

Psych156A/ Ling150

Spring 2010

Review Questions: Morphology

(1) Terms/concepts to know: past tense, overregularization, regular past tense ending, irregular past tense forms, U-shaped performance, Words & Rules model, associative memory, neural networks, Words & No Rules model, combinatorial process, declarative/procedural memory hypothesis, agrammatic patients, anomie patients, double dissociation, irregular rules, Rules & No Words model, productive rule, Tolerance Principle

(2) What is the regular past tense ending for verbs in English? Is it always pronounced the same way?

(3) Here are some data from the imaginary language of Guin:

root form	past tense form
pengar = "to slip"	merpengar = "slipped"
dappler = "to sing"	merdappler = "sang"
broll = "to stumble"	merbroll = "stumbled"
pooket = "to grin"	merpooket = "grinned"

(a) Given only these data, how is the past tense formed in Guin? (That is, what do you have to do to a verb to make it into its past tense form?)

(b) Now, consider these additional data:

tokk = "to touch"	tokkem = "touched"
sokk = "to drop"	sokkem = "dropped"
vokk = "to throw"	vokkem = "threw"

Do these follow the rule you described in part (a)?

(c) Suppose a Guin child encountered only the data from part (b). What rule might this child hypothesize for the past tense?

(d) Is the new rule you described in part (c) compatible with the data from part (a)? (Bonus) Suppose a Guin child encountered the data in both part (a) and the data in part (b). How could a child make sense of these data? (Hint: Think about the regular and irregular past tense forms in English, and what determines if a verb is regular or irregular. Which set of verbs above is likely to be an irregular verb class in Guin?)

(4) How do we know that children know the correct past tense form of a word even though they may not be able to produce it themselves?

- (5) How does overuse of the regular past tense rule explain some children's U-shaped performance?
- (6) In the Words & Rules model, which verbs are produced by associative memory and which verbs are produced by combinatorial processes?
- (7) How is overregularization explained in the Words & Rules model? That is, what is the process by which an overregularized verb form is produced?
- (8) What is the relation between how often children hear irregular verbs and how often they overregularize these verbs?
- (9) What kind of input do neural network models need in order to produce the U-shaped curve of development? Does the input the models need match the input children encounter in real life?
- (10) What behavioral evidence is there that irregular verbs are processed by an associative memory process like the kind that neural networks use?
- (11) According to the declarative/procedural hypothesis, which verbs are processed by declarative memory and which verbs are processed by procedural memory?
- (12) What neurological evidence is there that a double dissociation exists for English past tense verbs?
- (13) How do patients with Alzheimer's, Huntington's, and Parkinson's disease perform on the English past tense? Which model of past tense production does this evidence support? Why?
- (14) How do neural networks behave when they are lesioned? Do they show evidence of double dissociation? Why or why not?
- (15) How did Yang (2002) support the idea that children have irregular rules in their minds for the English past tense? (Think about what evidence he found in children's performance.)
- (16) How is it possible for children to perform well on a verb's past tense form that they encounter very infrequently?
- (17) Why would it be easier to simply store a productive rule, instead of memorizing each past tense form that rule would generate? What is one way children may decide that a rule is productive?
- (18) Can a potential irregular rule that has exceptions (verbs that do not follow that rule, even though they fit the verb form the rule applies to) ever be an actual rule children use? If so, what determines if a potential rule will become an actual irregular rule?

(19) Can a rule that is productive ever become unproductive?

(20) If we apply the Tolerance Principle to the English past tense, what prediction does it make with respect to children who overregularize and their knowledge of regular and irregular verbs in the past tense?