LSci51/Psych56L
Fall 2020
Review Questions: Biological Bases of Language Acquisition

(1) Terms/concepts to know: pidgin, creole, homesign, Nicaraguan Sign Language, Language Bioprogram Hypothesis, critical period, sensitive period, "less is more" hypothesis, FLB, FLN, intentionality, reference, syntax, vervet monkey alarm calls, honeybee waggle dance, birdsong

(2) What is one way we know that language isn't simply a "cultural" habit passed on from person to person? (Hint: Think about cases where there's no person to learn it from.)

(3) Why are creoles informative about what prior knowledge children may have about language acquisition while pidgins generally aren't?

(4) On the fictitious island of the Guins, suppose that several immigrants from different language and cultural backgrounds have come to live and work together. Suppose that you noticed that there was now a common language comprised of lots of other language parts, and this common language was spoken by all of the adult immigrants. Meanwhile, a different (though related) language was spoken by the children of the immigrants. Which language (that of the adults or that of the children) would be termed a pidgin and which would be termed a creole? Why? Whose language (that of the adults or that of the children) would you expect to be more grammatically complex?

(5) What are some similarities in the signing abilities of homesigners and those of adult sign systems? (Hint: Consider the complexity of finger groups they use to communicate different concepts and their combinatorial abilities.)

(6) What are some differences between the signs used by homesigners, compared with their caretakers? Why does this suggest that homesigners are adding something to the linguistic system that wasn't present in their input? Could this evidence be compatible with the Language Bioprogram Hypothesis? What about with the alternative hypothesis that involves only non-linguistic innate knowledge?

(7) What are some ways researchers measured the structural complexity of the language of signers learning Nicaraguan Sign Language?

(8) Is the Language Bioprogram Hypothesis more in line with a nativist or an empiricist viewpoint? What about a generativist/linguistic nativist vs. a constructionist/non-linguistic nativist viewpoint? How do you know?

(9) Does creolization necessarily indicate that there is domain-specific knowledge about language? Why or why not?

(10) Why aren't wild children a clear demonstration of a critical or sensitive period for language?

(11) When Genie was tested, it was found that language was a right-hemisphere activity for her. How does this compare with native speakers' neural activity? How did Genie's language ability compare to native speakers'?

(12) What are deaf-of-hearing children? Why are they a better case study for language's critical period than Isabelle and Genie?

(13) How do we know that language ability isn't just about how long you've known a language? What evidence do we have from deaf signers? What about from second-language learners? (Hint: Think about how age of exposure affects ASL acquisition, particularly of the syntactic components.)

(14) How does testing second language speakers help us decide whether there is a critical or sensitive period for language development? Do all language components have the same critical or sensitive period? (Hint: Are there different levels of performance for different components? Think about phonological, morphosyntactic, and syntactic knowledge vs. lexical knowledge.)

(15) What evidence from fMRI and ERP studies is there to suggest a neurological basis for a critical/sensitive period?

(16) According to Hartshorne et al. 2018, how long does it seem to take native language learners to reach full proficiency? How might this affect learners who start learning a language later than birth (though still within the critical/sensitive period)? (Hint: Think about how much time to learn in the critical/sensitive period that a person learning from birth has, compared to a person who started learning from early childhood.)

(17) According to Hartshorne et al. 2018, is there a difference in the potential critical/sensitive period age cutoff for immersion learners (who are immersed in the language constantly) vs. non-immersion learners (who aren't immersed constantly)?

(18) What kind of performance trajectory do we expect from language learners if there is a critical period for language? What about if there is a sensitive period?

(19) What is the "less is more" hypothesis, in relation to language-learning? Why might it be counterintuitive, given children's cognitive abilities and adults' cognitive abilities?

(20) What experimental evidence is there supporting the "less is more" hypothesis? How was the "less" implemented in each case? (Hint: The "more" was better language learning performance. "Less" could be about how the input was structured or how much attention a learned paid the input. For example, passive listening means not really paying attention to the input that much.)

(21) According to Hudsom Kam 2017, does any manipulation of the input that makes the input more like what children would encounter help adults learning a language? (Hint: Think about learning sounds & meanings together vs. learning sounds first and learning meanings later on. Which is more infant-like? Did this change help adults?)

(22) How does the number of symbols Alex the parrot or Einstein the parrot learned compare with the number of symbols an average adult human knows?

(23) What is one reason researchers initially thought that chimpanzees were more able to learn a signed human language than a spoken human language? (Hint: Think about the physical process of producing spoken language sounds.) What evidence do we have that this probably isn't true? Are there known differences between the vocal productions humans vs. other primates are capable of? (Hint: Think about what you need to be able to do in order to stress different words in an otherwise identical utterance.)

(24) How does the number of signs Washoe learned compare to the number of "signs" an average adult human knows?

(25) Nim Chimsky was able to create combinations of signs. Were these likely the result of a productive combinatorial system or were they likely just memorized chunks?

(26) What was the difference in Matata's and Kanzi's language training? Who succeeded better at learning language? Why was this the case, and how does this relate to the critical/sensitive period of language acquisition?

(27) What is a linguistic nativist idea about why other primates like Kanzi may be unable to learn human languages as well as human children learn them? What about a non-linguistic nativist idea?

(28) Which human Faculty of Language, broad (FLB) or narrow (FLN), is supposed to represent a quantitative difference between human and animal communication? Which is supposed to represent a qualitative difference? (Note: quantitative = just need more brain power, but basic functional brain parts are the same; qualitative = not just about needing more brain power, but actually needing more specialized brain parts)

(29) Does human language have more or fewer "signs" than animal communication systems?

(30) Do vervet monkey calls show evidence of syntax? What about intentionality? Do other non-human primates show evidence of intentionality in their communications?

(31) Do any non-human primates show evidence of a combinatorial system for combining their calls? If so, is it as complex as human syntax?

(32) Do any non-human primates show evidence of pragmatic reasoning, the way humans do when they have conversations? (Hint: Think about implicatures.)

(33) Do bat communications have intentionality? How do you know? What about reference and syntax?

(34) Does a honeybee's waggle dance have the intentionality feature? Why or why not? What about syntax similar in complexity to human syntax?

(35) What is one example of birdsong that can generate an infinite number of valid sequences? How is the similar to human language?

(36) What are some features of birdsong that are similar to human language? (Hint: Think about reference, combinatorial aspects, the perception of smaller units, and where acoustic elements like short, high-pitched sounds appear.)

(37) How can birdsong be compared to human language, with respect to how it develops? (Hint: Think about preliminary vocalizations, sensitive periods, neural location, genetic basis, the learning process, baby-directed signals, and the importance of social interactions.)

(38) In what way is birdsong similar to human language with respect to syntax (the combinatorial system)? In what way is it different?

Extra Material (Note: You're not responsible for this material.)

(E1) According to Thiessen et al. (2016), why would increasing familiarity with a language be detrimental for learning new languages? Why might maturational changes at the neurobiological level be detrimental?

(E2) Terms: dolphin whistles, lexical layer, expression layer, integration hypothesis

(E3) How would you argue that dolphin communication differs from human language? (Hint: Think about the core features of intentionality, reference, and syntax.)

(E4) One idea about human language by Miyagawa et al. (2013) is that it combines two layers, the lexical and the expressive layer.

(a) Which layer is argued to correspond to primate alarm calls and honeybee waggle dance components? (Hint: Think about which piece corresponds to the basic "sign" level.)

(b) Which layer is argued to correspond somewhat to birdsong melodies? Why isn't this layer argued to be exactly like what birdsong uses?

(c) Suppose we consider the utterance below:
"Jareth frightened Hoggle."

(i) What are the components that would correspond to the lexical layer?
(ii) What are some alternate utterances that could be produced by the expressive layer?

(d) How do the two layers relate to the FLB and the FLN? (Hint: Think about what parts human communication shares with animal communication, and what's different.)