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Published in:
Annual Review of Cognitive Linguistics

2003

[Link to publication](#)

Citation for published version (APA):
Paradis, C. (2003). Is the notion of linguistic competence relevant in Cognitive Linguistics. *Annual Review of Cognitive Linguistics*, 247-271.

Total number of authors:
1

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Is the notion of *linguistic competence* relevant in Cognitive Linguistics?¹

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Abstract

This paper is meant to be a philosophical contribution to linguistic theorizing. It addresses the ontological question of the notion of linguistic competence. Linguistic competence is evaluated in the light of the possibility of setting up an absolute and indisputable boundary between linguistic and non-linguistic (encyclopaedic) knowledge. It is argued that the question of the relevance of linguistic competence is a non-question in the Cognitive Linguistic framework. The notion of linguistic competence is a theoretical construct that presupposes a modular model of language. In Cognitive Linguistics various facets of meaning are more or less central to our understanding of expressions. Linguistic and non-linguistic knowledge form a continuum. It is not possible to sharply distinguish them on linguistic grounds.

1 INTRODUCTION

Linguistic competence is a term that was introduced by Chomsky (1965: 4). He made the distinction between people's knowledge of language (competence), and that knowledge put to use in real situations (performance).² Competence is an aspect of our mental capacity underlying our use of language. Chomsky's conception of linguistic competence restricts itself to syntactic well-formedness. The textbook example illustrating Chomsky's view is the sentence 'Colourless green ideas sleep furiously', which is considered nonsensical and impossible to interpret (Chomsky 1957: 15). The sentence is syntactically correct, but there is a mismatch of semantic features in that the argument of *sleep* has to be animate, entities that are *green* cannot be *colourless*, and you cannot *sleep* in a *furiously* manner. This is of course an extreme example, but, nevertheless, it is by no means impossible to interpret metaphorically, given the right context. Flexibility of meaning is a ubiquitous phenomenon in language that has to be accounted for in a comprehensive theory of language. The division between linguistic knowledge and non-linguistic knowledge is empirically arbitrary. Chomsky gives priority to formal aspects of the research programme, while substantive aspects are ignored to a large extent. The theoretical restriction makes it impossible to describe powerful general principles that govern language use. It leaves a great many linguistic regularities such as

¹ I am grateful to Fredrik Heinat, Helena Kullenberg, Satu Manninen, Lynne Murphy and Beatrice Warren for valuable comments on earlier drafts of this paper. Thanks are also due to two anonymous reviewers.

² Chomsky's notions of competence and performance (or *I-* and *E-language*, Chomsky 1986: 15-50) are partly similar to Saussure's *langue* and *parole* (Saussure 1960: 88), but Chomsky rejects Saussure's *langue* as merely a systematic inventory of items without any conception of competence as a deep-structure system. Chomsky's competence is a mentalist interpretation, while the structuralists focus on language as an externalized object.

polysemy generalizations aside, and consequently, some important aspects of our underlying mental capacity are neglected.

There is currently a lively debate going on about whether it is possible to distinguish between linguistic and non-linguistic meaning specifications.³ This involves one of the most intriguing issues in linguistics, i.e. what the relationship between language and conceptual representation really is. The notion of modularity is central to this debate with arguments for modularity in the generative camp and against modularity in the cognitive camp. This paper is meant to be a philosophical contribution to the theoretical problem of linguistic competence from a Cognitive Linguistic perspective and to the accompanying problem of making a principled division between linguistic and non-linguistic knowledge as presupposed by the notion of competence. Linguistic competence, as it is understood here, takes the modular lexical definition as its point of departure. It does not only involve structural competence, but all information kept in a modular lexicon. My purpose is to find out whether the notion of linguistic competence is at all relevant in a cognitive model and to point out the empirical limitations that is a natural consequence of this notion.

More precisely, this paper addresses the questions of (i) whether it is possible to pin down linguistic competence, and, if so, (ii) whether this presupposes a well-defined lexicon or not, and (iii) in what way the notion of linguistic competence contributes to theoretical validity in terms of descriptive adequacy, economy, and explanatory power of the interpretation and well-formedness of lexical expressions in language. I will discuss and evaluate the nature of lexical knowledge mainly in the light of Cognitive Semantics. The generative approach will be used as a comparative stance. Particular attention will be given to aspects of polysemy, combinatorial complexity and the dynamic nature of language.

2 LINGUISTIC AND NON-LINGUISTIC KNOWLEDGE

This section gives a brief introductory description of the generative commitment and the cognitive commitment with reference to the linguistic/non-linguistic divide. It discusses the problem of establishing an absolute boundary between linguistic and encyclopaedic knowledge from different perspectives, such as combinatorial complexity and the flexibility of language in terms of content proper and construals. Finally, this section brings up the question of what lexical knowledge is.

2.1 *The generative commitment*

Generativists claim that language is situated in a special module in the brain. The language module is autonomous and of a different kind than other cognitive abilities (Fodor 1983). The syntactic component (the computational component in contemporary terminology, Chomsky 2000) computes the structures and is, as it were, the hub in the machinery. The lexicon is separate from the syntactic component that computes the structures. It holds linguistic information about words, such as syntactic category and meanings. This information is mentally encoded and fed into the structures in the form of features. Both syntax and semantics are linguistic modules in that there is an algorithm for both of them. This is not the

³ When I refer to non-linguistic knowledge, I include both polysemy generalization and aspects of encyclopaedic knowledge.

case with pragmatics, which is unencapsulated and directly influenced by general cognitive goals (Sperber and Wilson 1998, Chomsky 2000). The computational system, i.e. the structures filled with semantic features, interacts with general cognitive and motor abilities via interfaces. There is a mental level of representation between language and thought, which means that the output of modules is encoded into a single common language of thought which is used for making inferences and making verbal use of a natural language. This intermediate mental representation is referred to as *mentalese*. The linguistic module has been questioned by many linguists, philosophers, psychologists and cognitive scientists, on several accounts (Langacker 1987, 1999, Gärdenfors 2000, Tomasello 2000).

This is not an entirely adequate description of all generative models. There are in particular two generativists who deviate in a rather significant way from Chomsky in that they take the complexity of meaning seriously: Jackendoff and Pustejovsky. In both Jackendoff's and Pustejovsky's models, the linguistic/non-linguistic divide is blurred.⁴ Jackendoff (1997) deviates from Chomsky in not treating syntax as the main generative component from which meaning and phonology are interpreted. Rather, Jackendoff advocates that lexical knowledge is contained in three parallel, interfacing representational modules: 'phonological structure', 'syntactic structure' and 'conceptual structure'. Moreover, his model does not distinguish between semantic and conceptual knowledge. It is all the same and situated in 'conceptual structure'.⁵ Consequently, lexical knowledge is not a strictly linguistic realm, since it also has access to conceptual structures, such as EVENTS, GOALS and BOUNDARIES (Jackendoff 1991). Conceptual structure in turn provides a basis for the rules of pragmatic inference and the interaction of language with world knowledge. Conceptual structure is not the only form of representation available for our understanding of the world. What distinguishes conceptual structure from spatial understanding, for instance, is its algebraic character, i.e. its being formalized in terms of features and functions (Jackendoff 1991: 10). Jackendoff's conceptual semantics is parallel to semantics within Cognitive Linguistics in that it also involves the study of cognitive psychology. His model is similar to mainstream generative research in adhering to strong innateness, modularity and autonomy of syntax, but in contrast to a number of generativists it is not restricted to aspects of linguistic meaning relevant for syntax only (Katz 1972; Bierwisch 1986; Pinker 1989).

In his most recent work, Jackendoff (2002) states that simple feature decompositions have to be replaced by models with more implicit structure comprising social frames, since language users know so many things that are relevant to linguistic interpretation. He analyzes the complexity of the knowledge people have about words such as *embryo*, *customer*, *chase*, *novel*, *Hamlet* and *belief* and makes the following statement:

My inclination is to think that these examples are just the tip of the iceberg and that there is a great deal more complexity to be explored in word meanings. One may be tempted to shrug all this off as "encyclopaedic" meaning, hence not part of linguistics. However, [...] on the one hand there is no principled dividing line between linguistic and encyclopaedic meaning, and on the other *someone* has to study these more complex aspects of meaning eventually. So, why not linguists?

⁴ It should be pointed out that there are other semanticists in the generative school who include non-linguistic knowledge in instances of interpreting metonymically shifted meanings, e.g. Borschev & Partee (2001: 21).

⁵ A complete issue of *Cognitive Linguistics* (1996. 7.1) was dedicated to a comparison of the cognitive approach and Jackendoff's Conceptual Semantics. Adele Goldberg discusses syntactic similarities and differences, John Taylor lexical semantic matters and Paul Deane brings up the links with psychology and neurophysiology. There is also an article by Jackendoff himself in which he reacts to the arguments formulated by the above contributors.

Pustejovsky's (1998a) lexically based computational semantic theory also opens up the barrier to encyclopaedic knowledge, albeit on a small scale. He deals with the semantics of words in natural languages, both words in isolation and in combination. Most semantic models (including Jackendoff's) in the generative school of thought are formal ways of describing an infinite set of possible sentences, and the goals are decompositional. Pustejovsky's lexical model is different in that it is compositional and dynamic. Pustejovsky makes a point of accounting for creative use of words in novel contexts by means of a model of analysis characterized by significant combinatorial potential, that reflects both semantic, syntactic and pragmatic aspects of language. It also includes a co-compositional device for the dynamic generation of meanings in different contexts. Pustejovsky's strongly typed generative lexicon facilitates the task of syntax in the computation of well-formed structures. Like Jackendoff, he claims that his model is psychologically real in that it reflects the deeper conceptual structures in the cognitive system.

Jackendoff and Pustejovsky apart, the most serious charge against generativism in general is probably its narrow view of language and its lack of appreciation of the complexity of real data. The main focus has been on the relation between meanings and structures in the formation of well-formed sentences. There has been little interest in the complex encyclopaedic structure of lexical material involved in the structure of categories, in the principles for systematic processes such as metaphor formation, and there has been an almost blind faith in binarity, e.g. a noun is [+N], a verb is [+V] and an adjective is [+V+N] (for a critique of this, see Croft 2001: 64). This, in combination with the rather strong assumptions concerning linguistic knowledge on which the theorizing is based, may be counter-productive for the development of the theory. The safely encapsulated linguistic material upon which algorithms operate is both the beauty and the beast of the theory. The current methodology is economically beautiful, but it is certainly a burden to descriptive adequacy, which in the end may restrict its explanatory power.

2.2 The cognitive commitment

The core idea in the cognitive school is that meanings of linguistic expressions are mental entities, and semantics is the mapping of linguistic expressions to conceptual structure. The cognitive approach to meaning is usage-based and dynamic (Langacker 1999: 91-145). Mental activity and flexibility of conceptualizations are the main foci in describing and explaining linguistic phenomena. Mind is neurological activity, and thought is the occurrence of such neurological activity. A cognitive occurrence leaves a neurochemical trace which facilitates recurrence. Recurrence has a reinforcing effect, and cognitive occurrences become entrenched. In other words, established concepts are entrenched cognitive routines that are easily evoked. If a cognitive occurrence does not recur, the trace simply decays (Langacker 1987: 100, 162). This view raises the question of whether linguistic competence is at all relevant in Cognitive Semantics, and, as a corollary of that, whether there is such a thing as an encapsulated lexicon.

Cognitive Semantics is a relatively recent approach to linguistics. Seminal works within the field are Lakoff (1987), Langacker (1987, 1991, 1999) and Talmy (2000). Like in the generative school of thought, there is no complete consensus. Still, I will hazard to spell out

some of its claims, in (i) – (iv) below, that are widely shared within this view and that are also relevant for the present paper.⁶

- (i) Meanings are activated conceptual patterns in the cognitive system. Meanings are based on speaker and hearer construals of situations.

Firstly, the representational basis of Cognitive Semantics is conceptual, and in addition to the conceptual basis, there are a number of cognitive abilities that operate on the concepts. Language is an integral part of human cognition. Unlike in the generative model, language in the cognitive model is not encapsulated in a special module, nor is there an intermediate mental representation. It is a single-level approach in that meanings are evoked by the activation of concepts in the cognitive network. Understanding the meaning of an expression means entering into a cognitive network and activating it at certain points. There is direct correspondence between linguistic expressions and conceptual structure.

The claim that meanings are in our heads is a view which connects language and psychology, language and cognitive science and language and neurology. In this respect it does not differ from the generative view, which also holds that meanings are mental entities. However, Cognitive Linguistics differs from the generative approach with regard to the idea that there is no strict dichotomy between linguistic and encyclopaedic meanings. This is a natural consequence of Cognitive Semantics being non-modular. Generativists claim that the lexicon is the unit that holds linguistic (arbitrary) knowledge. Encyclopaedic knowledge is conceptual, i.e. it holds all non-linguistic specifications of meaning. In other words, if specifications of meaning are necessary for the syntactic derivations, they are linguistic; if they are about the world they are encyclopaedic. Cognitive Linguistics, on the other hand, does not rely on an idea of linguistic complementarity ('either-or'), but takes a 'more-or-less' approach to language when the data calls for it. There is no hard and fast dividing line between linguistic and non-linguistic (encyclopaedic) knowledge, since such a division fails to recognize the fact that language is part of our world.

- (ii) Conceptual patterns are not independent of perceptions and bodily experience.

In the cognitive school both language acquisition and language use rest on experiences that are filtered through perception and memory. Both the perceptual and the cognitive systems are necessarily relevant for language itself. Language cannot be separated from the speakers and their world. The way we perceive the world is the way we understand it, and we express ourselves accordingly. This does not mean that we perceive the world in just one way. On the contrary, we conceive of the world in many different ways in different situations and for different purposes. As language users, we are able to construe linguistic expressions in accordance with how we perceive different situations and how we want the addressee to interpret our utterances. Different construals are of crucial importance in language production and interpretation in spite of the fact that they have been largely ignored in semantics before the advent of Cognitive Linguistics.

- (iii) Conceptual domains are the representations on which certain modes of construal may be applied in order to structure the content in different ways.

⁶ For other lists of the tenets of Cognitive Semantics, see Goldberg (1995: 3-4) and Gärdenfors (2000: 160-167). Levinson (1997: 13-39) presents a summary of arguments from both modular and non-modular scholars. The difference between Langacker's network model and Bierwisch's generative two-level model is discussed in Taylor (2000).

There are basic *domains*, which are inborn and which make it possible for us to experience ranges of colours, pitches, tastes, smells and tactile sensations. Also, we can experience spatial extentionality; we sense the passage of time and we can undergo emotions (Langacker 1999: 2-3). However, domains are not only basic domains, they may, in fact, involve conceptualizations of any degree of complexity. A linguistic expression typically invokes multiple domains, which characterize various aspects of the profiled entity or relation.⁷ In addition to domains, there are construals that are not themselves domains, but ways of structuring domains. They reflect some basic cognitive abilities, such as *comparison*, *abstraction (schematization)*, *categorizing*, *focus of attention*, *perspective*, *figure/ground*, *specificity* etc. (Langacker 1999: 3-5). Another, higher-level mechanism for construals in discourse situations is Fauconnier's mental models (1997), which are employed to set up referential domains and to regulate knowledge sharing between the participants.

- (iv) Cognitive models are image-schematic and can be changed by metaphoric and metonymic operations.

There are various general types of image schemas involving space, motion and force. For instance, the CONTAINER schema, consisting of an interior and an exterior distinguished by a boundary, the PART-WHOLE schema, the LINK schema and the CENTRE-PERIPHERY schema. There are also dynamic schemas such as PATH schemas and FORCE schemas (Lakoff 1987, Langacker 1991: 5, Talmy 2000). We form conceptual structures based on our perception of the world, our experience of the world, our acting in the world, and our exertion of force. We then use these structures to organize thought across more abstract domains. Metaphors and metonomies are seen as regular cognitive transformations of image schemas, i.e. there is an underlying image schema that is manipulated in a non-arbitrary way. According to the invariance hypothesis, the mapping between the source and the target preserves the image-schematic structure (Lakoff 1990: 39-74). These aspects are crucial for the way polysemy is handled in Cognitive Semantics (for example, Lakoff & Johnson 1980, Brugman 1981, Taylor 1992).

Before concluding this section, I wish to emphasize that substantial importance is given to speakers' knowledge of the use of the linguistic system. Grammar is responsible for a speaker's range of linguistic conventions, regardless of whether they can be subsumed under more general statements or not. It is a 'bottom-up', 'non-reductive', 'maximalist' approach to meaning (in contrast to the 'top-down', 'reductive', 'minimalists' generative approach (Langacker 1999: 91-93).⁸ Cognitive Linguistics recognizes the whole spectrum from the entirely idiosyncratic to the maximally general patterns. Abstractions can only proceed from 'the soil of actual usage' (ibid: 92). All units are cognitive entities in their own right. Their existence is not reducible, even though they may belong to a regular pattern, 'a rule' in the generative terminology. Specific instantiations of certain patterns may in fact become established as fixed, structurally opaque expression.⁹ Full compositionality is often not the

⁷ Profiling is construal. "An expression's profile is the entity it designates, and as such is a focus of attention within the overall conception evoked." (Langacker 1999: 45). In other words, it is reference in conceptualization (not in the 'world' as in objectivist models).

⁸ Construction grammarians would not be in complete agreement with the 'bottom-up' view. The result of defining constructions as any size of expression, from morphemes to phrases to clauses, is that the bottom-up/top-down parameter has to be kept deliberately vague.

⁹ The reductionist view rests on a spurious assumption that rules and instantiations are mutually exclusive (the rule/list fallacy). A substantial amount of work that questions this assumption has been carried out on

case in language use. (Langacker 1999: 112). To become a fluent speaker of a language involves a large amount of learning, and the amount of input is extensive and highly redundant (Langacker 1999; Tomasello 2000).

2.3 *The arbitrariness of the divide*

The major dividing line between the main tenets of the generative and the cognitive school of thought is whether it is possible to distinguish between linguistic and encyclopaedic knowledge. The reason for this difference is due to the stand taken for or against modularity. Generativists claim that such a division can be made and most cognitive linguists take the view that all meanings are conceptual in nature and no absolute dichotomy is purported. The distinction between linguistic and non-linguistic or encyclopaedic knowledge is not denied by cognitive linguists but considered to be a continuum. What is questioned is the claim that there should be a clear dividing line between the two types. Even if an encapsulated component is assumed, the problem of distinction still remains. To the best of my knowledge no absolute dividing line that holds good for semantic analysis has been presented so far.

That an interpretation of an expression is tied up with what is traditionally thought of as both linguistic and encyclopaedic knowledge is not controversial. But, a more controversial question is what the knowledge is like that you need for interpreting sentences (linguistic knowledge) and what the knowledge is like that is considered superfluous for that purpose (encyclopaedic knowledge), and where the dividing line between the two is located. Polysemy, which is the central concern of lexical semantics, is precisely the area in which it is difficult to draw a boundary between linguistic and encyclopaedic knowledge and between language and general cognitive processes (e.g. the employment of inferences). Consider the following examples illustrating this fact about language:

- (1) Pubs *open* at 11.
 Three hundred pubs *open* today.
- (2) We always make *fast* decisions.
 I dislike *fast* food.
 Angela is a *fast* writer.
- (3) The *newspaper* is on the kitchen table.
 The *newspaper* made ten journalists redundant.

The question is whether knowing the meaning of *open* in (1), *fast* in (2), or *newspaper* in (3) always involves knowing about the kinds of activities one performs when one ‘opens things’, such as pubs, boxes, debates, computer files or books, or how various time specifications, such as ‘at 11’ or ‘today’, influence the interpretation of *open*. Furthermore, we may ask ourselves what entities can be ‘fast’ and in what way, and whether ‘newspapers’ are artefacts, companies or even people. Taylor (2000: 121) raises two important issues in the context of similar examples. The first issue concerns the possibility and desirability of an analysis of meaning variation where no dividing line is drawn. The second issue concerns the problem that apart from linguistic knowledge and encyclopaedic knowledge, the interpretation also involves knowledge of the language in which the expressions are encoded.

constructions and fixedness, e.g. Fillmore, Kay & O’Connor 1988; Goldberg 1995; Hudson 1998; Fillmore & Kay 1999; Erman & Warren 2000; Croft 2001.

Meaning in Cognitive Semantics is referred to as encyclopaedic in the sense that there is no delimited linguistic meaning. This does not mean that all aspects of meaning are considered to be of equal status in Cognitive Semantics (Langacker 1987: 158-161). To include both kinds of meaning specifications on an equal footing would be uneconomical and result in a high degree of polysemy. Langacker uses 'banana' as an example. His knowledge of *banana* includes the fact that his sister put sliced bananas on her cereal for breakfast in the morning, but this fact cannot be listed in the lexicon of the English language. This knowledge cannot be put on a par with essential properties such as type of entity, size, shape, taste and colour. All facets of meaning are conceptual in kind, but not all of them are of equal status. The multitude of specifications that make up our conception of an entity form a gradation in terms of centrality. Some specifications are not possible to omit, while others are completely irrelevant for even the most exhaustive description. This does not entail that all aspects of our knowledge of an entity should at all times be taken into consideration. The lack of a sharp general dichotomy between linguistic and encyclopaedic meanings, and as a logical consequence of that the specifications that are required for specific analyses are of course methodological problems that have to be handled in a principled way.

Langacker deals with the problem of gradation in terms of four *centrality* factors. The centrality of a certain specification is a matter of its relative entrenchment and likelihood of activation. Centrality correlates with the degree to which a specification is *conventional*, *generic*, *intrinsic* and *characteristic*. Conventionality refers to the extent to which a specification is general knowledge in the speech community. This means that it would not be justified to consider 'my sister's breakfast habits when it comes to bananas' or 'my friend from school being allergic to bananas' as part of the conventional meaning of *banana*, even though such knowledge no doubt enriches my own understanding of *banana*.

The second factor that contributes to centrality is the degree to which a meaning specification is generic rather than specific. The fact that my sister eats sliced banana on her cereal for breakfast, or that an old friend of mine is allergic to bananas is specific, while the fact that sliced banana can be served on cereal for breakfast or that people may be allergic to bananas is generic. Generic specifications contribute more to the centrality in the meaning of an expression than specific aspects.

The third factor is intrinsicness. A property is intrinsic to the degree that it makes essential reference to external entities. This means that 'shape', for instance, is a highly intrinsic property of physical objects, such as bananas. Shape does not make external reference. It is just a matter of object internal relations. 'Size', on the other hand, implies external reference to other objects; hence it is not as intrinsic as shape. By the same token, allergic effect of bananas on people or possible use of bananas for breakfast are less intrinsic than size.

The fourth and final factor is to what extent a specification is characteristic. Characteristicness is related to whether a specification is unique to the entities designated by the expression, and as a consequence of that sufficient to identify an entity of the actual class. 'Shape' is generally more characteristic than colour, for instance. A banana can more easily be identified by shape than by colour. All these parameters are independent of each other, but they tend to correlate with each other.

Pustejovsky approaches the same problem in a more conservative way. His approach to lexical semantics is computational and constructive in nature, which means that he has to take seriously various kinds of meaning specifications, if they influence the interpretation of words in context. His goal is to provide a formal statement about the lexicon which is flexible enough to capture the generative nature of lexical creativity and sense extension phenomena. His computational model involves four levels of representation:

Argument structure:

specification of number and type of logical arguments, and how they are realized syntactically.

Event structure:

definition of event type of a lexical item and a phrase, such as [state], [process] and [transition].

Qualia structure:

modes of explanation, i.e. [formal], [constitutive], [telic] and [agentive] roles.

Lexical inheritance structure:

identification of how a lexical item is related to other lexical items in the network of types, and its contribution to the global organization of a lexicon.

[Adapted from Pustejovsky 1998a: 61]

In addition to these levels, the model holds a set of generative devices that connect these four levels of representation and accounts for the flexibility of words in context. They are:

Type coercion:

where a lexical item is coerced to a semantic interpretation by a governing item in the phrase, without change of its syntactic type.

Selective binding:

where a lexical item operates specifically on a substructure of a phrase, without changing the overall type in the composition.

Co-composition:

where multiple elements within a phrase behave as functors, generating new non-lexicalized senses for the words in composition. This also includes cases of underspecified semantic forms becoming contextually enriched, such as manner co-composition, feature transcription and light verb specification.

[Adapted from Pustejovsky 1998a: 61-62]

Both the levels of representation and the generative devices are important for the well-formedness and the interpretability of lexical items in context. Even though Pustejovsky includes extralinguistic knowledge in his qualia structure (*telicity*, what things are used for, and *agentivity*, how they come about) his view of the nature of lexical knowledge is still one of binary judgements. Either an expression is well-formed or not. Well-formedness and semanticity is ultimately a matter of truth, just like grammaticality is for syntactic structures. Semantic well-formedness is ultimately a matter of matching of types in the composition in words in context. Consider the following examples from Pustejovsky (1998a: 41).

- (4) Mary began the book.
 ?Mary began the dictionary.
 ??Mary began the rock.

The three examples in (4) differ in a significant way. *Mary began the book* is semantically acceptable but has two interpretations. The interpretations are either that 'Mary started reading the book' or that 'Mary started writing the book'. 'Reading' and 'writing' represent two different quales of 'book', the telic and the agentive quale. There are no generally available interpretations of *Mary began the dictionary* and *Mary began the rock*, since the semantic possibilities of 'dictionary' and 'rock' are not normally associated with 'begin'.

This is not to say that the interpretation is impossible, however. Speakers and hearers adapt to the situation and accommodate the interpretation of expressions to context and pragmatic effects.

2.4 The problem of combinatorial complexity

A more concrete and precise way of approaching the problem of the linguistic/encyclopaedic divide is to try to tackle the problem of polysemy using real data. Polysemy is at the heart of any discussion of meaning. Any attempt to pin down linguistic meaning of items in a lexicon requires a definition of polysemy, which in turn requires a serious treatment of the combinatorial complexity of natural language. Polysemy is traditionally defined in terms of antagonism. Conjoined antagonistic meanings are ambiguous and zeugmatic. In the sentence ‘?She loves her children and smoked salmon’, *love* intuitively comes across as ambiguous. It is, however, not always an easy task to find good test sentences like this, and it is often problematic to distinguish between ambiguity and vagueness, if that is at all possible (Warren 1988 & forthcoming; Tuggy 1993; Geeraerts 1993; Cruse 1995 a & b, 2001). Again, this is an indication of the arbitrariness of positing a definite divide. It points up the dynamic nature of language in use, where meanings spring from the activation of different conceptual patterns in combination with different construals in a very subtle way.

In order to make this point clear, we may use *old* as an example. Out of context *old* would probably be rendered as ‘something that has lasted long’. To fully understand *old* we need to know what the combining noun is, for instance *old car*, *old friend* and *old boyfriend*. The interpretation of *old* in an *old car* is likely to be ‘that the car has been around for a long time, whatever a long time is in the context of cars’. Similarly, the most likely interpretation of *old* in an *old friend* is ‘somebody who has been around for a long time as a friend’, but this friend may very well be quite young. It is the duration of the friendship that is perspectivized. Finally, an *old boyfriend* may neither have been around for a long time nor be old. What *old* means in the context of *boyfriend* is most likely that ‘this man is no longer my boyfriend’.¹⁰ Our ‘out-of-context’ interpretation: ‘having long duration of time’ applies to *old* in an *old car*. It applies to some degree to an *old friend*, but it does not apply at all to an *old boyfriend*.

Polysemy in cognitive linguistics is a natural consequence of our ability to think flexibly. Conceptual space is structured, and every utterance is understood relative to one or more *domains* (Langacker 1987: 147). The domains represent any kind of complex cognitive structure. Cruse & Toggia (1996: 113f; Paradis 1997: 41-64) distinguish two types of domains, the *content domain* and the *schematic domain*. Content domains involve meaning proper, while schematic domains provide the conceptual representations for specific configurative frames. Both these domains are conceptual in nature and mirror our perception of the world. There is also an operating system consisting of different modes of construal which are imposed on the domains. They are not themselves domains, but ways of structuring domains, reflecting basic cognitive abilities subsumed under five headings: *specificity*, *background*, *perspective*, *scope* and *prominence* (Langacker 1999: 5). Semantic contrast is due to the actual domains invoked in a particular expression and to the ranking of prominence among the domains (Langacker 1987: 57, e.g. *come* and *go*, *half empty* and *half full*, *explode* and *explosion*). Also, the selected *active zone* of the domain is important for metonymies such as in *The newspaper made ten journalists redundant*, for instance (Langacker 1987: 271-174).

¹⁰ Notice that if you say *my old car* instead of *an old car* the interpretation can be, but is not necessarily similar to the interpretation of *an old boyfriend*, i.e. ‘no longer my car’. See Taylor (1992) for a semantic analysis of *old*.

The interplay between content domains and schematic domains can be demonstrated by the adjectives *complete* in *complete sentence* and *complete nonsense*. The concept of ‘completeness’ maps on to a content proper domain and a schematic domain. *Complete* in a *complete sentence* is dominated by the content proper domain. It is the content proper that makes the basis for the valence relation created between ‘complete’ and ‘sentence’. The quale bound by the adjective is the propensity for a sentence to be complete or not. The foregrounded content part of ‘completeness’ maps on to the formal and constitutive quales of ‘sentence’ as something consisting of parts and rules for their arrangement. This is the common ground where the two predications meet in a well-formed valence relation. The mechanism which combines two elements and makes them well-formed and possible to interpret is valence. According to Langacker (1988: 102) “a valence relation between two predications is possible just in case these predications overlap, in the sense that some substructure within the other one is construed as identical to it”.

The meaning of *complete* in *complete nonsense* is not decomposable in the way *complete* in *complete sentence* is. First of all, there is loss of content proper in the content proper part of its semantic structure. The application of *complete* is abstracted away from its foundation in the content domain and has assumed a function as a marker of degree and epistemic modality. The semantic loss is compensated for by pragmatic enrichment. What has happened is that the schematic domain of [DEGREE] is foregrounded, while the content proper is hovering in the background. The propositional loss is the reason for the inability of *complete* to bind a particular quale in the noun. What *complete* can identify and bind is gradability (Paradis 2000b). *Complete* in *complete nonsense* is a functional element. Functional elements are not given much attention in the lexical semantics literature. Many puzzles remain in the area of semantic change, i.e. shifts of prominence between content domains and schematic domains. A proper analysis of the importance of content configuration is missing in Pustejovsky’s model. In Paradis’ model (2000 a & b, 2001 & forthcoming), the schematic domain in combination with actual construals are crucial for the formation of multiple meanings of this kind (for aspects of diachronic change, see Schwenter & Traugott 2000 and Traugott & Dasher 2002).

A central issue for the study of polysemy is thus whether (i) a given lexeme is interpreted as a single inherently vague notion, or (ii) whether the various shades of meaning of a given lexeme are to be attributed to the context. Pustejovsky (1998a: 55-60) describes the two views as (i) the *monomorphic* model, which treats polysemy as multiple listing. Our *old* example would then be treated as having three different meanings. The polysemy is situated in the inherent meaning of the adjective and senses are fixed. This view has been predominant in formal approaches to semantics (Montague 1974, Jackendoff 1996: 111-118). The inverse of the monomorphic model in Pustejovsky’s terminology is (ii) the *restricted polymorphic* model which denies the role of fixed senses. Polysemy is pragmatically determined and there are no fixed senses inherent in words that constrain the meaning of a word in context. This is a view held by Searle (1979).

Both these approaches to polysemy are uneconomical. Apart from being unable to make generalizations about the senses in a polysemous relation including the dynamic and creative use of words, both models are descriptively and explanatorily inadequate. The main argument against the monomorphic view is that it fails to recognize the sense relations between polysemies, and the main argument against the restricted polymorphic language is that it fails to recognize fixed senses. Pustejovsky subscribes to a middle position which seems better suited to solve the polysemy problems. The middle position is (iii) the *weak*

polymorphic model.¹¹ Adherents of weak polymorphism treat polysemy as in part lexically determined and in part structurally and pragmatically determined. This is also the view I find most plausible.

Without necessarily positing a lexicon in the generative sense, I purport that when meanings of words in isolation are evoked, they are underspecified and bereft of possibly relevant specifications, whether linguistic or encyclopaedic. Words in context are prone to evoke more meaning specifications, whether linguistic or encyclopaedic. This is the position of Pustejovsky (1998b) and Langacker (1999: 91-145). The consensus on this aspect has nothing to do with the position on the possibility of locating a dividing line between linguistic and encyclopaedic knowledge or the positing of a lexicon which holds information of a non-conceptual character.

In a cognitive account of semantics, polysemy is expected as a natural consequence of the dynamic, usage-based view of language. Lexical items are shaped by the environment they occur in, which gives rise to polysemies. Conventionalized polysemy is the result of entrenchment of lexical items as units. Language is a 'structured inventory of conventional linguistic units' or cognitive routines (Langacker: 1987: 57). Apart from these linguistic units, we have other resources at our disposal, such as memory, intentions, general knowledge, apprehension of the social and cultural and linguistic context, etc. Instances of language use result from all these factors.

The question then is whether this means that there are contextual meanings and that meanings of words in isolation are not an issue. The answer is that meanings are shaped in context, both in language acquisition and in language use, but we are also able to make generalizations by abstracting away from contextual variants. *Abstraction* is a general psychological phenomenon that involves 'the emergence of a structure through reinforcement of the commonality inherent in multiple experiences' (Langacker 1997: 234-236; 1999: 93). This is a process that makes it possible for us to operate at different levels of granularity. So, when it comes to polysemy Pustejovsky's and Langacker's models are both weakly polymorphic. We have conceptions of words in isolation and words in context. Contextual variants are more fundamental. Formal models of semantics tend to focus on meanings that are easily handled by the model (e.g. Montague 1974). The difference in focus between dynamic usage-based models and most formal models has to be attributed to the scope in research and the level of interest in descriptive adequacy of natural language.

2.5 *The nature of lexical knowledge*

This section returns to the ontological question of lexical knowledge, which was raised in Section 2.3. In an analysis of the ontology of semantic relations, such as antonymy and synonymy, Murphy (2000) takes a close look at the linguistic/encyclopaedic divide. She takes a step back from the conflicting ideas between the generative modular approach and the non-modular cognitive view on the linguistic/encyclopaedic divide. Murphy assumes a modular basis for what linguistic knowledge is and what it is not. She explores the nature of lexical relations from a modularist point of view on the grounds of hypothesis-formation, i.e. modularity is used on methodological rather than on linguistic grounds. The reason is that it is only by a theoretical platform with strict definitions of what a lexicon is that the existence of some given linguistic material in it can be disproved.

¹¹ This view appears in different guises in different semantic models, e.g. Warren (1988); Taylor (1992), Cruse (1995 a & b) and Kamp & Partee (1995). Note that this comparison is made without reference to the nature of the lexicon as such or to the dynamic/static aspects of these models.

Murphy assumes a tri-partite definition of lexical knowledge based on a few hypotheses about the nature of meaning. The assumptions of linguistic knowledge are that in the lexicon we find only arbitrary information about lexical items that are relevant to linguistic competence. The lexical entry in combination with rules in the grammar provide predictable facts about it, which contribute to linguistic competence. Encyclopaedic knowledge is information that is predictable from world knowledge (e.g. cherries are red) and cognitive principles (e.g. inferences). Encyclopaedic knowledge is not represented in the lexicon, but is conceptual. Murphy remains agnostic about what kind of semantic information is relevant to linguistic competence in general. Her study is restricted to semantic relations. The outcome of the study is that semantic relations are not part of a modular lexicon.

A modular lexicon cannot accommodate all the information that is necessary in order to use words in semantically and pragmatically appropriate ways, i.e. semantic competence in a language is not wholly dependent on information in the lexicon; the conceptual realm must be involved in the production and interpretation of meaningful utterances. Murphy (ibid: 330) makes three distinctions about lexical knowledge following from the above-mentioned assumptions. They account for the linguistic/conceptual (encyclopaedic) divide, but they do not make any claims as to whether it is possible to make dividing lines. The human mind thus holds:

- (i) Lexical knowledge *of* words
- (ii) Conceptual knowledge relating to words, or knowledge *about* words;
- (iii) Conceptual knowledge relating to the denotata of words, or knowledge *of/about* the world.

The lexicon (i) holds specifications that allow people to competently use a word (e.g. *horse*) in a sentence. It holds only information that is both arbitrary and relevant to linguistic competence. Knowledge about the world relating to words (ii) includes facts that we store in memory and knowledge that is derived from other things we know. This conceptual knowledge makes it possible for us to have a conversation *about* horses. Conceptual knowledge relating to the denotata of words (iii) involves knowledge of lexical relations and how categories relate to one another. 'Horse' is conceptually represented in its inheritance structure. For instance, 'horses' are 'mammals' and 'animals'.¹² In more traditional terms one may say that these three types of knowledge represent our knowledge *of* the word, knowledge *about* its sense, and finally knowledge *of/about* the entity or relation itself, the referent.

The above three distinctions are useful in the discussion of any theory of lexical semantics irrespective of whether we think that we are able to identify the dividing lines between the three types of knowledge or not. Clearly, there is some kind of distinction between knowing *of* words and knowing *about* words. We are all familiar with situations when we recognize a word in whatever language it may be, but the meaning escapes us. The reverse is also a common phenomenon, namely that we have the conceptualization of a word but cannot come up with a word for it. It may even be the case that we have a conceptualization of a word that we are incapable of using. Murphy gives *hili* as an example. She has a conceptualization of the word, because in Scrabble you learn that it is an English word, but it is not an entry in her lexicon (ibid: 332).

Murphy's distinctions are helpful instruments in the work of untangling a knotty problem in linguistic theorizing. However, in contrast to Murphy, I suggest a model that falls into two types of knowledge of lexical items. These two types form a continuum. The first

¹² Lexical relations (the topic of Murphy's paper) are found to be conceptual in nature, since different senses of one word may have different antonyms and synonyms. Also related pairs may vary in strengths of their relations (see also Willners 2001).

type is (i) conceptual knowledge *of/about* the words of the encoding language, and the second type is (ii) conceptual knowledge *of/about* the world. This does not mean that we cannot have concepts without words or vice versa. It only means that if we have both words and matching concepts, there is no purely linguistic structure that goes between them, and there is no independent way we can distinguish words from concepts. Even if we do not know the meaning of a word, we can have some conceptual knowledge of it, such as ‘the carpenter said it’. Lexical items are the source of conventional items that users of a specific language have at their disposal. The conventionalized routines of linguistic expression may be referred to as the lexicon. However, such a lexicon is not an encapsulated component. On the contrary, it is inseparable from conceptual knowledge and cognitive abilities in general. Lexical items evoke and are evoked by concepts, which involve all kinds of meaning specification that we use in various usage-events. I see no reason for postulating a separate non-conceptual type of lexical knowledge. I agree with Jackendoff when he says that, compared to other mental properties, the lexicon is not unique (although I do not posit a lexicon in his sense).

Recall again what a word is: a way of associating units from distinct levels of representation. Now consider what it takes to be able to look at food and know what it tastes like: a learned association between a visual and a gustatory representation. How many of those do we store? A lot, I should think. From a formal point of view these associations of representations are not unlike those between phonological and conceptual structures. And as far as learning goes, they’re almost as arbitrary as word-meaning associations. Mashed potatoes and French vanilla ice cream don’t look that different.

(Jackendoff 1997: 107)

From my proposed two-level model of lexical knowledge, it follows that conceptual knowledge *of/about* words enables us to make judgements about well-formedness (conventionality), based on evoked patterns of both knowledge domains and schematic domains. Expressions are built up from the bottom. Valence-structures that do not match result in judgements of ill-formedness. The other type of lexical knowledge is the conceptual knowledge *of/about* the world, which, of course, is essential to meaning and inseparable from conceptual knowledge *of/about* words once connections have been established. Conceptual space is highly structured and will thereby ease lexical retrieval. A model like this accounts for lexical relations by locating these relations in conceptual space and thereby making both word relations and semantic relations possible at the same time. The model is also capable of accounting for collocational preferences in terms of matching valence relations and entrenched routines, and phenomena such as lexical gaps do not provide any problems in a model of this type. Structure comes from conceptual organization, while there is no structure among the words.

3. CONSEQUENCES AND CONCLUDING REMARKS

The purpose of this paper has been to find out whether the notion of linguistic competence is relevant in Cognitive Semantics, and a great many problems surrounding this notion have been identified and discussed. The precise questions were (i) whether it is possible to pin down linguistic competence, and, if so, (ii) whether this presupposes a well-defined lexicon or not and (iii) in what way the notion of linguistic competence contributes to theoretical

validity in terms of descriptive adequacy, economy, and explanatory power of the interpretation and well-formedness of expressions in language.

The question whether the notion of linguistic competence is at all relevant within the cognitive framework is in actual fact a non-question, since linguistic competence is a purely theory-internal notion that presupposes modularity. If we still want to debate the issue, we may answer the question with: *yes* and *no*. Such a ‘neither-nor’ position requires some qualification and a re-definition of competence which has consequences for the linguistic/encyclopaedic divide and the possible role and nature of the mental lexicon. Competence in Cognitive Semantics is the language users’ ability to adequately construct and fully understand expressions by means of language itself and additional resources such as memory, intentionality, general knowledge etc. Competence also includes our ability to make abstractions, which allow us to conceive of words in isolation. Yet, it is important to point out that this is secondary to meanings in context in that it is a process starting in the various usage events, and as the word *process* indicates it is a result of language use and is dynamic in nature. This definition is in stark contrast to most generative definitions, in which the scope is narrowed down to the enumeration of fixed senses that apply in well-formed sentences. The goal of lexical semantic research in Cognitive Linguistics is to obtain the whole picture of how expressions are produced and interpreted in real situations. This view of language supports corpora and experimental methods as the major sources of information for testing cognitive models.

The answer to whether it is possible to pin down linguistic competence as it is understood in the generative school of thought is *no*. The reason is that it is not possible to make an absolute distinction between linguistic knowledge and encyclopaedic knowledge, as has been demonstrated in this paper. The claim that this is possible is vacuous in the analysis of natural language and can only be rendered true by definition. The definition is that meaning specifications that are deemed non-arbitrary are simply excluded from semantic analysis. Moreover, most non-computational formal approaches to meaning are non-dynamic. This means that there is no natural way of accounting for processes such as the coining of novel expressions, polysemy, fixedness (non-compositionality) and aspects of change in language. In Cognitive Semantics, meaning specifications that are relevant for an expression in specific usage-events are prompted by centrality factors, which correlate with the degree to which a specification is conventional, generic, intrinsic and characteristic. A defined divide would not reflect language properly. In principle I am sympathetic to Murphy’s idea of using a defined divide as an operational theoretical construct to be used in order to form hypotheses that can be falsified. It should be noted that this is not a position that is based on any linguistic grounds but is purely methodological in nature.

It follows from this that there is no lexicon in the generative sense, i.e. defined as a component that holds specifications that are both arbitrary and relevant to linguistic competence. I suggest a model that is subdivided into two types of conceptual knowledge, which form a continuum. The first type is (i) conceptual knowledge *of/about* the words of the encoding language. The source of lexical items are conventional routines available to users of a specific language. These routines may be referred to as the lexicon. The cognitive lexicon is not an encapsulated component. It is not possible to separate linguistic knowledge from non-linguistic knowledge in a general and principled way. Lexical items evoke and are evoked by concepts involving all kinds of meanings specifications relevant in the actual usage-event. I see no point in postulating a separate non-conceptual type of lexical knowledge. The other type of lexical knowledge is the conceptual knowledge *of/about* the world, which, of course, is essential to meaning and inseparable from conceptual knowledge *of/about* words once connections have been established. Conceptual space is highly structured and will thereby ease lexical retrieval.

Finally, the third question concerns (iii) in what way the notion of linguistic competence contributes to theoretical validity in terms of descriptive adequacy, economy, and explanatory power of the interpretation and well-formedness of lexical expressions in language. As has been pointed out, linguistic competence in its generative sense is only valid by definition. It does not reflect the nature of natural languages. This stance may be considered more economical than the cognitive approach in this respect. Restricting the scope of investigation favours economy but may thereby ultimately restrict the explanatory power. However, restricting the scope in this way also means proliferation of mental representations. Generative approaches may be good at handling some specific problems, but fail to cope with flexibility and well-formedness in combinatorially complex expressions. Within the framework of Cognitive Semantics, lexical knowledge of various degrees of entrenchment and abstraction emerges from repeated applications of processes such as categorization, comparison and symbolization in different combinations and at different levels in the network (Langacker 1999: 95). The goal is to describe and explain all facets of lexical knowledge adequately.

References

- Brugman, C. 1981. *Story of over*. Indiana Linguistics Club, Bloomington, IN.
- Bierwisch, M. 1986. "On the nature of semantic form in natural language". In *Human memory and cognitive capabilities: mechanisms and performances*. Eds. F. Klix & H. Hagendorf. Amsterdam: Elsevier 765-784.
- Borschev, V. & B. H. Partee. 2001. "Genitive modifiers, Sorts, and Metonymy". *Nordic Journal of Linguistics* 24: 2140-160.
- Chomsky, N. 1957. *Syntactic structures*. The Hague: Mouton & Co.
- Chomsky, N. 1965. *Aspects on the theory of syntax*. Cambridge, Massachusetts: The MIT Press.
- Chomsky, N. 1986. *Knowledge of language: its nature, origin and use*. New York, Westport, Connecticut & London: Praeger.
- Chomsky, N. 2000. "Minimalist inquiries: The framework." *Step by step*. Ed. M. Roger, D. Michaels & J. Uriagereka. Cambridge, Mass: The MIT Press 89-155.
- Croft, W. 2001. *Radical construction grammar: Syntactic theory in typological perspective*. Oxford: Oxford University Press.
- Cruse, A. 1995a. "Polysemy and related phenomena from a cognitive linguistic viewpoint". *Computational lexical semantics*. Eds. P. St. Dizier & E. Viegas. Cambridge: Cambridge University Press 33-49.
- Cruse, A. 1995b. "Between polysemy and monosemy". *New trends in semantics and lexicography*. Eds. H. Kardela & G. Persson. Umeå: Swedish Science Press 25-34.
- Cruse, A. & P. Togia. 1996. "Towards a cognitive model of antonymy". *Lexicology* 1: 113-141.
- Cruse, A. 2000. *Meaning in language*. Oxford: Oxford University Press.
- Cruse, A. 2001. "Microsenses, default specificity and the semantics-pragmatics boundary". *Axiomathes* 12: 35-54.
- Deane, P. 1996. "On Jackendoff's conceptual semantics". *Cognitive linguistics* 7.1: 35-92.
- Erman, B. & B. Warren. 2000. "The idiom principle and the open choice principle". *Text* 20.1: 29-62.
- Fauconnier, G. 1997. *Mappings in thought and language*. Cambridge: Cambridge University Press.
- Fillmore, C., P. Kay & M.C. O'Connor. 1988. "Regularity and idiomaticity in grammatical constructions: The case of *let alone*". *Language* 64: 501-38.
- Fillmore, C. & P. Kay. 1999. "Grammatical constructions and linguistic generalizations: The What's X doing Y? constructions". *Language* 75.1: 1-34.
- Fodor, J. 1983. *The modularity of mind*. Cambridge, Mass & London: The MIT Press.
- Geeraerts, D. 1993. "Vagueness's puzzles, polysemy's vagaries". *Cognitive Linguistics* 4: 223-72.
- Gärdenfors, P. 2000. *Conceptual spaces: the geometry of thought*. Cambridge, Mass: The MIT Press.
- Goldberg, A. 1995. *Constructions: a construction grammar approach to argument structure*. Chicago: University of Chicago Press.
- Goldberg, A. 1996. "Jackendoff and construction-based grammar". *Cognitive linguistics* 7.1: 3-19.
- Hudson, J. 1998. *Perspectives on fixedness: applied and theoretical*. Lund: Lund University Press.
- Jackendoff, R. 1991. "Parts and boundaries". *Cognition* 41: 9-45.
- Jackendoff, R. 1996. "Conceptual semantics and cognitive linguistics". *Cognitive linguistics* 7.1: 93-129.

- Jackendoff, R. 1997. *The architecture of the language faculty*. Cambridge, Mass: The MIT Press.
- Jackendoff, R. 2002. *Foundations of language*. Oxford: Oxford University Press.
- Kamp, H. & B. Partee. 1995. "Prototype theory and compositionality". *Cognition* 57: 129-191.
- Katz, J. 1972. *Semantic theory*. New York: Harper and Row.
- Lakoff, G. & M. Johnson. 1980. *Metaphors we live by*. Chicago: University of Chicago Press.
- Lakoff, G. 1987. *Women, fire and dangerous things*. Chicago & London: The University of Chicago Press.
- Lakoff, G. 1990. "The invariance hypothesis: is abstract reason based on image-schemas?" *Cognitive linguistics* 12.1: 39-74.
- Langacker, R. 1987. *Foundations of cognitive grammar* (vol 1). Stanford: Stanford University Press.
- Langacker, R. 1988. "The nature of grammatical valence". *Topics in cognitive linguistics*. Ed. B. Rudzka-Ostyn. Amsterdam: Benjamins 91-125.
- Langacker, R. 1991. *Concept, image and symbol*. Berlin: Mouton de Gruyter.
- Langacker, R. 1997. "The contextual basis of cognitive semantics". *Language and conceptualization*. Eds. J. Nuyts & E. Pederson. Cambridge: Cambridge University Press 229-253.
- Langacker, R. 1999. *Grammar and conceptualization*. Berlin: Mouton de Gruyter.
- Levinson, S. 1997. "From outer space to inner space. Linguistic categories and non-linguistic thinking". In *Language and conceptualization*. Eds. J. Nuyts & E. Pederson. New York: Cambridge University Press 13-45.
- Montague, R. 1974. *Formal philosophy*. New Haven & London: Yale University Press.
- Murphy, L. 2000. "Knowledge of words versus knowledge about words: The conceptual basis of lexical relations". *The lexicon-encyclopedia interface*. Ed. Bert Peeters. Amsterdam: Elsevier 317-348.
- Paradis, C. 1997. *Degree modifiers of adjectives in spoken British English*. Lund: Lund University Press.
- Paradis, C. 2000a. "It's well weird. Degree modifiers of adjectives revisited: the nineties". *Corpora galore: analyses and techniques in describing English*. Ed. J. Kirk. Amsterdam & Atlanta: Rodopi 147-160.
- Paradis, C. 2000b. "Reinforcing adjectives: A cognitive semantic perspective on grammaticalization". *Generative theory and corpus studies*. Eds. R. Bermúdez-Otero, D. Denison, R. M. Hogg & C. B. Mc Cully (eds). Berlin: Mouton de Gruyter 233-258.
- Paradis, C. 2001. "Adjectives and boundedness". *Cognitive Linguistics* 12.1: 47-65.
- Paradis, C. (forthcoming). "Between epistemic modality and degree: the case of *really*". *Modality in contemporary English*. Eds. R. Facchinetti, F. Palmer & M. Krug. Berlin: Mouton de Gruyter.
- Pinker, S. 1989. *Learnability and cognition*. Cambridge, Mass & London: The MIT Press.
- Pustejovsky, J. 1998a. *The generative lexicon*. Cambridge, Mass & London: The MIT Press.
- Pustejovsky, J. 1998b. "The semantics of underspecification". *Folia Linguistica* 32.3-4: 323-347.
- Saussure, F. de. 1960. *Course in general linguistics*. Eds. C. Bally & A. Sechehaye. London: Owen.
- Schwenter, S. A. & Traugott E. C. 2000. "Invoking scalarity: The development of *in fact*". *Journal of historical pragmatics* 1.1: 7-22.
- Searle, J. 1979. *Expression and meaning*. Cambridge: Cambridge University Press.
- Sperber, D. & D. Wilson. 1998. *Relevance: communication and cognition*. Oxford: Blackwell.

- Talmy, L. 2000. *Towards a cognitive semantics*. Cambridge, Mass: The MIT Press.
- Taylor, J. 1992. "Old problems: adjectives in cognitive grammar". *Cognitive Linguistics* 3.1: 1-35.
- Taylor, J. 1996. "On running and jogging". *Cognitive Linguistics*, 7.1: 21-34.
- Taylor, J. 2000. "Approaches to word meaning: The network model (Langacker) and the two-level model (Bierwisch)". *The lexicon-encyclopedia interface*. Ed. B. Peeters. Amsterdam: Elsevier 115-141.
- Tomasello, M. 2000. "First steps toward a usage-based theory of language acquisition". *Cognitive Linguistics* 11-1/2: 61-82.
- Traugott E. C. & R. B. Dasher. 2002. *Regularity in semantic change*. Cambridge: Cambridge University Press.
- Tuggy, D. 1993. "Ambiguity, polysemy, and vagueness". *Cognitive Linguistics* 4.3: 273-290.
- Warren, B. 1988. "Ambiguity and vagueness in adjectives". *Studia Linguistica* 42.2: 122-172.
- Warren, B. (forthcoming). "The role of links and/or qualia in modifier-head constructions". *Polysemy: Patterns of meaning in mind and language*. Eds. D. Clarke, V. Herman, B. Nerlich & Z. Todd. Amsterdam: John Benjamins.
- Willners, C. 2001. *Antonyms in context. A corpus-based semantic analysis of Swedish descriptive adjectives*. Lund: Travaux de l'institute linguistique.