Psych56L/ Ling51
Winter 2010
Homework 3: Syntactic & Morphological Development + Language & Cognition
Or "The Language Adventures of Sigmund von Hacklestein, part 3"

Remember to write your full name and University ID number on your assignment. If you collaborate with other students in the class (which you are strongly encouraged to do), please make sure to indicate who you worked with.

(59 points total)

(1) Sigmund has been studying the language of the Guins, and has discovered a few things about Guin morphology. For each of the affixes below, indicate whether the affix is (i) a bound or free morpheme and (ii) inflectional or derivational morphology, based on how Sigmund has observed the Guins using these affixes. Briefly explain why you think so for each distinction (bound vs. free, and inflectional vs. derivational). [4 pts each]

(a) The syllable "pen" follows the base form of a verb, and indicates that there is some doubt as to whether the even happened. It does not seem to ever appear on its own.
    Ex: "merkol" = to dance
           "merkoli" = I have danced
           "merkolpeni" ≈ I might have danced (but I might not have)

(b) The syllable "wut" seems to precede nouns, and indicates the property of being like the noun. It does not seem to ever appear on its own.
    Ex: "margon" = peach
           "wutmargon" = peach-like, peachish

(2) Here are some rules Sigmund has discovered about the syntactic structure of Guin:

        S → NP VP   NP → Det N
        VP → V NP   VP → V S

    Here are some words Sigmund has also discovered:
        plong = "the", Det(erminer)   *bant* = "dog", N(oun)
        nerket = "cat", N(oun)   *vinder* = "saw", V(erb)
        fleptur = "chased", V(erb)   *flept* = "chase", V(erb)
        vind = "see", V(erb)   *margon* = "goblin", N(oun)

(a) Do these rules show recursion? [1 pt]

(b) For each of the sentences below, decide if the sentence can be generated by these rules. If so, show the derivation (that is, show the sequence of rule expansions that leads to the sentence). If not, show where the derivation fails and explain what sequence has no rule to match it.

Example 1: plong nerket vinder plong bant.
Yes.
plong nerket vinder plong bant → Det N V Det N → NP V NP → NP VP → S

Example 2: plong nerket
No.
plong nerket → Det N → NP → ?
There is no rule S → NP which can account for *plong nerket* by itself.

    (i) plong bant fleptur plong margon. [4 pts]
    (ii) plong nerket vinder plong bant flept plong margon. [4 pts]
    (iii) plong margon vinder plong bant vind. [4 pts]

(3) Sigmund has heard that sometimes children may use different strategies to help them understand sentences even before they know many grammatical morphemes.

(a) One strategy is to use world knowledge to help interpret sentences. Would this strategy work for the sentence, "The cat was chased by the dog"? Why or why not?
[3 pts]

(b) Another strategy is to use the order of words they know to help interpret sentences. Would this strategy work for the sentence, "The cat was chased by the dog?" Why or why not?
[3 pts]

(4) 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. [3 pts each]

(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.

(5) 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, ones that can be subitized)? [1 pt]

(b) Do the Ervee have words that represent numbers larger than those captured by the small, exact number system? [1 pt]

(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? [3 pts]

(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? [3 pts]

(6) 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. [2 pts]

(b) What kind of experimental task is often used to gauge theory of mind? [1 pt]

(c) Should Sigmund expect his three-year-old brother Charles to succeed at the experimental task you named in (b)? Why or why not? [3 pts]

(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? [3 pts]

(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. [3 pts]