Psych56L/ Ling51
Winter 2011
Review Questions: Language & Cognition

(1) Terms/concepts to know: language as a toolkit, Neo-Whorfian, cognitive off-loading, the influence of language on navigation, spatial language, verbal shadowing, rhythm shadowing, cardinal principle, theory of mind, embedded sentence, false belief task, sentential complement

(2) What is one major difference between the navigation abilities of adult humans and that of younger children (and rats)?

(3) What is the Neo-Whorfian explanation for why young children and rats are unable to find something that can be encoded as "to the left of the black wall"? What evidence is there from rats and monkeys that might go against this explanation?

(4) What is the Neo-Whorfian explanation for why verbal shadowing (but not rhythm shadowing) causes adults to perform like young children when trying to find something that can be encoded as "to the left of the black wall"?

(5) Sigmund was quite impressed by the idea that language can help someone think thoughts they otherwise could not think. He wants to test this out in the domain of navigation. He plans to run several experiments, outlined below. For each experiment, state whether the subjects should succeed or fail, based on neo-Whorfian ideas of how language can augment reasoning. Make sure to briefly explain your answer.

      (a) Adults who need to find an object that can be encoded as "to the right of the purple wall" in a rectangular room with one wall painted purple.

      (b) Young children who need to find an object that can be encoded as "at the purple wall" in a rectangular room with one wall painted purple.

      (c) Adults doing rhythm shadowing who need to find an object that can be encoded as "to the right of the purple wall" in a rectangular room with one wall painted purple.
      (d) Adults doing verbal shadowing who need to find an object that can be encoded as "at the purple wall" in a rectangular room with one wall painted purple.

(6) What are the two core number systems humans and other animals seem to have?

(7) Approximately how many items can be subitized by humans?

(8) What kinds of numbers does language allow us to comprehend and manipulate? Explain why these numbers cannot be dealt with by the two core number systems.

(9) What evidence is there that dealing with large exact numbers involves using the same neural networks in the brain that language processing uses?

(10) Sigmund has been exploring the words for number in the language of the Ervee, who live near the Guins. To his surprise, he has discovered that the Ervee have words only for "one", "two", and "a lot".

(a) Do the Ervee have some words that represent numbers captured by the small, exact number system (that is, numbers that can be subitized)?

(b) Do the Ervee have words that represent numbers larger than those captured by the small, exact number system?

(c) If we believe the Neo-Whorfian hypothesis, should the Ervee be able to tell the difference between a group of 20 objects and a group of 10 objects? Why or why not?

(d) If we believe the New-Whorfian hypothesis, should the Ervee be able to tell the difference between a group of 7 objects and a group of 5 objects? Why or why not?

(11) How does a three-knower differ from a cardinal-principle knower?

(12) What evidence do we have that having language for numbers helps children comprehend and remember numbers?

(13) Syntactic knowledge includes the fact that some verbs like *think* and *say* can take sentential complements. Social knowledge includes the fact that other people can have a false belief. How would a Whorfian label these with respect to cause and effect – that is, which is the cause and which is the effect? Why?

(14) What evidence is there that knowing sentential complements is helpful for passing false belief tasks, but is not necessarily required? What evidence is there that suggests knowledge of sentential complements is required?

(15) What are two examples in language of confronting multiple perspectives simultaneously? Give an explicit example of each one. What aspect of cognition is the ability to confront multiple perspectives simultaneously helpful for?

(16) Sigmund has heard that sentential complements are somehow related to acquisition of theory of mind.

(a) Remind Sigmund what a sentential complement is by giving him an example of a sentence that has one. Make sure to indicate where the sentential complement is.

(b) What kind of experimental task is often used to gauge theory of mind?

(c) Should Sigmund expect his three-year-old brother Charles to succeed at the experimental task you named in (b)? Why or why not?

(d) Should Sigmund expect Charles to improve his performance on the task in (b) if Charles is explicitly trained on it? Why or why not?

(e) Should Sigmund expect a three-year-old to succeed at the task in (b) if that three-year-old can succeed at giving multiple names to objects? Briefly explain your answer.

(17) Baillargeon, Scott, & He (2010) discovered that very young children (2 years old) could pass a false belief task. What was the main difference between the false belief task they used and the false belief task commonly used in previous research where children younger than 5 failed the task? Why might this difference have caused the 2-year-old children to succeed in the Baillargeon et al. (2010) variant of the task, but fail in the previous version of the task?