OBLs hobble computations

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In this paper we first review the notions of argument and obliques, specifically the distinction between idiosyncratically marked (1) and semantically marked (2) obliques (Bresnan, 1982a), in LFG.

(1) I relied *on Bill.*
(2) I gave the book *to Mary.*

We argue that the notion of argument based on uniqueness (Bresnan,1982b) does not allow a computer implementation of LFG to make the distinction between a semantically marked oblique and an adjunct in the current state of development of linguistic analysis: to decide whether a particular dependent is the unique representative of its Grammatical Function would require a fully specified list of possible GFs, specifically of OBLthetas and their association with particular predicates. It would also need a sure way to distinguish all forms of apposition/parentheticals from independent constituents. Linguistic theory doesn't provide the former and on the fly analysis doesn't allow the latter.

These shortcomings lead to a proliferation of ambiguities in the analysis of PP's.
We show that other approaches to the argument/adjunct distinction (e.g. Dowty (1989)'s entailment requirement) have similar problems.

In the face of this problem, implementations of LFG, specifically the XLE implementation have limited the number of oblique arguments to one per verb. When there is more than one candidate PP, OT marks (Frank et al. 1998) regulated the assignment. We show that this leads to unwanted results in some cases. For instance the sentence in (3)

(3) John drove the car from the house to the school.

the system gives the following possible analyses for *from the house to the school* : obl followed by nominal adj), nominal adj followed by obl, and nominal adj followed by nadj. None of these analyses are desirable. But the interaction between OT marks and the one-oblique constraints do not allow for the more reasonable ones. Obviously we need to make some changes.

Before making a proposal, we look at the most important use of subcategorization information in the XLE system, the restriction on interpretations that can be derived from the use of thematic roles, as for instance encoded in VerbNet. We conclude that what is in fact needed is often not really subcategorization information but a way to state limits on the interpretation of PPs based on the meaning of the verb(classes) and that of the head of NP itself. For adjuncts and for semantically marked obliques alike, this information can be provide in the form of rules using Levin classes and noun classes based on WordNet.

This eliminates the distinction between semantically marked obliques and adjuncts but keeps idiosyncratically marked obliques (as well as SUBJ and OBJs) as subcategorized elements. Idiosyncratically marked obliques are ones that either have to be syntactically present (e.g. rely on), or are syntactically optional but their presence substantially alters the meaning of the verb (e.g. answer vs. answer for). Both kinds of idiosyncratically marked oblique need to be explicitly marked in verb frames. The alternations that these GFs participate in will be encoded in the lexicon as before. Obligatory idiosyncratically marked obliques are easy to identify. For optional ones the task is more difficult. We rely on WordNet to give us an initial list of verb-preposition pairs that have different senses from that of the verbs alone. But this list needs to be hand-curated.

This new approach reduces the number of lexical frames substantially and in that way improves the maintainability of the system. It also simplifies the OT marks and it eliminates a substantial number of spurious ambiguities, which in turn improves speed. All these are eminently desirable results.

References

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VerbNet http://verbs.colorado.edu/~mpalmer/projects/verbnet.html

WordNet http://wordnet.princeton.edu/