Lexical Semantics

Paradis, Carita

Lexical Semantics

Carita Paradis
Lund University
carita.paradis@englund.lu.se

Introduction

Lexical semantics is an academic discipline concerned with the meaning of words. Lexical semanticists are interested in what words mean, why they mean what they mean, how they are represented in speakers' minds and how they are used in text and discourse. Outside linguistics proper, lexical semantics overlaps with disciplines such as philosophy, psychology, anthropology, computer science and pedagogy. Within linguistics, it crucially overlaps with what is traditionally referred to as lexicology, which is the overall study of the vocabularies of languages, encompassing topics such as morphology and etymology and social, regional and dialectal aspects of the vocabulary (Cruse, Hundsnurscher, Job & Lutzeier, 2002, Hanks, 2007, Geeraerts, 2010). Lexical semantics also provides the foundation for various fields of applied research, such as research in language acquisition and learning, i.e. how we as native speakers and learners of foreign languages acquire lexical knowledge (e.g. Robinson & Ellis, 2008, Gullberg & Indefrey, 2010, Pütz & Sicola, 2010), with computational linguistics (e.g. Pustejovsky, 1995, Asher & Lascarides, 2003) and with lexicography — the art and science of dictionary-making (Béjoint, 2010)

As a point of departure, this entry states the most fundamental research questions that all theories of lexical semantics have to attend to when describing and explaining lexical meaning in language. With reference to the basic assumptions that follow from the research questions, a brief presentation of past and present approaches to lexical semantics is given, in chronological order. The subsequent sections discuss the relation between words and concepts, and different types of lexical semantic relations in language from a Cognitive Linguistics perspective. Finally, the last section offers a concluding statement of the nature of meanings of words in language in human communication.

Fundamental issues in lexical semantics

This section establishes five questions that are of central importance to any theory of lexical semantics that makes claims to be a coherent framework within which lexical meanings can be described and explained. While all five are key questions, question (1) and (2) are more basic than the others.

1. What is the nature of meaning in language?
2. What is the relation between words and their meanings?
3. How are meanings of words learnt and stored?
4. How are meanings of words communicated and understood by language users?
5. How and why do meanings of words change?

The answers to these five questions make up the fundamental theoretical assumptions and commitments which underlie different theories of lexical semantics, and they form the basis

for their various methodological priorities and explanations for word meanings in language. Due to limitations of space, only the first two questions are attended to in the following sections, the other questions are only touched upon in passing.

The term 'word meaning' is used in this entry as a practical cover term for different-sized form–meaning couplings. Needless to say, the notion of 'word' is extremely problematic. When used, words are always in specific contexts and the influence exerted by those contexts is crucial for the meanings of words, irrespective of whether the context is of a linguistic, a discursive or a social nature. Also, the notion of 'word' does not necessarily refer to a unit in writing which is preceded by an empty space and followed by an empty space. A word, as it is used here, may very well be more than one word, e.g. *in spite of*, *at all*, *computer science, all of sudden*. As a consequence, what this entry concerns itself with are units of form–meaning couplings with a distinct grammatical or semantic role in an utterance.

Once we try to grapple with word meanings in text and discourse, a fascinating world of phenomena are exposed to us, because the interpretations of a word may vary quite a lot from context to context, from clear cases of different senses to subtle reading differences, as in (1) – (6).

(1) The *mouse* ran across the floor
(2) I always use the touch pad – never the *mouse*.
(3) I like *white* wine
(4) I don't like *white* coffee
(5) I *closed* my savings account with the local bank yesterday.
(6) I *closed* the door and went away.

The contextual variants of *mouse, white* and *closed* are interesting in different ways. *Mouse* in (1) and (2) differ with respect to the entities they refer to in the different contexts – an animal and a computer device, respectively. *White* in (3) and (4) is used about beverages, but the colour of the two beverages that are described as *white* are quite different, the colour of white wine is yellow, and the colour of white coffee is light brown. Finally, in (5) and (6) the closing of an account is clearly different from the concrete closing of a door, and an interesting question in relation to this is of course what kind of entities can be closed. Contextual variation of this kind is at the heart of lexical semantics.

Theories of lexical semantics

While word meanings have been discussed in Western literature at least since Aristotle's time, lexical semantics as a research discipline in its right evolved in the in the 19th century. Unlike linguistic theories of today, lexical semantics in those days was not a coherent approach with a standard name, but rather a number of individual researchers with an interest in historical texts and the roots of human culture along the lines of the philosophical trends of the time. Consequently, lexical semantics in those days had a historical–philological orientation and was mainly concerned with etymology and the classification of how meanings of words change over time. It is important to note that word meanings in the early days of lexical semantics were regarded as mental entities; they were thoughts, and change of meaning over time was the results of psychological processes (Geeraerts, 2010).

As a reaction to the psychological conception of lexical meaning in the historical–philological tradition, new ideas were brought to the fore in the 20th century by advocates of the structuralist movement, associated with Ferdinand de Saussure's work (1959). Not only did the structuralist take-over involve a fundamental shift in the conception of what meaning

in language is, but it also involved a change from a historical–philological, diachronic perspective to a focus on synchronic language. Structuralism came to dominate the scene for the better part of the 20th century. According to the Structuralists, language is an autonomous intralinguistic system of relations between words, organized on the basis of lexical fields (Lehrer, 1974, Cruse, 1986). Word meanings are not treated as psychological units. They are not substantial, but relational and are defined in terms of what they are not. For instance, *long* gets its meaning from its relation to *short*. *Long* means what it means because it does not mean 'short'. Paradigmatic relations hold between words that can felicitously fill the same slot in an expression or a sentence (Lyons, 1977). For instance, synonyms such as *cold* and *chilly* in *It is cold today; It is chilly today*, and antonyms such as *short* and *long* in *The cord is short; The cord is long*, and hyponyms such as *cat* and *animal* in *The cat is in the garden*; *The animal is in the garden*.

The Structuralists made a distinction between paradigmatic relations and syntagmatic relations. The latter are linear relations formed between words in a sentences Cruse (1986, p. 16) maintains that

> we can picture the meaning of a word as a pattern of affinities and disaffinities with all the other words in the language with which it is capable of contrasting semantic relations in grammatical contexts. Affinities are of two kinds, syntagmatic and paradigmatic. A syntagmatic affinity is established by the capacity for normal association in an utterance: there is a syntagmatic affinity, for instance between *dog* and *barked*, since *The dog barked* is normal […]. A syntagmatic disaffinity is revealed by a syntagmatic abnormality that does not infringe grammatical constraints, as in ?*The lions are chirruping*.

The ideas of the syntagmatic approach to meaning with its interest in strings of words, their collocations and their co-occurrence patterns developed from research within the London School and the Birmingham School (Firth, 1957, Sinclair, 1987). According to the syntagmatic approach, the meaning of a word is defined in terms of the company it keeps in language use, or in terms of the totality of its uses. In this respect, the syntagmatic approach opened up for new trends in linguistics, namely for usage-based approaches to lexical semantics where contextual factors and real language in use are prime research objectives for the description of meanings, as is the case in Cognitive Linguistics, dealt with below.

At the end of the 20th century, there was a reaction against the Structuralist view of language as a system of relations between words without any recourse to language as a mental and psychological phenomenon and without any relation to conceptual structure and thinking more generally. Again, word meanings were considered to be psychological entities located in people's minds, rather than relations between words. This renewed interest in human language and the mind occurred in parallel with improvements of investigative methods aided by technical advancement and computerization in research. Structuralism was superseded by two totally different branches of conceptual approaches to lexical meaning: a generative approach and a cognitive approach. The breakthrough of the former came with an influential article called 'The structure of semantic theory' (Katz & Fodor, 1963), which set out to describe meaning as part of formal grammar in terms of meaning components, e.g. woman {+human, +female, +adult}. The main purpose of most work within generative lexical semantics has been concerned with the development of a logical formalism to be used either for the deconstruction of word meanings along the lines of Katz and Fodor (Jackendoff, 1983, 1990), or for the construction of lexical meaning as in the Generative lexicon (Pustejovsky,

1995). Also, broadly within this framework, work on the formalization of meanings in context as a function of rhetorical organization has been carried out more recently (Lascarides & Asher, 2007). In the latter models, simple feature decompositions have been replaced by models which take into consideration implicit structure and social frames, since language users know so many things that are relevant to linguistic interpretation. The ultimate purpose of these formalizations is that they should be useful for different kinds of computational implementation in the areas of information technology and computer science.

Like in the generative framework, the conception of lexical meaning in Cognitive Linguistics is that meanings of linguistic expressions are mental entities. Apart from this commonality, the two frameworks differ in all essentials: that is, with respect to the foundational assumptions about what meaning in language is, how words relate to meanings and how meanings are described and explained. For a comparison between the basic assumptions between the two frameworks, see Paradis (2003).

The cognitive approach to meaning emerged in the 80s as a reaction to the view of grammatical knowledge as separated from other cognitive abilities and processes held by the Generativists. In contrast, the cognitive approach sees linguistic knowledge as in integral part of human cognition. Language cannot be studied without reference to the principles of human cognition. Cognitive Linguistics is a maximalist approach in the sense that it aims to account for real language in use in all its complex glory. It is a socio-cognitive framework in which lexical meanings are inextricably associated with language users' bodily, perceptual and cognitive experiences of cultural and historical phenomena. Our use of words is constrained as well as promoted by subjective and intersubjective conditions in the act of social communication. There is no strict dichotomy between linguistic and encyclopaedic meanings (Paradis, 2003). Rather, lexical meaning in Cognitive Linguistics is encyclopaedic, i.e. taking into account any aspect of contextual meaning modulation that is relevant for a certain research task, integrating semantics, pragmatics and in fact also grammar (Paradis, this volume). In contemporary linguistics, cognitive lexical semantics is the most popular enterprise, both in terms of publications produced and the number of people who are involved in lexical semantic research (Geeraerts, 2010).

In the Cognitive Linguistics framework, there is a direct mapping of words and expressions to conceptual structure. Language forms an integral part of human cognition in general. The function of words is to evoke conceptual patterns in the cognitive system. There is no algorithmic linguistic level intermediate between linguistic expressions and their meanings. The cognitive approach to meaning is usage-based (Langacker, 1999, pp. 91–145, Cruse, 2002, Tomasello, 2003). Speakers and hearers are intentional creatures. The way we express ourselves is functionally motivated; we wish to get our message through to our interlocutors and to negotiate meanings in communication with other people in an optimally successful way. There are no stable word meanings, rather meanings of words are dynamic, context-sensitive and construed on-line. This take on words and their meanings strengthens the link between language and psychology, language and sociology, language and cognitive science and language and neurology and opens up for interdisciplinary research.

Thanks to technical innovation in the form of increased computer capacity and performance, and improvements of experimental equipment, quite a lot of empirical progress has been achieved lately. Contemporary research in lexical semantics is making extensive use of corpus methodologies and language technological tools. The use of large databases and web-as-corpus has revolutionized the possibilities of investigating usage patterns in real language across genres and cultures and further develop probabilistic usage-based ideas. However, not only textual data and computerized methods play an important role in research in lexical semantics, but also different kinds of psycho- and neurolingusitic experiments are

used to describe and explain word meanings and to establish links between language and cognition, language in people's minds and in people's brains.

Words and concepts

Having thus established that the predominant framework in current research in lexical semantics is the Cognitive Linguistics framework, this section and the next deal with aspects of the relation between words and concepts and with lexical semantic relations from a cognitive perspective, stating that (lexical) knowledge is organized as concepts in people's minds. Concepts form systems of areas of human experience that provide the necessary contextual knowledge for our understanding of the world around us. This knowledge is referred to as *domains* (Langacker 1987, pp. 147–182) (or 'frames' Fillmore 1982, p.111). Some of them are basic domains, which are inborn and which make it possible for us to experience ranges of colours, pitches, tastes, smells, tactile sensations, spatial extensionality, the passage of time and the experience of emotions. However, domains are not only basic domains, they may, in fact, involve conceptualizations of any degree of complexity. For most concepts, in fact, we need to make reference to more than one domain and linguistic expressions typically invoke multiple domains when they are used. Not all of the domains have equal status. A domain may be defined as any knowledge structure that is of relevance to the characterization of a certain meaning. Semantic contrasts in the readings of words are always a result of the actual domains invoked in a particular expression in a particular context and to the ranking of prominence among those domains. Some domains are more central than others in a given situation. Langacker (1987, p. 154) illustrates this using BANANA as an example:

> Most concepts require specifications in more than one domain for their characterization. The concept [BANANA], for example includes in its matrix a specification for shape in the spatial (and/or visual) domain; a color configuration involving the coordination of color space with this domain; a location in the domain of taste/smell sensations; as well as numerous specifications pertaining to abstract domains, e.g. the knowledge that bananas are eaten, that they grow in bunches on trees that they come from tropical areas, and so on.

We may go on to ask ourselves which of these specifications are necessary. The simple answer is that all of them are necessary for a full knowledge representation as required in an encyclopaedic, usage-based conception of meaning. When the word *banana* is used in human communication, one of these aspects may be profiled, while others form the base, or background. As Croft & Cruse (2004, p. 16) point out "no concept exists autonomously: all are understood to fit into our general knowledge of the world in one way or another".

Lexical semantic relations

There are essentially three different kinds of relations between word meanings. There are (i) words that share the same form but mean different things, homonyms and polysemes, and there are (ii) words that evoke similar meanings but have different forms, such as synonyms and hyponyms, and there are (iii) words that have different forms and different meanings and are semantically related through opposition such as antonyms.
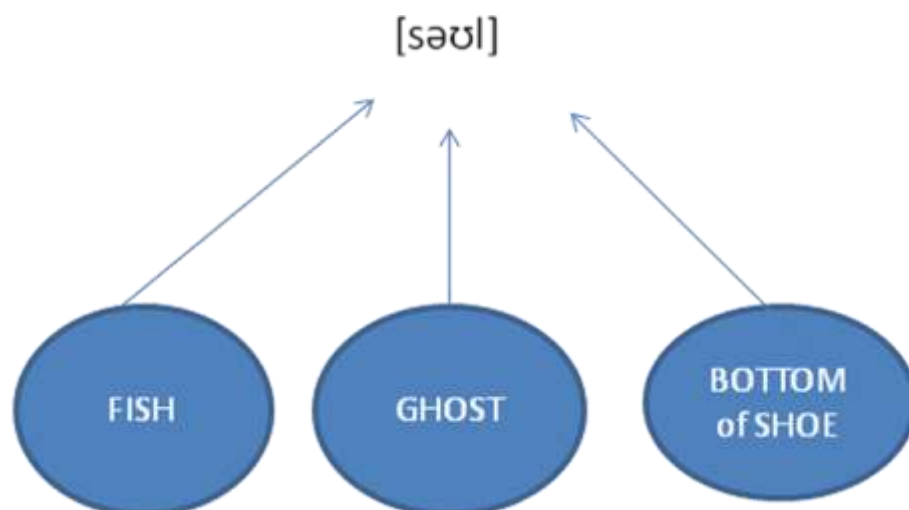
[səʊl]

FISH GHOST BOTTOM of SHOE

Figure 1. The relation of different meanings of a word.

Starting with words that have the same form but different meanings (Figure 1), we may identify two types of contextual variants of words, which we refer to as arbitrary and motivated variants. Arbitrary variants are unrelated and just happen to sound and/or look the same in contemporary speech and/or writing. They are often referred to as hymonyms and can be exemplified by the word [səʊl] in different contexts, as in (7) – (9).

(7) I complained to the waiter because the *sole* was burnt.
(8) You are a *soul* of discretion.
(9) The *sole*s are made of rubber.

Motivated variants, on the other hand, evoke meanings which are related through some kind of resemblance, metaphorization, or contingent conceptual associations (metonymization). Form–meaning pairings that are related in that way are called polysemes. Consider examples (10)–(15).

(10)   The beam has *gone through the roof*.
(11)   Prices have suddenly *gone through the roof*.
(12)   Bill *slapped* Sally *in the face*.
(13)   The way Bill behaved is *a slap in the face* after all Sally had done for him.
(14)   The famine in the area is very threatening. There are too many *mouths* to feed.
(15)   Fortunately, the whole *school* was on an outing, when the fire started.

The contextual variants of *go through the roof* in (10) and (11) and *slap in the face* in (12) and (13) are clearly related. The meanings in (10) and (12) refer to concrete undesirable events, while the meaning in (11) refers to the fact that something negative is going out of bounds and in a direction that is undesirable, and (13) there is a resemblance relation between the concrete activity of slapping which is physically painful and something that is emotionally painful. In (14) there is a contingent relation between the use of *mouth* for people and *school* for pupils and staff (Lakoff & Johnson, 1980, Paradis, 2004).

The second type of lexical semantic relations concerns words that evoke similar meanings (Figure 2), which is the case for synonyms such as *father* and *dad, nice* and

pleasant, and for hyponyms such as *animal* and *cat*, *walk* and *stroll*. Synonymy, including hyponymy is essentially the opposite of homonymy and polysemy in the sense that in the case of synonyms the different word forms map onto 'the same' concepts, while in the case of homonymy and polysemy, the same word form evokes different concepts.
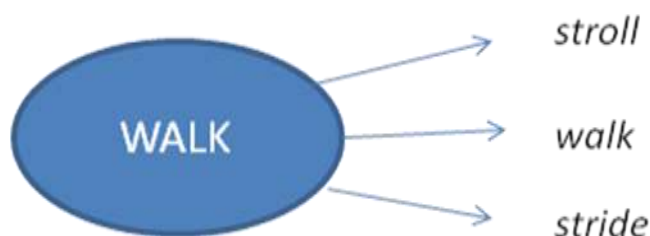

Figure 2. The relation of sameness of meaning (WALK) expressed by different words.

Note that there are no absolute synonyms in language use. There is a gradient of conceptual and communicative similarity (Cruse 2010, pp. 142–145, Storjohann, 2010 pp 69–94). There is always something in the profiling of the meaning and the ranking of the domains in the domain matrix that differs. This becomes particularly evident in translation studies and lexicography. With the exception of many technical terms and manufactured objects such as dishwashers and vacuum cleaners, it is a well-known fact that words in one language rarely have exact translations in other languages. For instance, if speakers of English seek a translation of *comfortable* in Swedish, they must decide which of the following translations is adequate in the current the context: *bekväm, komfortabel, behaglig, angemäm, tillräcklig, trygg*, or, if speakers of Spanish seek a translation for the appropriate use of the discourse marker *bueno* in Spanish, they have to decide whether to use *okay, all right, well, never mind, right, right then, really*.

Finally, antonymy is a binary construal of opposition that holds between two different words in discourse. Antonyms are similar in that they are aligned along the same conceptual dimension, but they are maximally different in expressing the opposite properties of that particular dimension (Paradis & Willners, 2011). For instance, *good* and *bad* may be used as antonyms along the dimension of MERIT, and *long* and *short* along the dimension of LENGTH (Figure 3).
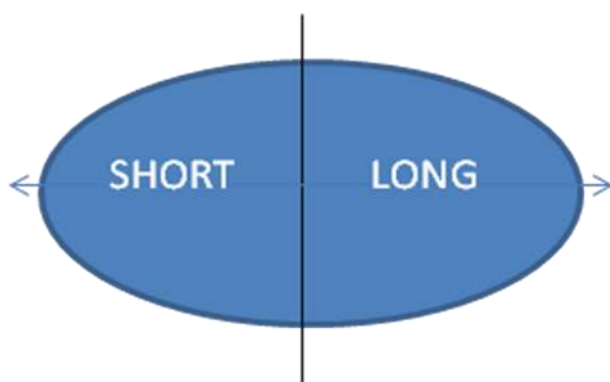

Figure 3. The relation of opposition: different words poles of the same meaning dimension.

In *The Encyclopedia of Applied Linguistics*, ed. Chapelle, C.A. Oxford, UK: Wiley-Blackwell, 2012, (pp 3357–3356).

When antonyms are used in text and discourse, they are restricted to the same meaning domain. For instance, *long* and *short* are antonyms in the context of horizontal extension for ROAD, but not in the context of vertical extension for BUILDING where *low* and *high* or *tall* would be the preferred pairings. This is a constraint that is true of synonyms too. However, antonymy is different from the other relations mentioned in this section in that new couplings are frequently construed for various different purposes in text and discourse. For instance, *Firefliers prefer* tall *grass to* mowed *lawns* where *tall* and *mowed* are used as antonyms. Antonymy seems to have special status as a lexical semantic relation in language in that antonyms are typically members of one-to-one relations, rather than one-to-many or many-to-many, and they are severely constrained in their relationship and by their alignment along the same meaning dimension within a domain (Paradis, Willners & Jones, 2009, Paradis & Willners 2011).

Words in text and memory

Language can be described as a conceptually structured inventory of linguistic units and cognitive routines. Word meanings are shaped by the context and the situations where they occur, and conventionalized uses of word meanings are the results of the entrenchment of words as form–meaning pairs in memory. Multiple meanings of words are expected as a natural consequence of a dynamic, usage-based view of language.

SEE ALSO: Bilingual Lexicography; Cognitive Grammar; Dictionary use; Intercultural Communication; Cognitive grammar; Lexicography; lexicography across languages; Lexical Collocations; Monolingual lexicography

References

Asher, N. & Lascarides, A. (2003). *Logics of conversation*. Cambridge: Cambridge University Press.
Béjoint, H. (2010). *The Lexicography of English*. Oxford: Oxford University Press.
Croft, W., & Cruse, A. (2004). *Cognitive Linguistics*. Cambridge: Cambridge University Press.
Cruse, A. (1986). *Lexical Semantics*. Cambridge: Cambridge University Press.
Cruse, A. (2002). The construal of sense boundaries. *Revue de Sémantique et Pragmatique, 12*, 101–119.
Cruse, A. (2010). *Meaning in language*. Oxford: Oxford University Press.
Cruse, A., Hundsnurscher, F., Job, M., & Lutzeier, P. (Eds.) (2002). *Lexikologie*: *ein internationales Handbuch zur Natur und Struktur von Wörtern und Wortschätzen/ Lexicology: a handbook on the nature and structure of words and vocabularies.* Berlin: de Gruyter.
Fillmore, C. (1982). Frame semantics. In Linguistic Society of Korea (Ed.), *Linguistics in the morning calm,* (pp. 111–138). Seoul: Hanshin.
Firth, J. R. (1957). A synopsis of linguistic theory, 1930–1955. In *Studies in linguistic analysis*, 1–32. Oxford: Philological Society.
Geeraerts, D. (2010). Theories of lexical semantics. Oxford: Oxford University Press.
Gullberg, M. & Indefrey P. (Eds.) (2010). *The earliest stages of language learning*. Malden: Wiley-Blackwell.

In *The Encyclopedia of Applied Linguistics*, ed. Chapelle, C.A. Oxford, UK: Wiley-Blackwell, 2012, (pp 3357–3356).

Hanks, P. (Ed.) (2007). *Lexicology*: *Critical concepts in linguistics.* London: Routledge.
Jackendoff, R. (1983). *Semantics and cognition*. Cambridge, MA: MIT Press.
Jackendoff, R. (1990). *Semantic Structures*. Cambridge, MA: MIT Press.
Katz, J., & Fodor A. (1963). The structure of semantic theory. *Language 39*, 170–210.
Lehrer, A. (1974). *Semantic fields and lexical structure*. Amsterdam: North-Holland.
Lakoff, G., & Johnson, M. (1980). *Metaphors we live by.* Chicago: University of Chicago Press.
Langacker, R. (1987). *Foundations of cognitive grammar*. Stanford: Stanford University Press.
Langacker, R. (1999). *Grammar and conceptualization.* Berlin & New York: Mouton de Gruyter.
Lascarides, A. & Asher, N. (2007). Segmented discourse representation theory: dynamic semantics with discourse structure. In H. Bunt & R. Muskens (Eds.), *Computing meaning*, *3,* 87–124.
Lyons, J. (1977). *Semantics*. Cambridge: Cambridge University Press.
Paradis, C. (2003). Is the notion of *linguistic competence* relevant in Cognitive Linguistics. *Annual Review of Cognitive Linguistics*, *1*, 247–271.
Paradis, C. (2004). Where does metonymy stop? senses, facets and active zones. *Metaphor and symbol*, *19*(4), 245–264.
Paradis, C. (this volume). Cognitive grammar. In C. A. Chapelle (Ed.). *The encyclopedia of applied linguistics.* Oxford: Blackwell.
Paradis, C., Willners, C., & Jones, S. (2009). Good and bad opposites: using textual and psycholinguistic techniques to measure antonym canonicity. *The Mental Lexicon*, *4*(3), 380– 429.
Paradis, C. & Willners, C. (2011). Antonymy: from conventionalization to meaning-making. *Review of Cognitive Linguistics*, *9*(2).
Pustejovsky, J. (1995). *The generative lexicon*. Cambridge, MA: MIT Press.
Pütz, M. & Sicola, L. (Eds.) (2010). *Cognitive processing in second language acquisition*. Amsterdam & Philadelphia: John Benjamins.
Robinson, P., & Ellis, N. C. (2008). *Handbook of cognitive linguistics and second language acquisition*. New York & London: Routledge.
Sinclair, J. M. (Ed.) (1987). *Looking up: an account of the COBUILD project in lexical computing and the development of the* Collins COBUILD English Language Dictionary. London: HarperCollins.
Saussure, F. de (1959). *Course in general linguistics*. In C. Bally & A Sechehaye (Eds.), Trans. by W. Baskin.) New York: Philosophical Society. [Originally published as *Cours de linguistique générale*,1916].
Storjohann, P. (Ed.) (2010). Synonyms in corpus texts: Conceptualisation and construction. In P. Storjohann (Ed.), *Lexical-semantic relations: theoretical and practical perspectives*. Amsterdam: John Benjamins.
Tomasello, M. (2003). *Constructing a language*: *a usage-based theory of language acquisition*. Cambridge, MA: Harvard University Press.

Suggested readings
Cruse, A. (2010). *Meaning in language*. Oxford: Oxford University Press.
Murphy, M.L. (2003) *Semantic relations and the lexicon*. Cambridge: Cambridge University Press.
Murphy, M. L. (2010). *Lexical Meaning*. Cambridge: Cambridge University Press.

In *The Encyclopedia of Applied Linguistics*, ed. Chapelle, C.A. Oxford, UK: Wiley-Blackwell, 2012, (pp 3357–3356).

Talmy, L. (2000). *Towards a cognitive semantics*. Cambridge, MA, and London: The MIT Press.
Taylor, J. (2003). *Linguistic categorization*. Oxford: Oxford University Press.