B4: SemLex The role of lexical information in word-formation, and the semantics of sentence and discourse

Planning for phase 3

In Phase 2 we have developed a construction algorithm for the incremental specification of the 'Semantic Form' of verbal constructions at the syntax-semantics interface that combines principles of DM, Minimalist Syntax and Discourse Representation Theory (DRT). In the third phase we will flesh out this general architecture with respect to three levels of lexical and sub-lexical information: A. Semantic Form, B. Ontology (Natural Language Metaphysics), C. Model theory. The general turn of the project will be to give formal substance to a representational theory of lexical semantics by investigating how the notion of context-change-potential can be applied to (sub-)lexical semantic in order to yield a dynamic theory of lexical and sub-lexical meaning.

A. We will extend the scope of our investigations at the syntax-semantics-interface (continuing our collaboration with B1/B6) to two functional domains we consider central to natural language. (i) Space: (a) PPs (b) pre-fix-verbs (c) particle-verbs for case-theory and bottom-up semantic composition (ii) Time: (a) the range of interpretation of participles of the 'second status' (perfect participles) (b) Aktionsart-Calculus (c) Aspect. Here we intend to apply our approach to Slavonic languages.

B. The level of ontology will be a principal focus of investigation in Phase 3. Our focus will be on working out the ontological structures which are supposed to underly the DRT-representation language developed in Phase 2. We want to design an inventory of ontological primes and their categorisation as well as the relational connections between different categories. Opposed to the traditional conception in generative semantics that ontology is a matter of "what there is in the world", we envisage grounding our ontology in "how we speak about the world". As a consequence we aim at a linguistic justification of "what there is" in the representations we developed in Phase 2. The primary domain of investigation will be the ontology of space, where we want to develop a system comprising primes such as 'regions', 'paths', 'directions', but also simple spatial properties of entities or regions. The development of a DM/DRT ontology will be directly relevant to the design of our verbal lexicon, as we are convinced that shifts between domains, like time and space are ubiquitous in the verbal lexicon and thus play a central role in the systematic design of a theory of lexical meaning. In Phase 2, we already identified some principles underlying domain shift of roots in the verbal domain. In Phase 3, we want to further explore the
INvariants in those shifts. Also, it seems only natural to us to take those observations as a starting point and extend the matter to the P-domain accordingly. Another topic in the exploration of ontology is the interpretation of ung-nominalisation, for which we want to further develop the mechanisms of underspecification and incremental specification of ontology which we started to develop in Phase 2. Spelling out that account for a representative fragment would be a compelling evaluation for the account and would round up the research on Nominalization of the previous two phases. Within the already developed general framework, we also want to take into account some of the ’borderline’ phenomena of the lexicon, e.g. the generation and interpretation of unlisted particle and prefix-verbs (neologisms). We expect that the focus on linguistically overt conceptual structures will allow us to deepen our cooperation with projects at the IMS that pursue a data-intensive approach to incremental specification, both with respect to the motivation and evaluation of our theoretical hypotheses.

C. We expect that the systematic development of a linguistically motivated ontology will also help in developing a new formal model-theoretic semantics for the DM/DRT framework. Central to the development of our model theory will be the exploitation of the main advantage of introducing an intermediate level of ontology: we are able to keep apart context-sensitive context change potentials from context-insensitive ontology. This means for the model theory that we are able to clearly distinguish between those components of meaning which are relevant to the definition of truth-conditions (semantic form) and those components of meaning which are central to the semantic acceptability of linguistic expressions (ontology). Consequently, we will be able to draw fine-grained distinction between ambiguities of natural language (e.g. semantic vs. ontological ambiguities) which in turn will help to complete the overall picture of incremental specification laid out by the DM/DRT architecture.