

(1) Terms/concepts to know: lexicon, referential, semantic features, compositional semantics, prototype theory, graded membership, lexical gap, tense, aspect, context-bound, mapping problem, fast mapping, shape bias, size bias, texture bias, overextension, underextension, whole-object assumption, mutual-exclusivity assumption, noun bias, manner of motion verb, direction of motion verb, syntactic bootstrapping hypothesis, word spurt, vocabulary spurt, production vocabulary, comprehension vocabulary, decontextualized speech

(2) What does it mean for words to be referential? Is it true that all words in language are referential? Why or why not?

(3) What is the classical theory of meaning as definition? (Hint: Semantic features play a role.) How are new meanings created, given this theory? Is it always easy to come up with the set of necessary and sufficient features? If you knew the set of necessary and sufficient features, would you still sometimes run into trouble when forming the meanings of new phrases? (Hint: Look at the example phrases in the lecture notes.)

(4) Is any single feature necessary in order to be a member of a category, under a graded category membership approach like prototype theory?

(5) How do you know that languages can use words to make different conceptually available distinctions? Give an example that shows variation between languages.

(6) Sigmund learned about two conceptual distinctions that languages sometimes use words or parts of words to distinguish: tense and aspect. To make sure he really understands what these are, help Sigmund identify whether the following sentences differ in tense, aspect, both, or neither. You may find it useful to identify what tense and aspect each sentence has.

- (a) He is hugging her.
He was hugging her.
- (b) He hugged her.
He was hugging her.
- (c) He will be hugging her.
He isn't hugging her.
- (d) He hugged her.
He will have hugged her.
- (e) He will be hugging her.
He won't have hugged her.
- (f) He hugged her.
He did hug her.
- (g) He hugs her.
He is hugging her.

- (h) He was hugging her.
He will have hugged her.

(7) What kinds of word do infants between the ages of 6 and 9 months tend to recognize (even if they can't say them yet)? Do they realize how the words are semantically related, or are they just individual items that are equally alike/unalike?

(8) Is there evidence that children who haven't yet said their first word can still understand multiword utterances? (For example, can a preverbal child around 11 months understand "clap your hands"?)

(9) Briefly describe the mapping problem children face when learning the meaning of words, and give an example of a mapping problem scenario. (Hint: Think about what Quine said.)

(10) Why might it be more difficult to learn a word's meaning if a word is pronounced in a different accent?

(11) How can fast mapping help children learn what unfamiliar words mean? Is fast mapping unique to humans?

(12) Do humans and border collies differ in how they extend word meanings? How is a border collie likely to generalize words? What about humans?

(13) How do adult dogs differ from adult humans when it comes to their neural responses to novel words? (Hint: Which kind of word, novel or familiar, do adult dogs have stronger neural responses to? What about adult humans?)

(14) Give explicit examples for how the whole-object assumption and the mutual-exclusivity assumption would help with the mapping problem.

(15) How do social cues help with the mapping problem? Give an example of a social cue that helps children solve the mapping problem, and an example of that social cue actually helping a child solve a particular mapping problem.

(16) How do we know that social cues like eye gaze and pointing are important for overriding the mutual exclusivity assumption?

(17) Sigmund remembers hearing about different strategies children use to help them learn words, such as the whole-object assumption and the mutual-exclusivity assumption.

(a) Sigmund then observed a child named Remus trying to learn the word "beak". His mother picked up a stuffed penguin toy and said, "Look at the beak!" Remus subsequently started calling all his stuffed toys "beak". What assumption does Remus seem to have used to map the word "beak" to a meaning? Explain why you think so.

(b) Remus's mother realized what had happened and so picked up the stuffed penguin toy again to try to correct Remus's understanding. She said, "No, honey, this is your toy. This is your penguin." When she later asked him to pick up his penguin, Remus didn't seem to know what the word "penguin" referred to. Why might Remus have had trouble learning what the word "penguin" meant given what his mother said? That is, what assumption does he seem to have used and why did that lead to him not learning what penguin referred to in this situation?

(18) Is there any benefit to children when their caretakers make it easy to infer what a word refers to (usually using visual or social cues)? How does this relate to the idea about talking about the "here and now"? (Hint: Is it easier or harder for visual and social cues to be present when the speaker is talking about the here and now?)

(19) How can temporal cues make word meaning visually salient? (Hint: Think about highly informative environments, and how causation is a clear visual signature.)

(20) What evidence is there that children's visual experience impacts their ability to learn the meaning of object words? (Hint: How does visual experience relate to children's first words? Are concrete items easier or harder to see than abstract items? What about how early children learn words for things that are often visually salient? Also, do children attend to as many objects as adults do?)

(21) English children often have a noun bias in their early vocabularies. What does that mean? Is it true only for English children? Is there any variation in how strong the noun bias is?

(22) One idea why children have a noun bias in their early vocabularies is that the meaning of nouns is easier to learn from observation than the meaning of verbs. What evidence do we have that this might be true?

(23) Snedeker & Gleitman (2002) explored three different kinds of information children might use to learn verb meaning. What were the three information kinds? When these information types were used individually, which was most effective at indicating verb meaning? Was there any benefit from using these multiple information sources together?

(24) Is there any evidence that the number of verbs children under age two know is related to their ability to learn new nouns?

(25) Can young children under the age of two use known words to help them figure out what unknown words in an utterance refer to, even if they don't understand syntax yet? (Hint: What about verbs like "crying"? Does children's performance differ if adjectives like "hungry" are used instead?)

(26) Is there any evidence that children under the age of two are able to use function words (ex: determiners like *the*) to learn new words? If so, which kind of new words? How young does the sensitivity seem to be present?

(27) Is there any evidence that two-year-olds rely more on linguistic cues than social cues like eye gaze when figuring out the referent of a noun?

(28) How can syntactic structure help a child figure out a word's meaning? Give an example of this. (Hint: What's the difference in meaning for DIV in these utterances? "Look, a DIV!" "He's DIVing!" "That's a DIV kitty.")

(29) Take a look at these examples from Sedivy's web activity 5.5 at <http://sites.sinauer.com/languageinmind/wa05.05.html>

What kind of word is each of the **bolded** words (determiner like *a* or *some*, adjective like *happy*, adverb like *slowly*, verb like *run*, noun like *penguin* or *ice*)? How do you know? (Hint: Think about what words you know that you could substitute in and what linguistic clues there are.)

1. Julieta bought **mib** red dresses.
2. Hendrik carelessly **fobbed** over the lawn.
3. Kimmy wrote some real **vadup** in that article.
4. Give it to that **berlish** man standing over there.
5. I'd rather have **fep** cookie.
6. Peter should **slind** to Charlie.
7. The **neebest** girl in the class always gets picked.
8. Adolfo wanted a bit of **smed**.

(30) Is there any evidence that syntactic bootstrapping could be useful for explaining why children seem to have an early noun bias? (Hint: If we consider nouns and verbs, which relevant linguistic contexts are learned earlier by children?)

(31) Does every child have a word spurt? How can you tell if a child has a word spurt?

(32) What are some likely causes of a word spurt? (Hint: Think about how many words children are learning simultaneously and the relative difficulty of different words. Also, do developing processing abilities have anything to do with it? Does syntactic bootstrapping have anything do with it?)

(33) What sorts of variation are known to reliably occur in early lexical development across languages? (Hint: Does gender matter? Does birth order matter? Does number of siblings matter? Is production affected differently than comprehension?)

(34) Are children's production vocabularies smaller than their comprehension vocabularies? Why might this be?

(35) What is phonological memory? How might it help learning new words?

(36) What evidence do we have prosodic cues might be helpful during novel word learning for children between the ages of 1 and 2 years old? (Hint: Does motherese help?)

(37) Is there evidence that motherese (especially its social engagement component) is helpful for infant under a year old? (Hint: What happens with infants whose parents are coached to use more motherese when the infants are 6 to 10 months old?)

(38) What evidence do we have that the repetitious nature of motherese might be helpful for lexical development? (Hint: Think about repetitions of phrases as well as repetitions of word parts.)

(39) Can the sheer quantity of motherese input can help word learning? How does this potentially relate to the “30 million word gap”?

(40) Can the quality of motherese impact word learning? (Hint: Think about the impact of using more word types, rare words, and decontextualized speech.)

(41) Is there evidence that the quantity of motherese varies by socio-economic status (SES)? What about the quality of motherese (what varies and what doesn't)? Is there evidence for variation within SES classes? (Hint: Think about whether low-SES children always have the same vocabulary development. What's the impact of complex language like wh-questions? What about interactive input like conversational turn-taking?)

(42) For older children (between 2 and 6 years old), do we have evidence that social cues are helpful for word learning? (Hint: Think about conversational turns.)

(43) Is there any evidence that tracking probabilities between things helps word learning? Is this a domain-general or domain-specific ability? Does it matter if a child comes from a low SES background? (Hint: Think about whether having strong statistical learning abilities is helpful to a child from a low-SES background.)

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Extra Material (you're not responsible for knowing these)

(E1) What are some issues with the idea that a word's meaning is simply whatever it refers to in the real world?

(E2) One of the reasons verbs may be more difficult to learn than nouns relates to the kinds of concepts that get packaged together in verbs. What are two different types of verbs that languages tend to use? Which does English tend to use? Which does Spanish tend to use?

(E3) Is there any evidence that syntactic bootstrapping may be more useful for learning the meaning of words that aren't nouns than it is for learning the meaning of nouns? If so, what is it?

(E4) What evidence do we have that social cues are helpful for word learning even when children are less than a year old? (Hint: Is gaze following useful? What about pointing?)