Language and Inference — Assignment 3

June 21, 2013

1. In CCG, the category S\NP denotes an expression that:
   (a) combines with a sentence on the left to produce a noun phrase
   (b) combines with a sentence on the right to produce a noun phrase
   (c) combines with a noun phrase on the left to produce a sentence
   (d) combines with a noun phrase on the right to produce a sentence

2. In CCG, the rule `NP/S S/PP ⇒ NP/PP` is an instance of:
   (a) forward application
   (b) backward application
   (c) forward composition
   (d) backward composition

3. A treebank is a:
   (a) financial institute specialized in tree investments
   (b) large collection of gold-standard syntactic trees
   (c) large collection of gold-standard semantic trees
   (d) sloping land next to a river occupied by trees

4. A closed formula is:
   (a) a formula that contains no free variables
   (b) a formula that contains no bound variables
   (c) a formula that contains no universal quantifiers
   (d) a formula that contains no existential quantifiers

5. The formula $\exists x(dog(x) \wedge love(x,y))$ contains:
   (a) three bound and one free variable
   (b) three free and one bound variable
   (c) four free variables
   (d) four bound variables

6. Consider the following DRS:

x y e
butch(x)
stole(e)
agent(e,x)
theme(e,y)
chopper(y)

   . This is an example of a:
   (a) Davidsonian event representation
   (b) neo-Davidsonian event representation
   (c) Montagovian event representation
   (d) neo-Montagovian event representation

7. WordNet is best described as:
   (a) a database of semantic relationships between words
   (b) a large electronic index of phrases
   (c) a device to catch words used by web spiders
   (d) a social network for linguists

8. Presuppositions are:
   (a) implications that survive under embedded contexts such as negation
   (b) implications that do not survive under embedded contexts such as negation
   (c) words that occur inside embedded contexts such as negation
   (d) words that occur outside embedded contexts such as negation

9. The negation test is used to:
   (a) find out whether a word triggers a presupposition
   (b) find out whether a sentence triggers a presupposition
   (c) find out whether a word triggers an entailment
   (d) find out whether a sentence triggers an entailment

10. Inference carried out by making generalizations is called:
    (a) abduction
    (b) deduction
    (c) induction
    (d) reduction

11. Inference carried out by guessing for an explanation is called:
    (a) abduction
    (b) deduction
    (c) induction
    (d) reduction

12. In the text "Sue was late for the exam. She had a hang-over.":
    (a) "Sue" plays the role of antecedent for the anaphoric expression "She"
    (b) "She' plays the role of antecedent for the anaphoric expression "Sue"
    (c) "Sue" plays the role of antecedent for the cataphoric expression "She"
    (d) "She' plays the role of antecedent for the cataphoric expression "Sue"

13. The expression $\lambda x.(\phi @ \psi)$ is called:
    (a) a λ-expression
    (b) a DRS (discourse representation structure)
    (c) a funny email address
    (d) a first-order formula

14. Given the expression $(\lambda x.\phi @ \psi)$, the process of replacing all free occurrences of x in ϕ by ψ is called:
    (a) α-conversion
    (b) β-conversion
    (c) γ-conversion
    (d) δ-conversion

15. The process of replacing all bound occurrences of a variable by a new (unused) variable is called:
    (a) α-conversion
    (b) β-conversion
    (c) γ-conversion
    (d) δ-conversion

16. The expression ([x |] ;(λp. [$\neg$([x | man(x)] ;p@x)] @ λy. [| smoke(y,x)]))

    (a) reduces to
    [x | $\neg$ [x | man(x), smoke(x,y)]]

    (b) reduces to
    [x | $\neg$ [y | man(y), smoke(y,x)]]

    (c) reduces to
    [x | $\neg$ [x | man(x), smoke(x,x)]]

    (d) does not reduce