

9.10/9.100 REVIEW QUESTIONS

Language

1. Give a couple of examples of ways we use the temporal properties of speech input to assist us in phonological encoding.
2. What kind of language-related impairment would you expect to result from focal damage to each of the following areas in the left hemisphere?
 - middle temporal gyrus
 - arcuate fasciculus
 - pre-central insular cortex
 - anterior superior temporal gyrus
 - posterior superior temporal gyrus (including adjacent white matter)
 - angular and supramarginal gyri
 - posterior inferior frontal gyrus
 - extrastriate cortex (i.e. V4) of the occipital lobe
3. What is the mismatch negativity?
4. How did Sams et al study the neural basis of the McGurk effect?
5. Understanding the meanings of words and sentences requires both semantic and syntactic analyses. What kind of information does semantic analysis yield? What kind of information does syntactic analysis yield? (Don't just say "word meaning" and "grammar"!)
6. In Levelt's model of speech production, what are lemmas?
7. What is the cohort model? What is the garden path model? What general strategy do they have in common, and why might this strategy be necessary for comprehending speech?
8. "Minimal attachment" and "late closure" are two processes hypothesized by the garden-path model. What do these two terms mean?
9. Local ambiguities and long-distance relations can both make sentences harder to understand. What's the difference between the two?
10. Give one example of how we use working memory in language processing. What part of the brain might be involved in verbal working memory?

11. There is general agreement that understanding written and spoken language involves multiple processing stages: lexical access, lexical selection, and lexical integration. Briefly describe what happens at each of these stages.

12. What are some of the challenges involved in word-reading? How are these different from the challenges involved in processing speech?

13. How was Levelt able to map the core processes of his language production model to different brain areas? What fundamental assumption did he have to make about the imaging studies he used in his meta-analysis?

14. The stages or ‘core processes’ of Levelt’s model are listed below with their outputs. Be able to explain in plain English what happens at each stage, and what kind of information is contained in each output.

PROCESS	>> OUTPUT
Conceptual preparation	>> lexical concept
Lexical selection	>> lemma
Phonological code retrieval	>> phonological code
Phonological encoding	>> phonological word
Phonetic encoding	>> gestural score
Articulation	>> spoken word

15. How did Dronkers determine that the left pre-central insula is involved in articulation?

16. What’s the difference between dysarthria and an impairment in articulation?