Student ID#: _____Answer Key_____

Psychology 5054: The Psychology of Language
Spring, 2004
Midterm Exam #1

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

1. Seidenberg & McClelland's (1989) model of word recognition and naming makes extensive use of _____.
(a) symbolic processing
(b) local representations
(c) distributed representations

2. According to George Miller's (1999) article "On Knowing a Word" the basic structure of _____ is a mapping between word forms and word meanings.
(a) the lexicon
(b) semantic memory
(c) episodic memory

3. According to Binder (2003), _____ influences the initial access stage of lexical ambiguity resolution while _____ influences post-access processes such as meaning selection and integration.
(a) discourse level topic information/sentence context
(b) sentence context/discourse level topic information
(c) sentence topic/meaning bias

4. *If* Bird, Lambon, Seidenberg, McClelland & Patterson (2003) had found that nonfluent aphasic patients who are unable to discriminate between regular stem and past-tense verbs such as "man" and "manned" are able to make phonologically matched non-morphological discriminations such as "men" versus "mend" *then* the claim that regular verbs are processed by a _____ process and irregular verbs by a _____ process would have been supported.
(a) semantic/syntactic
(b) rule-governed/lexical-associative
(c) bottom-up/interactive

5. De Groot, Borgwaldt, Bos & van den Eijnden (2002) found that Dutch and English words that are easy to _____ are generally recognized more quickly.
(a) imagine
(b) contextualize
(c) both of the above

6. Using fMRI, Fiebach, Friederici, Muller & von Cramon (2002) compared the processing of _____ to high frequency words in order to identify the brain regions associated with the indirect route to lexical access (i.e., grapheme-phoneme-word form).
(a) low frequency words
(b) pseudowords
(c) both of the above

7. According to Forster & Hector (2002) the *turple* effect shows that the semantic properties of a word and its neighbors _____.
(a) influence the lexical access process
(b) have only post-lexical effects
(c) neither of the above

8. Polysemous words, such as those studied by Klein & Murphy (2002) are words that have _____.
(a) only one meaning
(b) multiple related meanings
(c) multiple unrelated meanings

9. Liu, Perfetti & Hart (2003) measured ERPs while native speakers of Chinese judged whether two visually presented Chinese characters were similar in meaning. They found a reduced P400 component when the characters were _____. This suggests that the _____ representation of Chinese characters is activated automatically.
(a) antonyms/morphological
(b) antonyms/phonological
(c) homophones/phonological

10. The lexical decision experiments by Locker, Simpson & Yates (2003) demonstrate that the time needed to recognize the correct meaning of a semantically ambiguous word is influenced by its _____ neighborhood.
(a) orthographic
(b) phonological
(c) semantic

Part 2: Definitions. In just 1 or 2 sentences, give an operational definition for each of the following concepts. Your definition may come from the experiment identified in parentheses 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. Gaze Duration (Binder, 2003)

The sum of all consecutive fixations on a word (i.e., the total time spent looking at it) before a reader's gaze leaves that word the first time it is encountered during reading.

12. Word Length (De Groot, Borgwaldt, Bos & van den Eijnden, 2002)

The number of letters that make up a word.

13. Orthographic Neighborhood (De Groot, Borgwaldt, Bos & van den Eijnden, 2002)

A word's orthographic neighborhood is the number of new words that can be created by changing just one letter (e.g., "hog," "dig" and "dot" would all count as neighbors of "dog").

14. Lexical Decision Time (Fiebach, Friederici, Muller & von Cramon, 2002)

Experimental participants are shown strings of letters on a computer screen and asked to press a YES or NO button as quickly as possible to indicate whether or not each is word. Lexical decision time is the time that elapses between when a real word appears and when a participant correctly presses the YES button.

15. Semantic Categorization Time (Forster & Hector, 2002)

Experimental participants are shown strings of letters on a computer screen and asked to press a YES or NO button as quickly as possible to indicate whether or not each is an animal name. Semantic categorization time is the time that elapses between the presentation of a letter string and the participant pressing the correct button.

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

16. Describe the two basic strategies that models of lexical access use to explain frequency effects in lexical access.

Grading Criteria:

- ***2 pts. for the search order strategy***
- ***2 pts. for the baseline activation strategy***
- ***1 pt. for overall coherence of the answer***

Example Answer:

Some models of lexical access (search models) assume that the lexicon is searched sequentially in order of word frequency. A little bit of time is needed to compare each word's phonological or orthographic representation to the perceptual input. The search stops as soon as a match is found. Because more common words are checked before less common words, they are recognized more quickly. In other models (activation-based models) lexical access occurs when the activation level for a word's representation rises above some threshold. These models assume that more common words have higher baseline (or starting) levels of activation. Because of this, they require a smaller increase in activation to reach threshold and are, therefore, recognized more quickly.

17. In their article on the turple effect, Forster & Hector (2002) argue that when we read a non-word (like "turple"), the semantic properties of its orthographic neighbors (e.g., "turtle") are automatically activated. Design an experiment that uses priming effects in a lexical decision task to test this claim. Be sure to specify (using operational definitions) what your independent and dependent variables would be. What pattern of results would you expect to see if the claim is true? What pattern would you expect to see if it 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 begin by choosing 20 target words, all nouns such as "nurse". I would then use word association norms to find the word most strongly associated with each target word (e.g., "doctor") along with another word (e.g., "mayor") completely unassociated with it. Next I would create two pronounceable pseudowords for each target word. One would be created by changing a single letter in the close associate (e.g., "doctop") and the other by changing one letter in the unassociated word (e.g., "moyop"). Then I would create two lists. One list (the associated list) would include the target words ("nurse"), the pseduowords created from their close associates ("doctop"), 30 filler words and 30 filler pseudowords. The target words would always be immediately preceded by their associated pseudoword. Otherwise, the order of words and pseudowords on the list would be random. On the other list (the unassociated list) the associated pseudowords would be replaced by the unassociated pseudowords ("mayop"). Other than that, the list would be identical. I would then present each list to a different group of participants. The words and pseudowords would be presented on a computer screen and participants would be asked to push a YES button as quickly as possible each time they saw a word and a NO button as quickly as possible each time they saw a non-word. The dependent variable would be the time required to push the YES button in response to the target words. The independent variable would be the two lists (associated and unassociated). If Forster & Hector's claim is true, these lexical decision times should be shorter for subject presented with the associated list. If it is false, there should be no difference between the associated and unassociated lists.