Semantic Theory SS 06 Exercise 04/07/06

http://www.coli.uni-saarland.de/courses/semantics-06/

1 In the slides to Lexical Semantics I, a number of words in the “Dolphin Document” have been highlighted blue as “standard common nouns”. The WordNet 2.0 Web Interface (http://wordnet.princeton.edu/perl/webwn) allows, among other things, to search for the complete hypernym chain of an expression.

   a. Look all marked common nouns up in the Web Interface, select that sense which is relevant in the context of the document, look the hypernym chain up, and construct the (possibly not fully connected) graph that contains all marked common nouns.

      You need not take over every node from the WordNet hypernym chain , but only those ones that you consider to be the more important ones. All branching nodes and all nodes representing unique beginners (see slide) should taken into account, however. If you run into intuitive decision problems (which sense is really relevant, whether to treat compounds (e.g. “bottlenose dolphin”) as one word, try to decide pragmatically (this is what you are forced to do in lexical semantics every minute).

   b. Comment on difficulties with the procedure, problems with WordNet (if any)?

2 .The SUMO Ontology Browser (http://sigma.ontologyportal.org:4010/sigma/Browse.jsp?kb=SUMO&lang=en) allows submitting words (as natural language words, not concepts). It returns the WordNet senses. If you click a WordNet sense, it returns the SUMO/MILO concept that corresponds to the closest parent node for that sense in the hypernym chain.

   a. Look the SUMO concepts for the common nouns of the dolphin text up, and extend the WordNet sense graph of Exercise 1 appropriately. This will give you an impression of the density of the ontological hierarchy.

   b. Look into the rules related to the concepts, for some of the words, and try to formulate a non-trivial inference rule that may be helpful in, say, a question answering system.

3 In FrameNet, the over-all organisation principle for the lexicon is the association of a “target word” with a certain situation type/frame. In describing the lexical semantics of single target words, FrameNet concentrates on predicate argument structure, and provides fine-grained information about semantic roles (“Frame Elements”) and their syntactic realisations. Thus, FrameNet adds a new level of lexical semantic information to resources like WordNet. But it also looses information provided by the classification of WordNet and Upper-level Ontologies. Take e.g. the frame "Morality_evaluation" that describes situations where somebody (frame element "Evaluee") shows a behaviour (FE "Behavior") that is subject to a moral evaluation. This frame's target words include "bad", "good", "honorable", "immoral". If it is important for an application whether the behaviour is in fact bad or good, one could e.g. add a feature (+/- good behaviour) to the respective targets. Look into the frame "Awareness" (http://framenet.icsi.berkeley.edu/ → View FrameNet Data → Frame Index). Inspect the set of target words (verbs only), at the bottm of the page. Can one group the target verbs systematically into sub-classes? (Hint: Look at the presuppositions of the single verbs!) Propose one or more features that can be used to sub-divide this frame's targets and mark the targets accordingly.