Psych156A/ Ling150
Spring 2016
Review Questions: Poverty of the Stimulus

(1) Terms/concepts to know: set, subset, superset, poverty of the stimulus, impoverished data, prior knowledge, auxiliary verb, yes/no questions, complex yes/no questions, structure-dependent, nativist, linguistic nativist, Subset Problem, Subset Principle, conservative learner, Size Principle, anaphoric one, linguistic antecedent, syntactic island, domain-general vs. domain-specific, innate vs. derived, Universal Grammar hypothesis

(2) Why is the set of sentences actually in English a subset of the set of sentences that could *possibly* be in English? (Hint: Can you think of sentences that are not grammatical in English? Are these inside or outside the set of sentences that are actually in English?)

(3) Is the set of sentences children encounter while they're forming their mental grammar larger than (a *superset* of) or smaller than (a *subset* of) the set of sentences they need to be able to eventually generate as competent speakers of their native language? How do you know?

(4) Why can the data that children encounter be considered an impoverished data set? (Hint: What does it mean to be impoverished? Remember what it means for naturalistic language data to have a Zipfian distribution.)

(5) What does prior knowledge accomplish in the poverty of the stimulus argument? What behavior do children need to display in order for prior knowledge to be supported?

(6) How do structural distinctions like main vs. embedded clauses figure into the rule that English speakers know for forming yes/no questions?

(7) How do children's performance on complex yes/no questions in English demonstrate constrained generalization in children? (Hint: What does it mean to have constrained generalization? What kind of yes/no question data do children often encounter? Are these data compatible with only one grammatical rule, or many different grammatical rules? How would a rational learner behave in this situation, and how do children actually behave?)

(8) What kind of knowledge does the nativist position believe children have in order to correctly learn how to form yes/no questions in English? (Hint: Is it innate or derived?)

(9) What is the difference between a linguistic nativist and a nativist? What kind of knowledge does each believe is necessary for English children to correctly learn how to form yes/no questions in English?

(10) Does children's pronoun interpretation show evidence of constrained generalization? How do you know?

(11) Consider the following three sentences:

(i) The king will turn into an owl.
(ii) The king will turn into an owl which can fly away.
(iii) The king who can fall in love will turn into an owl.

(a) For each of the rules below, indicate the yes/no question that would be created from each of these sentences (i-iii) by using that rule.
- "move the third word to the front"
- "move the fourth word to the front if it's a verb or auxiliary verb"
- "move the first auxiliary verb to the front"
- "move the last auxiliary verb to the front"
- "move the main clause auxiliary verb to the front"

(b) For each sentence (i-iii), indicate which of the rules listed in part (a) actually produced the correct yes/no question for English.

(c) Which rule, if any, works for all the sentences (i-iii)? Is this one of the rules that young children seem to use, according to Crain & Nakayama (1987)?

(d) Which of the rules in (a) would be classified as structure-dependent?

(e) Suppose that children only encounter simple yes/no questions (such as "Will the king turn into an owl?"). Why would it be difficult for them to decide that yes/no questions in English are formed with a structure-dependent rule? (Hint: consider your answers to (a)-(d).)

(f) Why do the results from Crain & Nakayama (1987) support the idea of children having prior knowledge about yes/no question formation rules, assuming children only encounter simple yes/no questions like the one in (e)?

(12) Why did the control condition in the first Gerken (2006) experiment train children on data that was only compatible with the more-general generalization? That is, in what sense was this a control for the experimental condition in the first experiment?

(13) Which generalization did Gerken (2006) find that children prefer when they are given data compatible with multiple generalizations?

(14) What is the difference between the Subset Problem and the Subset Principle?

(15) How is the Size Principle that a Bayesian learner uses compatible with the Subset Principle?

(16) Based on the Gerken (2010) experiment, do we know if very young children are able to update their hypotheses rapidly (that is, after just a few data points)? Briefly explain

how you know. (Hint: Think about what kind of data the children in that experiment were trained on.)

(17) What about the nature of children's input might make learning the correct representation of anaphoric *one* difficult? (Hint: Think about whether the data are often ambiguous or often unambiguous.)

(18) What evidence do we have from children's input that suggests that learning about syntactic islands is difficult? (Hint: Think about how often children hear complex wh-questions.)

(19) If we consider the problem of learning the representation of anaphoric *one*, how did the studies by Pearl & Mis change the ideas about what kind of knowledge was required? (Hint: Think about the original formulation by Baker (1978) and how that differs from the formulation by Pearl & Mis along the dimensions of domain-specific vs. domain-general and innate vs. derived.)

(20) If we consider the problem of learning about syntactic islands, how did the studies by Pearl & Sprouse change the ideas about what kind of knowledge was required? (Hint: Think about the original formulation by Chomsky, Huang, and Lasnik & Saito, and how that differs from the formulation by Pearl & Sprouse along the dimensions of domain-specific vs. domain-general, and innate vs. derived.)