NSM and cognitive-functional models of grammar

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The Natural Semantic Metalanguage (NSM) approach articulated by Uwe Durst is a componential theory of meaning, and it inherits many of the strengths of such theories. This is especially evident when we compare NSM with componential models that share its view of linguistic cognition as a reflex of the human meaning-making capacity in general. One such strength is the model's ability to account for prototype effects in categorization judgments without assuming scalar category membership or fuzzy category boundaries. Durst argues (section 3.3) that "[s]ince meaning is more than reference, one cannot conclude from referential fuzziness or vagueness that the meanings of words are fuzzy or vague as well". The view is reminiscent of Lakoff's (1987) radial model of category structure, in which prototypicality ratings reflect not category structure but divergence of cognitive submodels that jointly define the best exemplars. Another strength of NSM that can likewise be traced to its decompositional base is its ability to capture cross-linguistic differences in lexical conflation patterns, as exemplified by Durst's comparison of words denoting anger in a variety of languages (section 3.3). Similarities and differences among the cognate words are captured by partial overlaps in their propositional representations, and what emerges is a relatively constrained picture of the range of typological variation. This is a strength that NSM shares with Talmy's (1985) model of motion-verb lexicalization patterns: these models allow otherwise ineffable translation problems to be described in rigorous ways. Just as Talmy's model enables us to talk about rhetorical-style differences among languages (or language families) by reference to fundamental features of event schematization (Slobin 1996), so the NSM approach captures 'connotational' differences among cognate lexical items that have been neglected in denotation-based lexicography.

In its concern with paradigmatic relations within vocabulary fields, NSM lexicography bears a strong resemblance to the frame-based model of lexical analysis pioneered by Fillmore (1971, 1982, 1985). Both NSM and frame-base semantics rely on detailed case studies of lexical systems. To take one of many examples, Wierzbicka's (1987) analysis of speech-act verbs is very similar in spirit to Fillmore's (1971) description of the system of judgment verbs in English. This similarity is not accidental, because it reflects a shared commitment to ethnographic semantics, "the work of the anthropologist who moves into an alien culture and asks such questions as 'What categories of experience are encoded by the members of this speech community through the linguistic choices that they make when they talk?'" (Fillmore 1982: 111). Both frame semantics and NSM capture lexical relations without reliance on lexical fields. As Durst puts it (section 4.1):

To investigate the meaning of a word it is useful to compare it with other words, especially with closely related ones, and to work out their collocations and contextual restrictions. But the meanings established in this way exist independent of other meanings. If we had a word that cover[ed] the meanings of 'yellow' and 'green' but no separate words for these two colors, a definition of *blue* in terms of the sky would still be valid.

This view is presaged in Fillmore's (1982) comments distinguishing frame semantics from its predecessor model, lexical field theory:

It is devotion to word sets for their own sake, along with the commitment to seeing lexical semantic domains as language-internal phenomena, which distinguish lexical field theory from frame semantics. Frame semantics allows the possibility that speakers can have full knowledge of the meaning of a given word in a domain even if they do not know all, or any, of the other words in that domain. (Fillmore 1985: 229)

Further, just as NSM embodies a commitment to the proposition that lexical semantics and grammatical semantics can be described with the same analytic tools, frame-semantic analysis informs sign-based models of syntax, in particular Construction Grammar (Kay and Fillmore 1999, Goldberg 1995, Michaelis and Lambrecht 1996). Construction Grammar (CG) is closely allied with models of morphology based on product-oriented generalizations (Bybee 2001). In such models, linguistic generalizations – be they phonological, morphological or syntactic – are captured not by derivations (so-called source-oriented generalizations) but by

overlap relations among stored schemas. In CG, constructions mean what they mean in the same way that words do: by convention. However, as suggested by research in the cognitive-functional tradition, words do not all mean in the same way. As Talmy (1987) suggests, function words, as the providers of 'conceptual scaffolding', are magnitude-neutral and express topological schemas, while content words are not so constrained. By the same token, constructions differ from words as a function of their schematicity. Constructions may be skeletal patterns with no lexical content specified (as in, e.g., Goldberg's 1995 treatment of argument-structure constructions). The limiting case of a construction is a lexically fixed pattern, a schema that is also a word. In its focus on verbal formulas, NSM seems to share its orientation toward syntax with Construction Grammar.

　It is precisely at the level of syntax, however, that we must recognize crucial differences between NSM and the cognitive-functional models with which I have just compared it. The first difference concerns the distinction between word meaning and grammatical meaning: Construction Grammar and kindred theories maintain this distinction, albeit as a gradient rather than categorical one, while NSM apparently does not: witness Durst's assertion (in section 4.3) that "there is no fundamental difference between the meaning of a word and the meaning of a grammatical construction". The reasoning that leads Durst and his associates to this conclusion is highly suspect. Durst asserts (ibid) that because

utterances usually consist of nonarbitrary patterns of words, combinatorial patterns such as word order and morphosyntactic changes can be assumed to contribute to the meaning of an utterance. *This is possible only if they have a meaning of their own* [emphasis mine].

Is it? If, for example, we were to change the associations within an arithmetic sequence like *2 × (3 + 4)* so as to create the sequence *(2 × 3) + 4*, we would clearly change what the sequence denotes – from 14 to 10 – but we would not change what the numbers denote. This is because associations themselves do not add or subtract meaning from the sequence. By the same token, syntactic phrase-structure rules do not change the meanings of the words within them, but merely provide instructions for assembling the concepts that the words express. In the other words, syntax is compositional, and NSM seems to have no way of capturing this fact.

This is not to say that syntactic patterns can never add components of sentential meaning that are not contributed by lexical items and their projection properties. It appears, in fact, that constructions can alter word meaning. However, the only reliable evidence of such alteration, and accordingly of sign-like syntactic meaning, comes from *conflict* between word meaning and construction meaning. Conflict conditions include those in which constructions apparently augment verbal valence, as described by Goldberg (1995) in her analysis of English transfer verbs and Michaelis and Ruppenhofer (2001) in their account of applicative formation in German. An example of the type discussed by Ruppenhofer and Michaelis (2001) is given in (1) while an example of the type discussed by Goldberg (1995) is given in (2):

(1)   Auch die Höhen um Fulda **bebauten** die Mönche des frühen Klosters mit Kapellen, Kirchen und Propsteien. (Pörtner, Die Erben Roms)
       'The monks of the early period of the monastery also be-built the hills around Fulda with chapels, churches, and provosts' residences.'
(2)   When a visitor passes through the village, young lamas stop picking up trash to mug for the camera. A gruff 'police monk' **barks** them back to work. (*Newsweek* 10/13/97)

What is remarkable about each of these examples is that the sentence pattern includes at least one argument that is not licensed by the verb. The verb *bauen* ('build') is a two-place verb of creation in German; however, in (1) this verb licenses an additional argument, denoting a location. By the same token, the English verb *bark* is a one-place verb of sound production; in (2), however, it licenses two additional valence members – a theme argument (*them*) and a goal argument (*to work*). According to the construction-based analyses referenced here, it is the argument-structure construction, by virtue of the event-structure that it denotes, which is responsible for augmenting verbal valence. The combined construct denotes the *means* by which the event denoted by the construction is effected, rather than an instance of the constructional semantics. In the case of the applicative pattern, as Michaelis and Ruppenhofer (2001) argue, the construction (or at least its trivalent version) denotes causation of coverage; in example (1) the construction accordingly adds the location, or 'surface' argument to the valence of the verb with which it combines. In the case of the 'caused motion' pattern, as described by Goldberg (1995: Ch. 7), the construction

indicates causation of change of location. In (2), the caused-motion pattern licenses both the theme and goal arguments. The combination of verb and construction denotes (metaphorical) causation of motion. Crucially, these examples do not provide evidence of verb coinage: they are instead nonce examples whose comprehensibility is presumably the product of the same mechanisms of semantic conflict-resolution that trigger coercion effects, as exemplified at the nominal level by examples like *some rabbit* and *a coffee* (Jackendoff 1997). If, however, we follow NSM and reject the proposition that word meaning and morphosyntactic meaning are distinct, there is no semantic conflict to resolve, and the effects in question (valence augmentation, type shifting) have no source.

Because NSM does not acknowledge the existence of distinct levels of linguistic meaning, it cannot account for level-mapping effects, including those that figure in the statement of universal tendencies in the assignment of quantifier scope. These tendencies are captured by aligned scope rankings of the type described by Ioup 1975 and Kuno 1991, in which topical NP-denotata have wide scope relative to nontopical NP-denotata and subject denotata have wide scope relative to nonsubject denotata. These scope rankings collude to produce a strong preference for wide scope of the subject quantifier in sentences whose linking patterns identify the grammatical role of subject with the pragmatic role of topic. One such pattern is the 'transform' pattern exemplified in (3). In this pattern, the theme (or 'raw material') argument maps to a nonoblique grammatical function (subject or object) and the goal (or 'product') argument maps to an oblique grammatical function (Basilico 1998). The discourse-pragmatic mapping constraints on this construction prohibit both a topical 'product' argument, as shown in (4), and a focal 'raw material' argument, as shown in (5):

(3)　That tiny acorn grew into a beautiful oak.
(4)　*That tiny acorn grew into it.
(5)　*A tiny ACORN grew into that oak.

Because the theme argument must be topical, it must also have wide scope relative to the focal 'product' argument, as predicted by the scope-assignment hierarchy. For this reason, sentences like (6) are anomalous: the 'transform' argument structure requires the subject NP to denote a topic, and thereby a specific individual. The result is a semantically anomalous reading, in which a single acorn grows into multiple oaks:

(6)   *An acorn grew into every oak.

It is clear that the scope constraint is not a function of thematic role or grammatical function, since in the pattern exemplified in (7), the theme argument (in this case, the 'product' argument) can have narrow scope with respect to the 'raw material' argument:

(7)   An oak grew out of every acorn.

The theme argument need not have wide scope because it need not be a topic. This is shown by (8), in which the theme argument is focal:

(8)   An OAK grew out of it.

In other words, the scope constraint follows from the linkage of a given thematic role to a given pragmatic role, as specified by a particular linking pattern. Since this explanation relies on level mapping, it is questionable whether it could be stated in an NSM-style propositional representation.

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