

Which syntax is required by semantics?

Semantics considerably influences syntactic theory-building in that the (non-)ability to account for specific semantic intuitions is often adduced as an argument for or against specific syntactic theories. Syntactic theories that include movement of constituents on covert levels of representation seem to have an advantage over surface-oriented syntactic theories in that such movements can mediate between syntactic and semantic structure, thereby considerably facilitating the mapping from syntax to semantics even in challenging cases of semantic construction.

I want to contribute to the debate on which syntax is needed from a semantic perspective by arguing that even such challenging cases can be handled on the basis of a surface-oriented syntactic analysis. In my test cases, morphemes within a word have scope over other words in the same phrase.

The first example is the Turkish (1), where the numeral *iki* ‘two’ can be in the scope of the affix *-lı* ‘(provided) with’:

- (1) *iki at -lı*
iki horse provided.with
 ‘someone with two horses’

In the next example (2), an instance of the so-called *-ip*-construction, two verbs are coordinated and in the first conjunct the full verbal ending is replaced by the suffix *-ip*. Nevertheless, the first conjunct in (2) is interpreted as ‘I will eat’, due to the first person future ending in the second conjunct.¹ This can be modelled by giving the verb ending *-eceğim* wide scope over both verb stems:

- (2) *yi - y - ip iç - eceğim - im*
eat - F - IP drink - FUT - 1sg
 ‘I will eat and drink’

Similarly, in (Island) Scandinavian languages enclitic determiners that are attached to a noun still can have scope over modifiers of the noun, e.g., the Icelandic (3):

- (3) *mikli maður-inn*
great man-the
 ‘the great man’

I will offer a general account of (1)-(3) that captures the intuition that their readings are due to the scope of morphemes beyond their word. The core of this account is a very flexible syntax-semantics (and morphology-semantics) interface that can express scope relations for individual morphemes.

The analysis is based on previous work on *structural ambiguity* (illustrated by the quantifier scope ambiguity in (4)), which seems to be in conflict with the *functional* nature of semantic interpretation as it suggests a one-to-many correspondence between syntactic and semantic structures.

- (4) *Every man loves a woman*

To keep the mapping from syntax to semantics functional, one can multiply syntactic structures so that there is a specific syntactic structure per reading. Generative Grammar introduces for each reading a syntactic structure on a covert level of representation. Expressions on different levels are linked in terms of movement operations.

Apart from scope ambiguities, this strategy has been used, e.g., for ambiguities in nominal modification (Larson, 1998; Larson and Cho, 2003):

- (5) *beautiful dancer* ‘someone who dances and is beautiful / someone who dances beautifully’
 (6) *John’s old car* ‘the car of John which is old / the car which John has had for a long time’

¹ ‘F’ glosses a meaningless linking morpheme, ‘FUT’ stands for future, and ‘1sg’, for the first person singular.

This strategy also proved fruitful for other difficult cases of semantic construction where there is no structural ambiguity, e.g., in Abney's (1987) account of the modification of indefinite pronouns like in (7). Here the challenge is to derive a semantic representation (a set of properties) from the representations of pronoun (also a set of properties) and modifier (a function from properties to properties):

(7) *everyone in this room*

The success in accounting for these phenomena is an argument for an approach to syntax with covert levels of representation and movement. Advocates of surface-oriented syntactic approaches such as HPSG (Pollard and Sag, 1994) must show that they can handle these phenomena as well in that the desired semantic interpretations can be derived from the postulated syntactic structures.

Quantifier scope ambiguities like (4) can be handled on the basis of surface-oriented syntactic analyses by modelling their semantics with *underspecification formalisms*, e.g., Underspecified DRT (Reyle, 1993), Minimal Recursion Semantics (Copestake et al., 2005), or Glue Language Semantics (Dalrymple et al., 1997). They preserve the 1-1 relation between syntactic and semantic structure by capturing the set of readings of a given syntactic structure by a meta-level representation that defines exactly the set of readings (in terms of a structural property common to only the readings) without enumerating them disjunctively.

In a number of papers (...) I have used underspecification formalisms to model the presented semantic intuitions about cases like (5)-(7) on the basis of surface-oriented syntactic structures. I used the expressive power of the syntax-semantics interfaces for the construction of underspecified representations of scopally ambiguous expressions, which allow one to manipulate *parts* of semantic representations of constituents.

E.g., in the semantic construction of (5), the semantic representation of *dancer* distinguishes the semantic contribution of stem and affix as secondary and main fragment, respectively. The interface rule for adjunction states that a modifier (here, *beautiful*) takes scope over the *secondary* fragment of the modified expression (here, over the semantics of the stem). This deliberately leaves open the scope relation of modifier and main fragment of the modified expression, which in the case of (5) means that the affix may outscope the adjective or not, which yields the two interpretations of the expression.

In this paper I will first apply this approach to the difficult cases of semantic construction (1)-(3) and then discuss general properties of such underspecified approaches, in particular, the question of whether one can postulate identity between fragments of semantic representations. E.g., the analysis of negative concord in Richter and Sailer (2006) uses this technique to remove the semantic contribution of those negation elements whose role is purely motivated by concord.

I see the contribution of this analysis to the debate of which syntax is needed for semantics in showing that one can compensate for the flexibility that syntactic movement yields for the syntax-semantics interface by using underspecification formalisms to formulate flexible interface rules.

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