

# Neural Bases of Language

## Questions, Week 1

### Short Answer

- 1) Deficits in perception or recognition may have been a result of damage to which lobe of the brain?
- 2) Define and explain "semantic priming", giving an example of a 'prime' and a 'target'. Why is this an important concept in terms of studying how language works?
- 3) Explain why in the Japanese language the words "lip" and "rip" cannot be distinguished.
- 4) What problem does Chomsky address when discussing the memories use of words such as *either/or* and *if/then*?
- 5) Describe what a "Garden-Path" sentence shows.
- 6) Why is it implausible that human language is comprised of a huge word chain stored in the brain?
- 7) Fill in the blank: The "phase structure grammar" described by Pinker in his article eliminates the issue of redundant definitions present in word-chain theory because the different types of phrases are \_\_\_\_\_ (modular); once defined and assigned a connector symbol, they do not need to be redefined.
- 8) How does the phenomenon of displacement (with regard to syntax) support Chomsky's idea of deep structure?
- 9) Although these two statements are perfectly interpretable, they are considered "ungrammatical". How does one account for the emergence of ungrammaticality?
  - a. Raining hard now.
  - b. Boy deep sleep.
- 10) In Chapter 4 of "The Language Instinct," Pinker compares the discrete combinatorial system of grammar to that of the genetic code of DNA. How do you explain the similarity between the language instinct and DNA?
- 11) In the "How Language Works" chapter of The Language Instinct, Pinker describes a discrepancy between English sentences and "Englishly" word chains. What two lessons can be learned from this discrepancy?
- 12) Explain what "silent" grammar is, citing an example in English, as mentioned in class or one of your own choosing.
- 13) Explain how "POSTER" ultimately inhibits "POST" in a phonological priming task.
- 14) Based on Chomsky's theory how do children acquire in short time the complex amount of grammar structure? What is the parameter in the case of the English language?
- 15) The reason for which a statement such as "One witness told the commissioners that she had sexual intercourse taking place between two parked cars in front of her house" is ambiguous is that:
- 16) Give an argument for why language is not a word-chain device?
- 17) How is a grammatical sentence similar to Gestalt theory?
- 18) What is the main purpose of the corpus callosum?
- 19) Define principle and parameter. Then explain how they relate to Chomsky's theory of grammar.
- 20) What is the principle of compositionality?
- 21) Write an example of a "Garden-Path" sentence and explain why it is one.
- 22) Name two reasons why it is unlikely that we learn language as strings of words.

## Multiple Choice

- 1) We perceive phonemes:
  - a. in a continuous way that varies accross different languages
  - b. in a categorical way that varies accross different languages
  - c. in a continuous way that is constant accross different languages
  - d. in a categorical way that is constant accross different languages
  
- 2) Given Pinker's statement, "A grammar is an example of a 'discrete combinatorial system'." Which principles below are direct results of this "system"?
  - i. Vastness of language
  - ii. Autonomy from cognition
  - iii. Silent grammar
  - iv. Morphology
  - a. i & iii
  - b. ii & iv
  - c. iii & iv & i.
  - d. ii & i.
  
- 4) In the example: "The couple went out to dinner and a show.", what is wrong with asking the question: "Where did the couple go-- and a show?"
  - a. the original sentence was structurally ambiguous
  - b. the question in semantically ill-formed
  - c. the constituent "dinner and a show" must stick together
  - d. the original sentence is non-compositional
  
- 5) The difference between deep structure and surface structure is that we move a phrase from where the verb prefers to the place where we actually hear it. We leave behind an inaudible reminder of this change referred to as a/an:
  - a. head
  - b. trace
  - c. tag
  - d. NP
  
- 6) The word "Hammer" priming the word "Screw" is which type of the following activation?
  - a. Semantic Priming
  - b. Mediated Semantic Priming
  - c. Phonological Priming
  - d. Paint priming
  
- 7) The words *cook* and *book* could is an example of:
  - a. Phonological priming
  - b. Semantic priming
  - c. Mediated semantic priming
  - d. Phonological and semantic
  
- 8) What is the name for the piece of information that makes one language different from another?
  - a. category
  - b. parameter
  - c. syntax

d. phonemes

- 9) Which of the following is NOT a weakness of the word-chain model of language:
- Semantic improbabilities arise from word-chains.
  - Word chains are inherently unable to produce certain English sentences, because they have no built-in "memory".
  - Word chains have not been successfully demonstrated to produce a grammatical, semantically sound English sentence.
  - Word chains quickly become too unwieldy and would require more information than a human brain could hold.

10) Function words...

- viewed without content words, can often allow one to determine whether or not a sentence will be grammatical.
- have no effect on the meaning of a sentence.
- are more likely than content words to be remembered by people with damage to the language areas of their brains.
- are very receptive to the addition of new words to their set.

11) Which of the below statements are/is true?

- One is inclined to begin a new sentence rather than add to an ongoing clause with the hope of avoiding complexity.
- It has been shown that the brain responds vigorously to implausibility, but is unresponsive to ungrammaticality.
- In order for one to detect ungrammaticality, it is imperative that he understand the function words of a sentence.
- Context and lexical activation are independent of each other.

- I & III
- I, II, III
- IV only
- none of the above

12) Why is the following sentence ambiguous: "Yoko Ono will talk about her husband John Lennon who was killed in an interview with Barbara Walters?"

- the sentence is ungrammatical because it does not comply with the rules of the word-chain device
- our lexicon does not allow for the verb "killed" to be followed by a prepositional phrase
- our semantic judgement leads us to create multiple interpretations
- it is unclear which branch of the tree the constituent "with Barbara Walters" should be attached to

13) Which of the following is NOT true of neurons:

- they both receive and send out signals to neighboring neurons via electrical impulses
- we gain neurons over the course of our life as we mature
- the brain's abilities are a result of both the sheer number of neurons, and of their complicated connections
- the central nervous system consists of 100 billion neurons, approximately.

- 14) Pinker describes grammar as a "discrete combinatorial system," or a series of non-continuous elements that can be combined in an infinite number of distinct ways. What aspect of grammar corresponds to the "discrete" element to which Pinker refers?
- sentences
  - letters
  - words
  - phonemes
- 15) If a patient with brain damage can understand but not produce speech, which area of his brain was insured?
- The Broca's area in the inferior frontal gyrus of the frontal lobe.
  - The Wernicke's area between the temporal and the parietal lobes
  - The Broca's area between the temporal and the parietal lobes
  - The Wernicke's area in the inferior frontal gyrus of the frontal lobe.
- 16) Unlike many other languages in which overt affixes, or cases, serve to distinguish between subjects and objects in a sentence, in English,
- cases do not exist
  - cases are present but are not apparent in any way
  - cases are marked by word order
  - noun phrases are tagged with cases by adjacent adjectives
- 17) Morphology...
- is the study of the internal structure of words
  - explains the silent grammar of the English language
  - is when words are broken into categories based on sounds
  - is the study of positive and negative priming
- 18) Mary said to her mother, "I want store to cookies uhhh a piece back with you and put it back when she brought it eat." This is an example of damage to what part of the brain?
- angular gyrus
  - Broca's area
  - Wernicke's area
  - central sulcus
- 19) If a person has no impairment to his vision, but is unable to recognize what he is seeing, the person most likely has damaged which of the lobes in the brain?
- parietal
  - temporal
  - occipital
  - frontal
- 20) Pinker writes, "It is true that most names for persons, places, and things are nouns, ...
- and likewise it is true that most nouns are names for persons, places, or things."
  - but it is not true that most nouns are names for persons, places, or things."
  - however pronouns can take the place of the noun."
  - none of the above.
- 21) Vision is mainly localized in the \_\_\_\_\_ lobe.

- a. frontal
- b. parietal
- c. occipital
- d. temporal

22) Evidence of overt case in English exists only in:

- a. Verbs
- b. Prepositions
- c. Personal Pronouns
- d. Nouns

23) What is studied in psycholinguistics?

- a. The neural bases of language
- b. The real-time processing of language
- c. Static representations
- d. Cognitive understanding of grammar

24) What type of language structure is this sentence in " *make your bed!*"?

- a. Head-first
- b. Head-last
- c. None of the above