familiar with or you may make up your own definition (as long as it accurately defines the concept and is operational). (2 points each)

Grading Criteria:

- 1 pt. for correctly identifying the concept
- 1 pt. for using a procedural definition

11. Irregular (or Exception) Words

To find out if a particular word (e.g. "broad") is irregular, I would use a dictionary to find all the other words with the same ending and number of syllables (e.g., "toad," "road," and "load") as well as the correct pronunciation of each word. If the ending of the word is pronounced differently than in more than 50% or more of its neighbors, I would classify it as an irregular word.

12. The Dominant Meaning of an Ambiguous Word

To determine the dominant meaning of an ambiguous word such as "bug" I would ask 50 people to use it in a sentence, then I would count the number of sentences that (in my judgement) made use of each meaning listed in the latest edition of Webster's Dictionary (e.g., "insect" and "listening device"). If one meaning was used in at least 30 of the sentences (60% of the total) I would take that to be the dominant meaning, otherwise there would be no dominant meaning for the word.

13. Psychological Distance Between Two Events in a Story

To measure the psychological distance between two events in a story I would present the story to a group of participants along with several other stories then ask them to make speeded true/false judgements by pushing a TRUE or FALSE button as quickly as possible in response to test sentences presented on a computer screen. I would measure the reaction time for the second of the two events under two conditions, when it is preceded by a the first event and when it is preceded by an event from another story, and use the difference between these two times as my measure of the psychological distance between the two events.

14. The Difficulty of Understanding a Sentence

To measure the Difficulty of Understanding a Sentence, I would show it to a group of participants on a computer screen and ask them to indicate whether it is true or false by pressing a YES or NO button as quickly as possible. I would then calculate the reading rate for the sentence by dividing the average reading times (i.e., the time that elapses between the presentation of the sentence and a correct button press) by the number of words in the sentence.

15. The Codability of Power Tools

I would present photographs of different power tools (e.g. drills, sanders, lathes and routers) to participants on a computer monitor and ask them to generate a name for each item as quickly as possible. The average naming latency (the time that elapses between the presentation of a picture and the detection of a naming response by a voice key attached to a microphone) could be used to measure codability.

Part 3: Short Essay. Answer each of the following questions using no more than half of a page for each. (5 points each)

16. What is a double dissociation and why is it important? Give an example of a double dissociation from the psychology of language.

Grading Criteria:

- 2 pts. for describing what a double dissociation is
- 1 pt. for describing why it is important
- 1 pt. for a correct example
- 1 pt. for overall coherence of the answer

Example Answer:

A double dissociation involves two patients (A and B) and two tasks (I and II). It occurs when patient A performs normally on task I but shows an impairment on task II, while patient B performs normally on task II and shows an impairment on task I. This is important because it allows us to infer that tasks I and II involve independent cognitive functions. Moreover, if patients A and B exhibit damage in different parts of the brain the double dissociation offers evidence as to where those cognitive functions are localized. Phonological dyslexia and surface dyslexia represent a classical double dissociation. Patients with surface dyslexia are unable to read irregular words (such as "pint") but have no problem with pronounceable non-words (such as "lave"). Patients with phonological dyslexia show exactly the opposite pattern. This has led some researchers to conclude that phonological dyslexia involves the loss of the indirect route between print and lexical access while surface dyslexia involves the loss of the direct route.

17. Describe the difference between a sequential and a cascaded process and give an example of each from theoretical models in the psychology of language.

Grading Criteria:

- *2 pts. for describing accurately describing the difference*
- *1 pt. for an example of a sequential model*
- *1 pt. for an example of a cascaded model*
- *1 pt. for coherence of answer*

Example Answer:

Both sequential and cascaded processing involve two or more levels or stages of processing in which stage n begins before stage $n+1$. The difference is that in a sequential process, stage n must also be completed before stage $n+1$ can begin while in a cascaded process stage n continues after stage $n+1$ begins. A clear example of a sequential process in the psychology of language is Forster's (1981) model of lexical access and sentence understanding. In this model lexical processing must be completed before syntactic processing can begin, and syntactic processing must be completed before semantic processing begins. An example of a cascaded process is PANDEMONIUM in which feature processing begins prior to letter processing, but then continues in parallel with it.

18. Savin & Perchonock (1965) took advantage of the tradeoff between storage capacity and processing complexity in short-term memory in their experimental test of the derivational theory of complexity. How would you change their experiment to test the hypothesis that syntactic processing is facilitated by semantic constraint? Be sure to describe the independent and dependent variables in your modified experiment, using operational definitions and/or examples where they are appropriate. What pattern of results would you expect if the hypothesis is true? What pattern of results would you expect if the hypothesis is false?

Grading Criteria:

- *1 pt. for identification of I.V.*
- *1 pt. for identification of D.V.*
- *1 pt. for correct prediction if hypothesis is true*
- *1 pt. for correct prediction if hypothesis is false*
- *1 pt. for overall coherence of the answer*

Example Answer:

I would present participants with a list of unrelated sentences. Each sentence would be followed by a list of eight randomly selected words unrelated to the sentence. Participants would be required to repeat back each sentence verbatim, then repeat back as many of the eight words as they could remember. All of the sentences would be passive sentences taken from Slobin (1966) except for some filler sentences that would not be scored. The dependent variable would be the number of randomly selected words recalled correctly (0 - 8). The independent variable would be the reversibility of the sentences (as in Slobin, 1966). Half of the passive sentences would be reversible, meaning that the subject and object could potentially reverse roles (as in, "The girl was chased by the boy.'). The other half would be irreversible, meaning that the subject and object could not change roles (as in, "The bagel was eaten by the boy.'). If the hypothesis is true, I would expect more words to be recalled when the sentence is irreversible. If the hypothesis is false, I would expect to find no difference between the reversible and irreversible sentences.

19. Describe the difference between an automatic and a controlled process and give an example of each from Hayes & Flower's (1980) model of composition.

Grading Criteria:

- *1 pt. for identifying at least 3 of the 4 criteria for an automatic process*
- *1 pt. for identifying at least 3 of the 4 criteria for an controlled process*
- *1 pt. for an example of a controlled process from Hayes & Flower*
- *1 pt. for an example of an automatic process from Hayes & Flower*
- *1 pt. for coherence of answer*

Example Answer:

Controlled processes must be intentionally initiated, they can be stopped at any time, we are consciously aware of their intermediate steps, and they use up short-term memory resources. In Hayes & Flower's model of writing, organizing ideas is a controlled process. Automatic processes occur whenever the appropriate stimuli are present, once they begin they cannot be stopped, we are not aware of their intermediate steps, and they do not use short-term memory resources. In Hayes & Flower, editing (i.e., detecting errors and deciding to fix them) is an automatic process.