NLP **Quiz 6** **1.11.2010** **Name:** _____

1. *Shift-reduce* parsing is a form of bottom-up parsing. What is the purpose of the two actions, *shift* and *reduce*?

A *shift* pushes an input token onto the stack. A *reduce*, reduces one or more grammar symbol on the stack to the left hand symbol of some grammar rule.

2. The Earley algorithm is an efficient context-free parsing algorithm which uses a chart data structure. Is this algorithm a *top-down* or a *bottom-up* algorithm?

It is a top-down algorithm, which starts at the S-node, the root.

2. How does a *chart parser* avoid reparsing already seen constituents?

By storing all the possible partial parsing results in a data-structure called a chart.

4. In the context of semantics, what does the *principle of compositionality* assume?

That it is possible to compose the meaning of a sentence from the meaning of its parts.

5. In Prolog, the semantic structure of a transitive verb like *called* can be represented as `Y^X^called(X,Y)` (denoting the λ-calculus expression $\lambda y \lambda x$.called(x,y)). What do the variables X and Y stand for?

X stands for the subjecta and Y stands for the object.