

## LING104 - Exam 2 - Fall 2020

Due Friday, October 23 at midnight EST

This exam is take-home and open-book. You may work with other students, but you must (1) write your answer in your own words and (2) indicate who you worked with. You may work directly on this document or on a separate document if you prefer. Submit your answers as a .pdf document via Canvas. The exam grading rubric is available [here](#).

My name is: \_\_\_\_\_

I worked on the exam with: \_\_\_\_\_

**Question #1: Phonemes**

Summarize the experiment performed and main findings of [Nishimura et al. 1999](#) (read in class). Explain how these findings fit within the context of what we learned about the STG and its role in sound and phoneme processing. Finally, what do you think the pattern of brain activation would be like if the participant returned after 6 months of exposure to spoken language? Justify your position.

**Question #2: Words**

In class, we read [Quiroga et al. 2005](#). Figure 2 shows a single unit in the right anterior hippocampus that responds to pictures of Halle Berry. What research questions do the author's have and what do they conclude from sections A and B of Figure 2? In other words, what point are the author's trying to make with this figure? How do these findings contribute to what we know about words in the brain?

**Question #3: Language Network**

The arcuate fasciculus has long been known to connect two language areas - Broca's and Wernicke's areas - in the human brain. Read the paper [Perisylvian Language Networks of the Human Brain](#) by Catani, Jones, and ffytche. What does this paper contribute to our understanding of the arcuate fasciculus? What were the anatomical findings and what did this suggest about function? How do their findings explain the variety of conduction aphasia found in patients with damage to the arcuate fasciculus?

**Question #4: Syntax**

**Part I.** Choose someone you know with no background in linguistics or neuroscience (a friend, younger sibling, parent, grandparent, neighbor, etc). Summarize the paper below as if you were writing an email to your chosen person. Make sure to convey (1) what research question(s) the researchers were asking and why it was an important question to ask, (2) how the researchers asked their question (what did participants do in the study?), (3) what they found, and (4) what these findings mean.

- [Broad domain generality in focal regions of frontal and parietal cortex by Fedorenko, Duncan, and Kanwisher \(2013\)](#)

**Part II.** The paper ends with the sentence "Human cognition is accomplished by the joint efforts of both highly specialized and very general-purpose cognitive and neural mechanisms". Explain how the results of this paper support this conclusion. Do you agree? Why or why not?