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Andrea Tyler & Vyvyan Evans, *The semantics of English prepositions: Spatial scenes, embodied meaning and cognition*. Cambridge: Cambridge University Press, 2003. Pp. xii + 254.

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It is fair to say that the advent of cognitive linguistics in the early 1980s has been crucial for the semantic study of spatial particles, an important subset of which are spatial prepositions. Before that time, spatial prepositions and particles were often felt too quirky and their meanings too idiomatic for systematic linguistic study. With its grounding of (lexical) meaning in language users' spatio-physical interaction with the world, and its view of lexical meaning as a (family-resemblance) network of interrelated usages, cognitive linguistics was able to offer a framework for the study of such highly polysemous lexical items as spatial particles, which inherently reflect language users' interaction with space and the world. While attention was first focused on spatial usages only, later studies also incorporated non-spatial and grammaticalized usages. Representative studies are Brugman (1981) (revised in Lakoff 1987), Hawkins (1984), Cuyckens (1991), Vandeloise (1991), and Svorou (1994).

The present study, which largely subscribes to these cognitive linguistic tenets, provides a comprehensive account of seventeen spatial particles in English. For each of them, Tyler & Evans (henceforth T&E) discuss spatial as well as non-spatial usages; and while they focus on prepositional usages, they also give sufficient attention to adverbial, verb-particle, and prefixal usages. Unlike most earlier cognitive semantic studies of spatial particles (such as those referenced above), which put forward highly granular networks of senses with little principled distinction between conventionalized senses and context-dependent interpretations, T&E's aim is to 'take up the challenge of how best to represent the distinct meanings or senses associated with a single lexical form' (2). To that end, they present a 'principled polysemy model', and illustrate its workings for each of the spatial particles mentioned.

T&E's study is structured as follows. Chapters 1 and 2, entitled 'The nature of meaning' and 'Embodied meaning and spatial experience', respectively, present the theoretical underpinnings of the analysis. Chapter 3, 'Towards a model of principled polysemy: Spatial scenes and conceptualization', probably the most crucial chapter in the volume, discusses the principled polysemy model. Chapters 4–7 then systematically illustrate 'The semantic network for *over*' (chapter 4); the particles on 'The vertical axis'

(chapter 5), *over*, *above*, *under*, and *below*; the 'Spatial particles of orientation' (chapter 6), *up*, *down*, *to*, *for*, *in front of*, *before*, *behind*, and *after*; and the particles *in*, *into*, *out*, *out of*, and *through*, indicating 'Bounded landmarks' (chapter 7). Finally, chapter 8 presents the 'Conclusion'.

Underlying T&E's study are the following cognitive semantic principles: (i) the representation of meaning is in essence conceptual in nature; (ii) these conceptual structures result from our interactions with the world; (iii) as meaning can be traced back to how we experience the world and to the nature of our bodies, meaning is embodied; (iv) language underdetermines the rich interpretations assigned to linguistic items (hence the importance of background knowledge and context); (v) the development and extension of lexical meaning result from pragmatic inferencing. At the same time, T&E's emphasis on the on-line computation of sentence meaning (principle iv) and on inferencing and conceptual reanalysis (principle v) – rather than metaphor – as a mechanism of semantic change distinguishes their analysis from earlier cognitive semantic investigations.

Against this theoretical background, T&E present their 'principled polysemy' approach to word meaning, which sets up a methodology for distinguishing between different senses and for determining the primary sense of a network. First, T&E argue that for a particular instance of a spatial particle to count as a distinct sense, it 'must contain additional meaning not apparent in any other sense associated with a particular form' and 'there must be instances of the sense which are context independent' (45). As such, the 'covering' sense of *over* in (1) and (2) is argued to constitute a distinct sense from the 'above' sense in (3):

(1) The tablecloth is over the table. (ex. (3.5), p. 44)
(2) John nailed a board over the hole in the wall. (ex. (3.4), p. 43)
(3) The helicopter hovered over the ocean. (ex. (3.1), p. 40)

Second, T&E advance a set of largely linguistic criteria that helps to determine the primary sense of a spatial particle: '(1) earliest attested meaning, (2) predominance in the semantic network, (3) use in composite forms…, (4) relations to other spatial particles, (5) grammatical predictions' (47).

In chapters 4–7, T&E apply their proposed methodology to the spatial particles under investigation. An entire chapter is devoted to the analysis of *over*, in which the authors propose a proto-scene for *over* that combines conceptual-spatial and functional information: *over* involves a trajector (TR) which is higher than but in potential contact with a landmark (LM). In keeping with their principle that language underdetermines conceptual meaning, they suggest that *over*'s proto-scene does not have a 'path'-sense – and their example sentence *The cat jumped over the wall* is a running theme in the book. The chapter also devotes a great deal of attention to discussing each of the senses of *over*, how they can be distinguished from each other, how they relate to the primary sense, and how they make up an

interrelated network of senses. The remaining chapters (5–7) apply T&E's model in a more summary fashion. Chapter 5 discusses *over*, *above*, *under*, and *below* as a lexical contrast set in which the four lexical items carve up the vertical axis in four distinct spatial locations, incorporating metrical conditions as well as elements of subjectivity. Chapter 6 deals with a wide range of particles whose semantic makeup involves orientation of the TR (e.g. *up*, *to*) or orientation of the LM (e.g. *in front of*, *behind*). Here too T&E depart from earlier approaches in that (i) they do not allow 'path/trajectory'-information in the semantic makeup of particles such as *to* and *into*, while (ii) assigning orientational information with the TR. Finally, chapter 7 analyses those particles that incorporate boundedness of the LM (e.g. *in*, *into*, *through*).

T&E's study is commendable from a descriptive as well as a theoretical perspective. The authors present a very detailed descriptive analysis of the various spatial and non-spatial uses of the particles under investigation. They do not restrict themselves to prepositional usages – which has all too often been the case in earlier analyses – but take account of adverbial, verb-particle, and prefixal usages as well. As such, their investigation shows a breadth, and for some particles also a depth, which has not often been seen before. Within the framework that they have laid out, they also show quite meticulously how the different usages can be derived, on what grounds the various usages should be distinguished, and how the principle of pragmatic enrichment or (semantic) reanalysis can be employed. Theoretically, this study deserves credit for aiming to 'minimize the subjective nature of analysis' and for providing a 'basis for replicability of findings' (44). In particular, in setting up their principled polysemy network, T&E propose an alternative to the unconstrained and often unwarranted granularity of earlier prepositional network models, and equally importantly, they put forward an explicit methodology for determining the primary sense of the network (in which the earliest attested meaning plays an important role). Of course, it may be objected that a network centered around the diachronically earliest sense may not be psychologically real in that speakers of present-day English may not consider the earliest attested sense to be the psychologically primary one, or it may be objected that diachronically related senses in a network do not correspond to relatedness between senses as perceived by present-day English speakers. Still, a network that is presented as a synchronic reflection of diachronic developments puts the network on a sounder methodological footing than the earlier, synchronic networks, which were often too subjective or based on introspection.

One of the more controversial aspects of T&E's study is undoubtedly the idea that 'trajectory' (or 'path') information does not enter into the lexical makeup of some of the spatial particles. On this view, the proto-sense (or primary sense) of *over*, which covers instances such as (4) and (5), is characterized as 'above' only. In most earlier accounts, however, the

lexical-semantic makeup of *over* in (5) would typically be characterized as 'above-and-across' (i.e. incorporating trajectory information).

(4) The helicopter hovered over the city.
(5) The cat jumped over the wall. (ex. (1.1), p. 9)

Instead, T&E suggest that the notion 'above-and-across' in (5) is part of the sentence interpretation, and results from our experience with jumping movements, with cats, and with walls as impediments to forward motion.

I think this analysis might be problematic for a number of reasons. First, consider a spatial scene containing the same elements as in (5): a cat, a wall as an impediment to forward motion, and a jumping movement. An alternative encoding of this scene is (6), in which the cat describes a different trajectory than in (5); that is, unlike in (5), it does not necessarily end up on the other side of the wall.

(6) The cat jumped up/on the wall in order to continue on its way.

All other elements being equal, then, the lexical difference between *over* and *up*/*on* can only signal a difference in trajectory; in other words, trajectory information appears to be contained in the lexical-semantic makeup of *over* (and, for that matter, in *up* and *on* as well). A possible reason why the LM *wall* can come to be associated with 'above-and-across' trajectory information, thus locating the notion 'above-and-across' in the context of the spatial particle rather than in the spatial particle itself, is that a LM such as a wall, in most motion events, will force its TR to follow an 'above-and-across' trajectory. However, the fact that a LM typically forces a particular trajectory on the TR does not necessarily mean that the trajectory information in a sentence should reside with the LM. In cases where the LM does not constitute an impediment (*jump down from the wall*, *jump on the wall from a higher elevation*, etc.), the trajectory information obviously resides in the preposition. Second, in sentences such as (7)–(8), where the LM remains unexpressed, the trajectory information can only be expressed by the spatial particle.

(7) Watch out! Run over quickly now!
(8) Throw the ball over.

Note that incorporating the 'above-and-across' trajectory in the lexical semantics of *over* in (5) and (9) would have the advantage of allowing us to derive sentences such as (10) by simple metonymy from a conventionalized sense of the spatial particle in (9), rather than from the sentential interpretation of (9).

(9) They threw the ball over the fence.
(10) The ball is over the fence; you'll have to ask the neighbors to throw it back.

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The fact that T&E in general seem to favor a rather 'lean' semantic characterization of the spatial particle while relegating its conceptual information, wherever possible, to the context also shows up in their discussion of orientational and bounded landmark particles. In (11)–(12), for instance, the trajectory (starting at an undefined location and ending up at some point of the LM) is computed by combining the 'motion' information in the verb and the orientational information in the TR.

(11) He ran to the hills. (ex. (6.19a.), p. 146)
(12) He ran up the hill.

Classifying the spatial particles *up*, *down*, and *to* as orientational particles obviously allows T&E to tease the trajectory information out of the lexical-semantic makeup of the particles and have it show up in the on-line interpretation of the sentence. However, this entails having to classify particles such as *up*, *down*, and *to* together with particles such as *in front of*, *behind*, *before*, and *after*. It seems to me that it is only the latter set of particles which is 'truly' orientational in that they serve to locate a TR with respect to a LM's inherent or deictic orientation. Admittedly, in sentences such as *The clock tower faces to the east* (149), the TR assumes a particular orientation with regard to the LM, but this does not seem to justify attributing orientational semantics across the board to the more default usages of *to* (or of *up* and *down*), as exemplified in (11)–(12). In T&E's account, orientation is also part of the lexical semantics of the bounded-landmark particles *into* and *out of*, as in (13)–(14), with the trajectory information they convey being contextually determined:

(13) He ran into the room. (ex. (7.32b), p. 199)
(14) He took the lighter out of his pocket. (ex. (7.58), p. 212)

An undesirable result of this approach to the semantics of *into* and *out of* is that similar phrases such as (15) and (16), expressing a particular spatial relation between a TR and a bounded LM, would convey substantially differently lexical semantic information: *through* in (15) would encode path or trajectory information and its TR *freeway* would not be oriented, whereas *into/out of* in (16) would only signal the TR's orientation with regard to the bounded LM *city* and would not encode any trajectory information.

(15) the freeway through the city
(16) the freeway into/out of the city

It can be seen that T&E's siding with a 'lean' semantic approach to spatial particles is not always unproblematic. In particular, their attempt to remove trajectory information from the lexical semantics of spatial particles results in a characterization of the primary sense of *over* in terms of the notion 'above' only, and gives rise (maybe unintentionally) to a

classification of particles such as *to*, *into*, and *out of* as 'orientational'. Neither of these positions is wholly uncontroversial. With regard to the question where to locate trajectory information – in the context or in the semantic makeup of the particle itself – I tend to side with the latter position: as relational markers, verb and preposition combine to make up the spatial relational information between TR and LM such that the verb signals the trajectory, but does so only vaguely or inadequately, and the spatial particle completes the trajectory information. Of course, this does not mean that, more generally, cognitive lexical semantics should return to 'rich' lexical semantic characterizations (cf. Brugman 1981) across the board. Interestingly, both positions are in keeping with cognitive linguistic tenets.

A final point of criticism concerns the lack of corpus-based analysis. As in the 'first-generation' cognitive linguistic studies, examples come from 'numerous dictionaries, grammars, and histories of English, as well as [the authors'] native speaker intuitions' (236). A corpus-based and frequency-data analysis could have thrown interesting light on primary senses and on the effect of entrenchment and routinization in speakers' use of spatial particles.

In sum, this well-produced and well-edited book is highly relevant for linguists interested in (cognitive) lexical semantics, polysemy, and spatial particles. It presents a large amount of descriptive detail and, at the same time, provides thought-provoking theoretical discussion. As it also charts some new theoretical territory, the positions it takes are not wholly unproblematic. It will be interesting to see how the analysis fares when corpus-based data are incorporated.

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