

Review Questions: Language & cognition

1. **Terms/concepts to know:** Neo-Whorfian, cognitive off-loading, theory of mind, embedded sentence, sentential complement, false belief task, parenthetical endorsement, literal statement of belief
2. 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?
3. 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? (Hint: Think about how children needed to respond in order to demonstrate their knowledge.)
4. Is there evidence that children under a year old understand false beliefs?
5. Sigmund has heard that sentential complements are related to acquisition of theory of mind.
 - (a) Remind Sigmund what a sentential complement is by indicating which of the following sentences below has a sentential complement, and what the sentential complement is if the sentence does indeed have one.
 - i. Sarah said that Hoggle was a nasty little thief.
 - ii. Hoggle denied it.
 - iii. Hoggle denied he was a nasty little thief.
 - iv. Sarah later thought Hoggle was very brave.
 - v. Sir Didymus congratulated Hoggle on his bravery.
 - vi. Ludo and Sir Didymus suggested that Sarah shouldn't face Jareth alone.
 - vii. Sarah whispered a secret to Hoggle.
 - viii. The fairy surprised Sarah.
 - ix. The fairy gleefully shrieked that she had bitten Sarah.
 - x. Sarah was distinctly displeased.
 - (b) Sigmund has been observing his four-year-old brother Aethelric, who does not yet use sentences with sentential complements. Should Sigmund expect Aethelric to succeed at a standard false belief task that requires Aethelric to use language to answer? Why or why not? You may assume that Aethelric has never encountered false belief tasks before and that his prior experience with mental state verbs is that they are used as parenthetical endorsements. (Hint: Think about the false belief task studies in the lecture notes – what was the difference between the standard one

and the ones done later on with younger children? Do standard false belief tasks use mental state verbs as parenthetical endorsements?)

- (c) Suppose that Aethelric is tested with a false belief task that requires him to say whether statements like the following are true or false, based on the story presented:

“Sarah thinks Ludo is behind the door.”

(In this story, perhaps Hoggle was the one actually behind the door, but Sarah didn’t know that.)

In addition, suppose that the beliefs of the characters in the story are made especially salient (in the example above, perhaps there is another character, Sir Didymus, who believes Hoggle is behind the door, and so the beliefs of Sarah and Sir Didymus are contrasted).

Is Aethelric more or less likely to pass this false belief task, as compared to one where the beliefs of the characters aren’t made salient? Why or why not?

- (d) Suppose that Aethelric actually has very high executive function skills, and is explicitly trained on theory of mind tasks. Is Aethelric likely to improve his subsequent performance on theory of mind tasks, when compared with other four-year-olds who were not explicitly trained on theory of mind tasks? Why or why not? What about when compared to other four-year-olds with lower executive function skills?
6. Is there any behavioral evidence that children who may not pass a standard false belief task are still capable of representing the cognitive concept of a false belief or false desire, and interpreting verbs that take sentential complements? (Hint: Think about the verb *want* and what we know about children interpreting sentential complements, but not in a standard false belief task.)
7. Is there any neurological evidence that explicit false belief tasks don’t transparently indicate a child’s theory of mind development? (Hint: Think about the neurological profiles of children who failed, passed, and had inconsistent performance on explicit false belief tasks. Do they look the same or different? What does this mean for how well performance on the task correlates with the neural networks that support theory of mind reasoning?)