

An Overview of Cognitive Linguistics

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1. Historical context of cognitive linguistics: origin

Cognitive linguistics is a rather recent linguistic theory¹. Though it is always difficult to locate exactly the date of birth of any theory, an important date in the inception of this theory is 1987. In this year, three of its foundational books were published: Lakoff's *Women, Fire and Dangerous Things*, Langacker's *Foundations of Cognitive Grammar* and Mark Johnson's *The Body in the Mind*. Some other dates which could give us some cues on the temporal course of this theory are 1989 (creation of the International Cognitive Linguistics Association (ICLA)) and 1990 (first journal dedicated to the dissemination of its ideas, *Cognitive Linguistics* (Mouton de Gruyter) and First International Cognitive Linguistics Conference). A further sign of the youth of this theory is the existence, even nowadays, of barely four or five introductions to cognitive linguistics (cf the bibliography section), the first one dating from 1996 (less than nine years ago; the first introductions in Spanish date from 1994 and 1999, respectively²). All of this indicates that Cognitive Linguistics is a rather recent theory, which has been developing steadily for the last fifteen years or so. In this period of time, the number of publications has grown exponentially, and currently it is literally impossible to keep track all the works published within the framework.

Cognitive linguistics first started as a reaction against generative approaches to language. Chomskyan-generative tradition had built a view of language which made very strong commitments about the primacy of syntax, disregarding the role of semantics and pragmatics in linguistic theorizing. This was considered highly inappropriate for many authors, who, like Langacker, thought that:

¹ It is not, strictly speaking, one single theory, but rather a group of theories that share a number of basic theoretical principles; however for the sake of easy reference, we will refer to it a theory

² Cifuentes Honrubia, José Luis (1994) *Gramática cognitiva. Fundamentos críticos*, Madrid: Eudema and Cuenca, M.Josep and Joseph Hilferty (1999) *Introducción a la lingüística cognitiva*, Barcelona: Ariel.

Meaning is what language is all about; the analyst who ignores it to concentrate solely on matters of form severely impoverishes the natural and necessary subject matter of the discipline and ultimately distorts the character of the phenomena described (Langacker 1987:12)

Other aspects of the generative agenda were also extremely controversial, namely, the assumption of innate structures for grammar and language, especially in the form of a “universal grammar”, and the assumption that linguistic knowledge is isolated from the rest of cognitive faculties, which resulted in the claim of the autonomy of syntax and the modularity of language, that is, the existence of a specialized brain module dedicated to processing language in an encapsulated manner.

All these aspects were therefore addressed head on since the very beginning by cognitive linguists, who made a conscious effort to distance themselves from the above assumptions, which were then considered part of “mainstream” linguistics, and whose status was questioned by very few people at the time when cognitive linguistics started.

2- Basic theoretical and methodological principles of cognitive linguistics

2.1 Basic theoretical principles

Cognitive linguistics has two fundamental tenets.

2.1.1. Non-modularism

The first one affects the very status of language as a human ability. Cognitive linguists do not regard the ability to learn and use one’s mother tongue as due to a unique faculty, a special innate mental module, distinct from other general cognitive abilities. The modularity hypothesis is still strongly advocated by generativist theorists (see e.g. Chomsky 1986:18, Fodor 1983) and by other more or less faithful followers of Chomsky, including Jackendoff (see e.g. Jackendoff 1996:96). Research in anthropological linguistics (Berlin and Kay 1969, Kay 1975, Kay and McDaniel 1978), in cognitive psychology (e.g. Heider³ 1971, 1972, Heider and Oliver 1972, Rosch 1973, 1977, 1978, Rosch and Mervis 1975, Rosch 1983), in cultural anthropology (e.g. Berlin, Breedlove and Raven 1974, Kempton 1981, Holland and Quinn 1987), evolutionary biology (e.g., Deacon 1997) and, to a lesser extent, in neurology and neurophysiology (Damasio 1994, Edelman 1992), rather seems to support a very different view.

This view is that general cognitive abilities, like our kinaesthetic abilities, our visual or sensorimotor skills, and above all, our typically human categorisation strategies, especially

³ Eleanor Heider began publishing under the name Eleanor Rosch after 1973.

our tendency to construct categories on the basis of prototypical basic-level subcategories or exemplars (Neisser 1987, Rosch 1983, Tsohatzidis 1990) jointly account, together with cultural, contextual and functional parameters, for the main design features of languages and for our ability to learn and use them. The so-called “language faculty” is, thus, claimed to be a product, or rather a specialization, of general cognitive abilities.

A keyword in cognitive linguistics is *embodiment* (Johnson 1987, Lakoff 1987, 1993a; Lakoff and Johnson, 1980, 1999 and their forthcoming book). Mental and linguistic categories cannot be abstract, disembodied or human-independent. Quite the opposite: we construct and understand our categories on the basis of *experience*, under the constraints imposed by our bodies. Human conceptual categories, the meanings of words and sentences, of linguistic structures at any level, are not just a combination of a set of universal abstract features, of uninterpreted symbols. A very large number of these meanings and structures are more or less directly motivated by experience, in many cases, by bodily experience.⁴

Therefore, to cognitive linguistics, concepts, including linguistic concepts, are ultimately *grounded in experience* (bodily / physical experience, or social / cultural experience). This is thus apparently in conflict with an axiom in twentieth century linguistics: that of the arbitrariness of the linguistic sign.⁵ This insistence on embodiment and motivation explains the important role accorded to linguistic iconicity by cognitive linguists (Haiman, 1985)

This view of language as a product of general cognitive abilities is in fact a result of the observance of a yet more basic principle in cognitive linguistics, namely, “the *cognitive commitment*” (Lakoff 1990): linguistic theory and methodology must be consistent with what is empirically known about cognition, the brain, and language. Since empirical evidence (especially psychological and linguistic, but also neurological, evidence) strongly favours the

⁴ We would want to hypothesize, in fact, that the conventional meaning of most morphemes, words, and syntactic structures was partly motivated and not wholly arbitrary. At least they were in their genesis as symbolic structures at some stage in the development of a given language or of its parent languages. For example, Heine 1993 proposes three basic bodily-spatial semantic schemas as the motivation for grammatical categories (see also Goldberg 1995). According to Lakoff (1990, 1993a), most (if not all) basic abstract concepts, such as causation or time, or quantity (which underlie the meanings and the form of many linguistic structures) originate (via metaphor) in our bodily experience of spatial relations. This is, of course, a radical version of the embodiment claim. But most cognitive linguists agree that our bodily experience plays a major motivating role in the semantic and syntactic structures of languages.

⁵ Of course this is not to say that *total* motivation is the rule in linguistic forms or meanings. In many cases, in fact, the motivation is no longer apparent to the native speaker. Just think of the word *sad*: there appears to be no apparent motivation for its present meaning. But historical research may discover this motivation: in this case, the emotional meaning is a metaphorical extension from an earlier bodily meaning (‘sated’, ‘full’), on the basis of a basic metaphor that regards the person as a container for emotions (Barcelona 1986, Kövecses 1990).

nonmodularist hypothesis, most cognitive linguists adopt this hypothesis; but they would take a modularist position if the bulk of evidence supported it.

2.1.2. “Non-objectivist”, “blueprint” view of linguistic meaning

The second fundamental tenet is concerned with the theory of linguistic meaning. Cognitive linguists claim that meanings do not ‘exist’ independently from the people that create and use them, as Reddy brilliantly showed long ago in a now classic essay (Reddy 1993 (1979)). Therefore they reject what both Lakoff (1987) and Johnson (1987) have termed ‘objectivism’ in linguistics and philosophy, since there is no objective reality which is independent from human cognition. And linguistic forms, as Fillmore, Lakoff, or Langacker say (see Ungerer and Schmid 1996:208-209) are just clues, “blueprints” that activate the conceptual structures that we have formed in our minds, but have no *inherent* meanings *in* themselves. Meanings ‘reside’ in our minds and our brains (they can be characterised as neural routines). Linguistic forms just activate them⁶

Though meanings are not really inherent in linguistic forms, they are conventionally *paired*, more or less directly, to them. As Lakoff (1987: 583) puts it:

The primary function of language is to convey meaning. A grammar should therefore show as directly as possible how parameters of form are linked to parameters of meaning.

This association is very often more or less directly motivated, as we said above. Therefore, the cognitive linguist tends to regard every distinction in form, no matter how small, as in principle being linked to a corresponding distinction in meaning (in a very broad sense of ‘meaning’). To put it differently, a cognitive linguist is in principle inclined to be suspicious of claims of synonymy, or of paraphrase relations, which in our view can never be absolute (Taylor 1995:55-57), and to try and discover the *symbolic value* of each linguistic form.

2.2. Methodological principles

The above two main theoretical standpoints have a number of important consequences for linguistic methodology.

2.2.1 Methodological consequences of non-modularism

The perception of our linguistic skills as a product of general cognitive abilities has brought about, on the methodological plane, the rejection of the requirement that all analytical

⁶ Of course, the activation of meaning structures by linguistic cues is not so direct; complex interactions with contextual information (including the mental states and goals of participants) have to be taken into account. The gap between linguistic specifications and the mental meanings constructed from them is probably the hardest problem for any theory of language use.

linguistic categories must impose necessary and sufficient conditions for membership in the category. Such a requirement entails, for instance, that there has to be one abstract, general definition (or a structural description) of passive clauses, which every seemingly passive clause conforms to. But such a definition is actually impossible to arrive at: no matter how sophisticated, it would always exclude some likely candidates.⁷ Another consequence of this traditional requirement would be the need for positing core abstract meaning complexes shared by all the senses of polysemous lexical items. The two different senses of *eye* in *She has blue eyes* and in *The eye of the needle* would thus be considered as related to one common, abstract semantic core (see Lakoff and Johnson 1980: Ch. 18). This semantic core might be claimed to be ‘circular shape’ + ‘receded’. But, though arguably present in the two previous examples involving *eye*, this core cannot be discovered in the sense of *eye* manifested in *He has a good eye for beauty*, where the sense extension is due to metaphor or metonymy (see Sweetser 1986).

A cognitive linguistic methodology would take a very different path. One of the basic general cognitive abilities reflected in the structure and use of languages is prototype categorisation: human categories are normally characterised by having one typical member of a category (the prototype), to which other members are related in a motivated way, these less central members departing from the prototype in varying degrees and along various dimensions (see all the references above to the work by Rosch and others). A cognitive methodology would then identify the prototypical use of *eye* as that referring to a body-part, and would treat the other uses of this lexeme as motivated non-prototypical senses, related in a systematic way to the prototypical sense. In *The eye of the needle* and in *He has a good eye for beauty* the link is metaphorical. The study of polysemy and of the sense networks in polysemous lexical items thus becomes central in a cognitive approach.⁸ Of course this interest in sense networks or meaning chains is not incompatible with acknowledging the role of abstraction in the mental construction of prototypical senses.⁹ Similarly, a cognitive grammarian would recognise a central type of passive construction and a series (a network)

⁷ Which syntactic or semantic properties do sentences like ‘*Cash has been replaced by credit*’, ‘*Cash has been replaced with credit*’, ‘*The computer was smashed by Mike*’ and ‘*I am very surprised to see you*’ have in common? Every experienced grammarian knows their syntactic properties (including their potentiality for active counterparts) are very different, not to mention their semantic ones. Saying that all passives are characterized by containing a *be+past participle* group will not do, because the fourth sentence can (more accurately) be described as containing *be* and an *adjective phrase* (notice the presence of *very*, which is a typical modifier of adjectives and adverbs).

⁸ Cf section 3.2 below

⁹ See Langacker’s speculation on the possible construction of a prototype sense for ‘tree’ (Langacker 1987: 373ff).

of less central passive constructions motivated by the prototype. An important point then is that there are seldom any necessary and sufficient conditions in human conceptual categories, including linguistic categories.

A second consequence of this first principle is that no strict distinction can be made between encyclopedic, experienced-based knowledge and linguistic meaning. This means that our large, complex conceptual structures are invoked in language use and comprehension, and that conventional meanings (i.e. strictly 'semantic' meanings) arise on the basis of experience and general knowledge. Hence the commonplace claim in cognitive linguistics that meaning is ultimately pragmatic, and very often holistic, gestalt-like. Such a claim is obviously at variance with the traditions in semantics underlying such constructs as Carnap's meaning postulates or Katz's semantic markers and distinguishers. And if experience-based knowledge permeates linguistic meaning at every level, these levels are themselves open-ended, there being no strict separation between them, especially between symbolic levels, i.e. between lexicon and grammar, or between levels in the organisation of meaning, i.e. semantics and pragmatics (or even between synchrony and diachrony).

This continuum between language and experience explains the fact that the study of conceptual structures or cognitive models as reflected in language has been an important area of research in cognitive linguistics from its very beginning. Two complementary tendencies are Fillmore's frames (Fillmore 1975, 1976, 1982, 1985; Fillmore and Atkins 1992), and Lakoff's theory of idealised cognitive models (Lakoff 1982, 1987: 5-157). Cognitive models very often reflect cultural models (see below).

A third consequence of this first principle is the enormous importance given by cognitive linguistics to imagination, a basic human cognitive ability, normally despised in pretendedly 'scientific' theories of language, hence to such basic imaginative mental mechanisms as conceptual metaphor and metonymy (see section 3.3).

2.2.2. Methodological consequences of non-objectivism

The emphasis upon the non-objectivism and the "blueprint" conception of linguistic meaning, and upon the symbolic character of language results in the methodological relevance given to detailed descriptions rather than to Post rules (mathematical formulae developed by Emil Post) or to other formal systems whose generative or predictive power has then to be constrained by artificial 'filters'. In generative approaches, it is these abstract, formal structures and rules that are supposed to be closer to psychological reality than the morphosyntactic configurations (constructions) which are claimed to be their output, and which are regarded in these approaches as mere epiphenomena. By contrast, in cognitive

linguistics the detailed analysis of grammatical constructions as conventional pairings of form and meaning (including pragmatic meaning) becomes of prime interest (Fillmore 1988, Fillmore, Kay and O'Connor 1988, Goldberg 1995 Lakoff 1987: 462-586, Langacker 1987, 1991). The same spirit is applied to the study of the lexicon, as we have seen, and to the study of phonology (Taylor: 222-239).

3. Main directions and current research tendencies in cognitive linguistics.

3.1. Construction Grammars.

Like CL itself, Construction Grammar can be conceived as a general approach, as a way of conceiving language and of how grammatical description should proceed rather than as a particular theory. Construction Grammar can be said to be the theory of grammatical representation in cognitive linguistics. There are several variants or instantiations of this general approach. Some of them are (i) Fillmore and Kay's Construction Grammar (e.g. Kay & Fillmore 1999); (ii) Goldberg's Construction Grammar (e.g. Goldberg 1995), (iii) Langacker's Cognitive Grammar (Langacker 1987); (iv) Croft's Radical Construction Grammar (e.g. Croft 2001) and (v) Embodied Construction Grammar (e.g. Bergen & Chang, 2005). Due to space constraints, we cannot review all of them and specify their differences here (the interested reader is referred to chapter 10 of Croft & Cruse, 2004). Instead, let us focus on some of the common characteristics that all these theories share.

In Construction Grammar, the basic unit of language is a "construction". Rather than a schematic syntactic rule, a construction is a rich conglomerate of heterogeneous information. In a construction, different parameters of form (e.g. syntactic order, morphological information, even phonological or intonational constraints) become paired with different parameters of meaning, including not only semantic content but also pragmatic functions, etc. In this respect, constructions are "symbolic units" in the Saussurean sense, linking a form (or signifier) with a meaning (or signified). This also implies that construction grammars run directly against the autonomy of syntax, since different types of sources of information can co-occur within a given construction. In opposition to other approaches, in this conception of grammar, phonology (for example) can influence grammaticality. One example of this case is supplied by the so-called "incredulity sentences" (also called "MAD-magazine sentences"), such as "*Tony wear a tie?*". In these sentences, a given intonational pattern, namely the ascending interrogative curve, interacts with morphosyntactic features to convey the semantico-pragmatic meaning of incredulity on the part of the speaker. Note that without the

associated intonation, such sentences would be ungrammatical, since there is no agreement between subject and verb (*Tony wear a tie*, instead of canonical *Tony wears a tie*). Incidentally, such sentences also exist in Spanish, with very similar characteristics (e.g. *¿Antonio ponerse corbata?*).

In Construction Grammar, lexicon and syntax form a continuum, or to express it differently, they are different points in the schematic-specific hierarchy. Thus, Construction Grammar invokes the same mechanisms to explain lexically specified constructions, such as idioms (e.g. *kick the bucket*), formulaic expressions (e.g. *how do you do*, *good to see you*, *you can say that again!*) or collocations (e.g. *rancid butter*, *throw a party*) as well as maximally abstract configurations, like the SUBJ + VERB PHRASE CONSTRUCTION, which could be applied to an open-ended number of expressions with highly different degrees of internal complexity (e.g. a simple sentence like *she sleeps* or a more complex one like *the fact that you are reading this makes me so happy that I feel like dancing*). In between these two extremes, we find many mid-level constructions which can include at the same time open variables and lexically defined constants. Many of the efforts of construction grammarians have been addressed towards these intermediate constructions, precisely to demonstrate the existence of this syntax-lexicon continuum. Some examples could be the “WHAT’S X DOING Y? CONSTRUCTION” (which licences expressions such as “*What’s your brother doing in my living-room?*” or “*What’s this fly doing in my soup?*”), “THE X-ER, THE Y-ER” (e.g., *the more, the merrier, the fuller, the better*, etc.) or in Spanish “QUÉ N MÁS ADJ” (licensing expressions such as *qué playa más bonita*, *qué plato más lleno*, *qué moto más ruidosa*, etc.). The assumption is that language contains structures at all levels of the specific-abstract hierarchy, and that restricting linguistic explanations to these two extremes would necessarily leave a great deal of linguistic facts uncovered. All these different constructions are organized in taxonomic networks, with the result that construction grammarians conceive the grammar of a language as a “structured inventory of symbolic units”.

Construction Grammar adopts a “weak-compositionality” approach, that is, the meaning of the whole can be related to the meanings of its parts, but allowing for the meaning of the construction itself to make its contribution. For example, if we consider the previously mentioned “WHAT’S X DOING Y? CONSTRUCTION”, we see that sentences licensed by this construction cannot be interpreted in a fully compositional manner, since we are not really asking what someone/something is doing. Just consider a sentence such as “*What’s that scratch doing in my table?*”: there is no action going on. Instead, what the construction does is activate a conventionalized conversational implicature by which the unexpected nature of the

state of affairs is conveyed. Such a meaning must be ascribed to the construction itself, rather than to the elements which comprise it. Adele Goldberg (e.g. Goldberg 1995) has also claimed that the caused-motion meaning of some expressions arises from the syntactic configuration of certain elements (that is, from the construction itself), rather than from the meaning of the words instantiating the construction (i.e., compositionally). For example, the configuration Subj-V-Obj-Path will force a caused-motion reading of the verb inserted therein; this is what happens in cases such as “*she sneezed the napkin off the table*” or “*they laughed the poor guy out of the room*”.¹⁰

Finally, all Construction Grammars are also *usage-based*. What this means is that grammatical patterns are not innate in any way, but rather “emerge” out of usage, by the conventionalization (also known as “entrenchment”) of the most frequent patterns of use. Michael Tomasello has successfully shown how the language acquisition problem can be solved by assuming that children use a usage-based constructional approach (Tomasello, 2003).

3.2. Lexico-semantic networks: polysemy

One of the *fortes* of CL has been the study of linguistic polysemy. Polysemy, or the fact that a given linguistic object can activate more than one meaning, is one of the most pervasive phenomena in language, emerging at almost every single level, including morphology, syntax and intonation. This problem is specially relevant at the level of the lexicon; for example, out of the 60.000 entries in Webster’s Seventh Dictionary, 21.488, almost 40%, have two or more senses. The most commonly used words tend to be polysemous; for example, the verb *run* has 29 senses in this dictionary and is subdivided into nearly 125 sub-senses. It is notoriously difficult to pinpoint what the nuances in meaning are when the same word appears in different contexts and how the different meanings are related among themselves (or to decide whether they *are* related).

Drawing on its insights from categorization theory (especially, prototype theory, see the references to Rosch in 2.1.1 above), CL has been able to provide principled explanations to the most rampant and previously unanalyzed forms in the lexicon, namely, grammatical

¹⁰ Not all cognitive linguists would agree with such a view. Langacker, for example, denies the construction any real contribution to their meaning (see, e.g. 1999: 1). In his view, the meaning of the construction exists independently from and that a construction simply links it to a phonological structure by virtue of a number of compositional and other principles: “(. . .) language necessarily comprises *semantic structures*, *phonological structures*, and *symbolic links* between the two. The central claim of CG [cognitive grammar] is that nothing else is needed. The theory maintains that lexicon and grammar form a continuum, and that only *symbolic structures* — each residing in the symbolic linkage of a semantic and a phonological pole — figure in their proper characterization.”

words (e.g. prepositions, conjunctions, etc.). Probably the paradigmatic example is the analysis of prepositional polysemy. We will try to offer a very quick overview in this section¹¹.

The most cited example in prepositional analysis comes from Claudia Brugman's pioneering analysis of the preposition "over" (Brugman 1981)¹². Since then, there have been a myriad studies of many different prepositions in many different languages¹³. However, the English preposition "over" has been taken as a "testing-ground" for the theory and has accordingly been studied successively by Brugman (1981), Brugman and Lakoff (1988), Dewell (1994), Kreitzer (1997) and more recently Tyler & Evans (2003).

In her initial study of the preposition 'over' Brugman (1981) found this preposition to be a highly polysemous word, as shown in the examples in (1):

- (1) a. The lamp hangs over the table
- b. The bird flew over the hill
- c. The boy walked over the hill
- d. The boy lives over the hill
- e. The wall fell over
- f. Chenoa fell over a cliff
- g. Sam turned the page over
- h. She spread the tablecloth over the table
- i. There were magazines all over the table
- j. The play is over
- k. Do it over, but don't overdo it
- l. Look over my corrections, and don't overlook any of them
- m. You made over a hundred errors

In each of these cases, we could say that the scene that 'over' denotes is different; in many of these cases 'over' codes different types of motion, but sometimes what is denoted is a static scene (cf. Figure 1). In some other cases, we find that 'over' activates senses that are non-spatial (cf. the examples (k), (l) and (m) in (1)).

¹¹ Which should not be taken to mean that this approach cannot or has not been extended to other linguistic categories.

¹² Another often quoted pioneering work is Susan Lindner's analysis of English verb-particles "up" and "out" (Lindner 1981).

¹³ Far too many to cite here; for a small token, cf. Zelinsky-Wibbelt (1993) or Cuyckens & Zawada (1997).

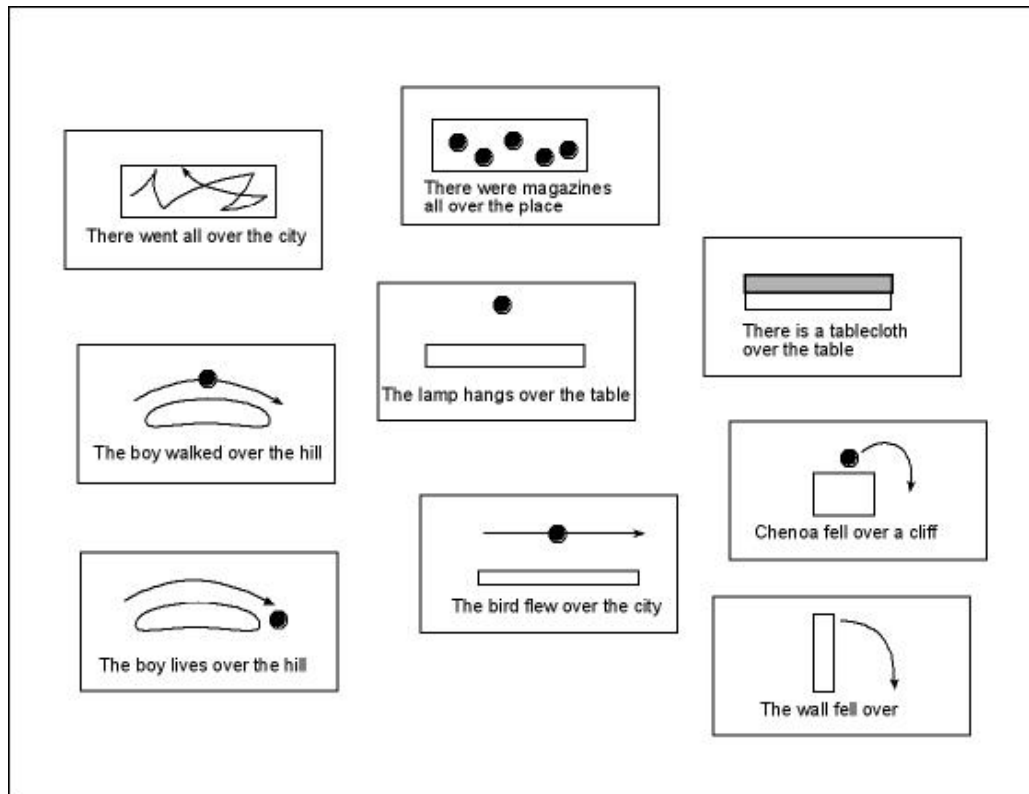


Figure 1. Different spatial scenes activated by the different sense of ‘over’

By looking carefully at these examples, Brugman was able to construct a principled network of senses, with several different but related central senses or *prototypes* (forming what is known as a ‘radial’ category), and the rest of the senses being derived from them by different types of links, including metaphoric links. In this way, she was able to show that instead of a list of arbitrary, unrelated meanings, the different prepositional senses were in fact connected to each other in a motivated manner.

3.3. Metaphor, metonymy and blending

As stated in section 2.2.1, one of the methodological consequences of the account of language as a product of general cognitive abilities is the importance given to imagination, a basic human cognitive ability. We humans ‘make sense’ of our less directly apprehensible experiences (for instance, of our experience of time, of emotions, or of human interaction), on the basis of more directly apprehensible and more easily describable experiences, which are usually bodily experiences. Thus we often project, for instance, part of our bodily experience of three-dimensional space onto our experience of time and talk about the future being “ahead”. Or we map it onto our experience of happiness and talk about being in “high” spirits,

or onto our experience of power and talk about having control “over” somebody (Lakoff and Johnson 1980:15-17). In so doing, we use our imagination. In many cases the more direct experiences mapped are themselves understood metaphorically or metonymically on the basis of *image-schemas* (Johnson 1987), which are preconceptual structures that we acquire as a result of our earliest bodily experiences (basic conceptual complexes like ‘container’, ‘path’, ‘centre/periphery’, ‘up/down’). Metaphor and metonymy determine a large part of lexical and grammatical meaning and form (Lakoff 1987:462-585, 1993b, Goldberg 1995, Sweetser 1990: 49-149). There are two basic imaginative cognitive mechanisms: *metaphor* and *metonymy*. They are not just rhetorical devices, not just a matter of words. They are *mental projections* or *mappings* of one domain of experience onto a different domain of experience, and they are normally carried out unconsciously and effortlessly.

Metaphor can be defined as the cognitive mechanism whereby one experiential domain is partially ‘mapped’, i.e. projected, onto a different experiential domain, so that the second domain is partially understood in terms of the first one. The domain that is mapped is called the *source* or *donor domain*, and the domain onto which the source is mapped is called the *target* or *recipient* domain. Both domains have to belong to different superordinate domains. This is basically the cognitive concept of metaphor propounded by George Lakoff, Mark Johnson and Mark Turner and by other cognitive linguists that have been investigating the field for the past twenty-five years.

In the well-known metaphor LOVE IS A JOURNEY (cf. Lakoff and Johnson 1980; Lakoff 1987), the domain of journeys, itself a subdomain in the domain of movement, is mapped, that is, superimposed, onto the domain of love, itself a subdomain of the domain of emotions:

- (2) a. *Look how far we’ve come*
 b. *Our relationship is off the track*
 c. *We’re spinning our wheels*

This mapping transfers a large number of aspects (attributes, entities and propositions) from the experiential domain of journeys to the experiential domain of emotions, and specifically to the domain of love (Lakoff 1993: 206-209). Among them we can single out the following correspondences or submappings:

- The lovers correspond to the travellers.
- The love relationship corresponds to the vehicle in the journey.
- The lovers’ common goals correspond to their common destinations on the journey.

- Difficulties in the relationship correspond to impediments to travel

These are *ontological submappings* or *ontological correspondences*: that is, the entities (people, objects, etc), actions or states in the source that are mapped onto their counterparts in the target domain. There are also *knowledge* (or *epistemic*) *submappings* / *correspondences*. For example, the journey situation in which the vehicle gets stuck and the travellers try to set it in motion again, either by fixing it or getting it past the impediments that prevent its progress, corresponds to the love situation in which the love relationship becomes unsatisfactory and the lovers try to make it satisfactory again either by improving it or by solving the difficulty that prevented it from functioning properly. An important aspect of metaphor is that its elaboration is typically open-ended (Lakoff and Turner 1989: 106-110; Barcelona 1997a), and can be creatively exploited in text and conversation.

Other properties of metaphor highlighted by the cognitive theory of metaphor and metonymy (CTMM), which cannot be presented here for lack of space, are the following:

- The *unidirectionality* attributed to metaphorical mappings (Lakoff & Turner 1989: 132; see also Jäkel 1999), which represents an important difference between the CTMM and other modern theories of metaphor, like Black's interaction theory (Black 1962).

- *The Invariance Principle*, whose main thrust is that the mapping cannot violate the basic image-schematic structure of the target domain (Lakoff and Turner 1989: 82-83; Lakoff 1990, 1993; Turner 1990).

Metonymy has not received so far as much attention in cognitive linguistics, although it is probably even more basic than metaphor in language and cognition (Barcelona, 2000b, 2002b; Taylor 1995). Metonymy is a cognitive mechanism whereby one experiential domain is partially understood in terms of another experiential domain included *in the same common experiential domain*. In metonymy the target domain is "highlighted", i.e. mentally activated or accessed (see (Kövecses and Radden 1998), often with a limited discourse purpose (Lakoff 1987: 78-80). If we study one of Lakoff and Johnson's (1980) examples, namely, *Washington is insensitive to the needs of the people*, we find, within the common conceptual / experiential domain associated to this city of the United States, among others, the subdomain of the political institutions located in it. Via metonymy, this latter subdomain is activated and

additionally referred to from the overall domain of the city itself as a location, which is backgrounded in the normal interpretation of this sentence.¹⁴

From what has been said so far, it should be clear that both metaphor and metonymy are mental mechanisms, not to be confused with their expression, linguistic or otherwise. Metaphors and metonymies are often not verbalized, but can be expressed through gestures (McNeill 1992) or other non-verbal communicative systems (see e.g. Taub 1997 and Wilcox 2004 for their role in American Sign Language or Soriano 2005 for the role in images), or not be communicated at all and simply motivate our behavior (Lakoff & Johnson 1980: 156-159).

A recent tendency in cognitive linguistics which subsumes metaphor and metonymy as special cases of more general mental mapping mechanisms is the theory of “blending” or conceptual integration (Turner & Fauconnier 1995, 2000, Fauconnier 1997, Coulson & Oakley 2000), which is an extension of Gilles Fauconnier’s earlier work on mental spaces (Fauconnier 1994). This new approach seems to explain more precisely the functioning of metaphor and metonymy in discourse. It basically claims that in conceptual mapping, as it proceeds in discourse, the source and the target domains (or “input spaces”, as they are called) are mapped onto a “blended space” or “blend”, where source and target are partially mixed, and which is normally only a provisional, *ad hoc* domain. There is also a fourth “generic space”, which contains skeletal structure taken to apply to both source and target. The theory of blending, or the “many-space model”, as it is also called, is designed to account, not only for metaphor and metonymy, but also for irony, counterfactuals, and certain grammatical phenomena.

4. Main results and applications of CL

4.1. In Construction Grammars

Construction Grammar is by now a rather well established grammatical theory, and it has produced quite a number of works which describe many languages. Some examples include Icelandic (Barðdal, 1999), Basque (Bellver & Michaelis, 1999), Dutch (Booij, 2002), German (Boas, 2000), French (Deulofeu, 2001, Lambrecht, 2002), Czech (Fried, 2004), Spanish (Hilferty & Valenzuela 2001), Finnish (Kolehmainen & Larjavaara, 2004), Russian &

¹⁴ This is what Langacker (e.g. Langacker 1999) calls an “active zone metonymy”, as WASHINGTON is a reference point for the U.S. POLITICAL INSTITUTIONS as active zone target.

Swedish (Leinonen & Östman 1983), Latin (Michaelis 1994), Vietnamese (Michaelis 1994) or Japanese (Ohara, 1994), among others¹⁵.

Another proof of the maturity of the theory is the existence of an International Conference on Construction Grammar (whose latest edition, the third one, was held in France in July 2004). Quite recently, the publishing house John Benjamins has also launched a new book series dedicated to the dissemination of constructional approaches to language. So far, three volumes have been published: *Construction Grammars: Cognitive grounding and theoretical extensions* (Östman, Jan-Ola and Mirjam Fried (eds.)(2005), *Construction Grammar in a Cross-Language Perspective* (Fried, Mirjam and Jan-Ola Östman (eds.)(2004) and *Functional Constraints in Grammar: On the unergative–unaccusative distinction* (Kuno, Susumu and Ken-ichi Takami)(2004)

Another very recent development has been the creation of a new peer-reviewed electronic journal (with open access) centered on Construction Grammar. Its editors (Alex Bergs & Anette Rosenbach) set out to offer “a forum for linguistic research concerned with the structure, use, function, and development of ‘constructions’ in language and linguistics. The journal aims at a balanced integration of both notional, informal approaches to constructions in general and more formal treatments, as for example, within the framework of construction grammar”.¹⁶

4.2. In polysemous lexical networks

As stated before, the prepositional network approach has provided a powerful tool for analysts, and there have been in the last few years a wealth of studies which have covered most English prepositions, as well as studied prepositions from many different languages (cf note 10). However, it is worth repeating that not only prepositions have been studied; a wider list of references including other types of polysemous lexical items could be Cuyckens and Zawada (2001), Cuyckens, Dirven & Taylor (2003), Evans (2004), Fillmore & Atkins (1992, 2000), Geeraerts (1993, 1994), Herskovits 1986, Lakoff 1987, Nerlich, Tood, Herman and Clarke (2003), Tuggy (1993, 1999), Tyler & Evans (2003) and Vandeloise (1991, 1994). One of the advantages of this plethora of analyses is that all these descriptions have been made

¹⁵ For a fuller list, consult the bibliography section found at <http://www.constructiongrammar.org/>. This website is dedicated to the dissemination of Construction Grammar results, and offers not only a bibliography section but also a definition of the theory, a list of researchers working within the paradigm, events related to the theory and some other related links.

¹⁶ The website is <http://www.constructions-online.de/>

using the same (or a very similar) theoretical tools, and as a result, many of the descriptions can be compared or contrasted.

This fact is linked with what could probably constitute one of most important applications of this area of research: the application to the field of Applied Linguistics. Quoting Pütz, Niemeier and Dirven's 2001 book, *Applied Cognitive Linguistics*, "as a usage-based language theory, CL is predestined to have an impact on applied research in such areas as language in society, ideology, language acquisition and language pedagogy". So, for instance, the number of authors pointing at the usefulness of cognitive linguistics in language pedagogy has been expanding at a great speed. Phrasal verbs, for example, have traditionally been one of the tough spots in the learning/teaching of English. Cognitive linguistics offers the tools to systematize and facilitate the teaching of this "tough spot". As an example, in the aforementioned book we find articles such as "English phrasal verbs: theory and didactic application" (René Dirven), "Teaching English phrasal verbs: a cognitive approach" (A. Kurtyka) or "A usage-based approach to modeling and teaching the phrasal lexicon" (Kurt Queller). Another important work is Brygida Rudzka-Ostyn's 2003 book, which is fully devoted to the teaching English phrasal verbs by applying the insights of CL. The result seems to have been rather satisfactory, since in the review of this book in the LINGUIST list, we read that: "This book successfully combines the findings of cognitive and applied linguistics and implements them into ESL/EFL teaching material".

4.3. Metaphor, metonymy and blending

The CTMM has caused an enormous upsurge of interest in the study of metaphor, not only within cognitive linguistics (manifested in hundreds of publications and in specialized international conferences, like the Researching and Applying Metaphor conference series or the two conferences organized by Euresco, the European Union agency for high-level scientific conferences), and the past two decades have witnessed a steady effort aimed at describing the metaphorical systems in many languages, especially English.¹⁷

The main theoretical result of the CTMM, which will probably remain as a permanent element of semantic theory and of cognitive science in general, is the realization that metaphor and metonymy are not just a matter of language use, but also, and fundamentally, a matter of thought, of conceptualization, and that they can account for a multiplicity of

¹⁷ As examples of the growing interest in metaphor by anglicists we may quote Kövecses (2002), Turner (1987, 1991, 1996), Lakoff and Turner (1989), collections of essays like Hiraga and Ranwanska-Williams (1995), Barcelona, ed. (2000), or Dirven and Pörings (2002).

phenomena, linguistic and otherwise. Another finding is the realization that creative, conscious, unconventional metaphors are usually extensions or elaborations of automatic, unconscious, conventional metaphors. As for blending, though it may be still too early to assess its theoretical results, it seems to constitute a genuine general theory accounting for the human mapping ability.

As for the applications of the CTMM and of blending theory (BT) to the study of language, there has been a fast-growing body of research pointing out the fundamental role of metaphor, metonymy and blending in linguistic meaning and structure (morphology, syntax, semantics, pragmatics, even phonology) at all levels (lexicon, grammar, discourse) and showing how the same conceptual process (metaphor, metonymy, blending or a combination of them) often motivates a multiplicity of different linguistic phenomena.¹⁸

But the both the CTMM and BT have been applied to other disciplines, among them psychology, philosophy, cultural models, especially those of the emotions, artificial intelligence, second language learning research, the study of literature and other art forms, the study of politics, ethics, law, mathematics, religion, and many others.¹⁹

5. Main problems to solve and future research lines

5.1 General Cognitive Linguistics theory

The problems that any single theory has to solve are open-ended; in this sense, one could even wonder whether a *complete* theory of language would be possible. This means that CL, like any other possible theory of language, still has a long way before it can be said to approach that “hypothetical completeness”. In this short section, we will review some of the possibilities for this long list of “to do’s”.

¹⁸ In addition to the publications cited in the previous footnote, the following are only a sample of the many publications including examples or surveys of this research: Barcelona (1997b), Barcelona (2002b), Barcelona (in press), Cifuentes, ed (1998), Cuyckens, Fauconnier and Turner (2002), Panther and Berg (2003), Panther and Radden (1999), Panther and Thornburg (2003), Langacker (1995), Ruiz de Mendoza and Otal (2002), Soares et al (2004), Talmy (2000), or White, Herrera and Alonso (2003). The references cited in sections 4.1. and 4.2 are also relevant, since CL research in construction grammar and in polysemy networks regularly invokes metaphorical and metonymic mappings or blending processes to explain and describe the facts under study.

¹⁹ See, among many others, Gibbs (1994) for psychology; Lakoff and Johnson (1999) for philosophy; Barcelona (1986), Kövecses (1986, 1988, 1990, 2000, 2005), Palmer (1996), Shore (1996), Soriano (n.d.), and certain papers in Gibbs and Steen (1999) and Taylor and Mc Laury (1995), for the study of cultural models; Barnden (1991-1994), Brooks and Stein (1993), Martin (1989), or Fass (1997), for artificial intelligence; Correa (1989), Cameron and Lowe (1989) and several papers in Pütz *et al* (2001), for second language learning research; Hiraga and Radwanska-Williams (1995), Lakoff and Turner (1989), Turner (1987, 1991, 1996) for literary studies; Lakoff (1992, 1996), for the study of politics; Johnson (1983) for ethics; Winter (1989) for law; Lakoff and Núñez (1997), for mathematics; and Boeve *et al* (1999) for the study of religion and religious discourse.

One of the issues that has been brought up in connection with CL is its status as a real ‘cognitive’ theory. Cognitive linguistics tries to describe language in connection to the rest of cognition. As was mentioned above (see 2.1.1), this has been explicitly articulated in Lakoff’s “cognitive commitment” (Lakoff 1990): the need to provide an account of language that is consistent with what other disciplines of cognitive science (e.g. neuroscience, cognitive psychology, developmental psychology, psycholinguistics, etc) have revealed about cognition and the brain. However, a number of authors have questioned whether this commitment is actually being met. For example, in his paper “Does cognitive linguistics live up to its name?”, the linguist Bert Peeters (Peeters, 2001) casts some doubts on this question, and prompts researchers in the field to try and follow Lakoff’s commitment with increased efforts. It must be mentioned, however, that there *is* a growing awareness of this need among workers in the field, and that CL is really turning towards other cognitive sciences, and especially psycholinguistics and neuroscience. The number of studies devoted to providing an empirical basis to the insights of CL is growing exponentially. In this sense, the recent workshop organized at the University of Cornell with the title “*Empirical Methods in Cognitive Linguistics*” (of which a book will come out at same point during 2005), could be taken as a proof of this tendency. Another result of this move is the increase in the types of methodologies followed by cognitive linguistic researchers, which now routinely include corpus analysis, and quite often different types of psycholinguistic experimentation (computational modelling is still scarce, though by no means unexisting).

Another point of debate in the field concerns the weight that has been put on the ‘individual’ aspects of language processing. Some voices have been heard that warn against an excessive emphasis in the responsibility that the cognitive predispositions and constraints in the mind of the ‘speaker’ have in creating meaning. To some authors, many of the cognitive phenomena that we are trying to explain (and most particularly, language), also have an important *social* component. In this sense, there have been attempts to reconcile the ‘cognitive’ or ‘individual-based’ approach of CL with other traditions which focus more explicitly on social aspects, such as the Vygotskian tradition. This should not be taken to mean that CL has at any point disregarded the importance of social aspects; nothing further from the truth. CL depicts itself as an ‘usage-based’ theory, that is, a theory in which language is seen as arising from usage in a given community. There are basic notions in CL such as ‘conventionalization’ or ‘entrenchment’ (used both in metaphors and in constructions, for example) which are crucially based on the existence of societal mechanisms. However, it must be conceded, that, quite probably due to initial methodological reasons, the greater

emphasis has been put on the individual side. Some authors (e.g., Geeraerts, Sinha or Zlatev²⁰) have been suggesting that it is time now to turn our attention to a more detailed analysis of these social mechanisms that are so important in the emergence and use of language. A paradigmatic example could be the psycholinguist Michael Tomasello, who, as shown in his latest book (Tomasello 2003) on language acquisition, opts for quite detailed explanations in which both sides of cognition are successfully reconciled.

5.2. In Construction Grammar

One of the cornerstones of generative grammar has been the study of syntactic structures. For many decades, Chomskyan linguistics has supplied very detailed analyses of different syntactic structures, involving highly formalized models of the various grammatical phenomena. Such analyses have been criticized from the cognitive linguistic camp precisely due to their over-emphasis on formalization. Formalization is one of the issues on which formal and functional approaches most bitterly disagree. It is true that an excessive (or premature) emphasis on formalization can obscure more than clarify linguistic descriptions, but almost every scholar acknowledges that formalization can be a powerful tool for the explicit, precise, accurate and unambiguous expression of generalizations, a feature that many cognitive scientists have found lacking in construction grammars and feel it would be desirable to incorporate. Within the cognitive linguistic field there are different opinions on this complex issue, and we find two different tendencies: on the one hand, those that tend to concentrate on the content of their analyses, leaving formalization details for a more advanced stage of the theory (e.g., Goldberg's Construction Grammar), and those that have already started to worry about this type of problems. For example, Fillmore and Kay's Construction Grammar uses a descriptive apparatus that links their theory to *unification-based* approaches²¹ (cf. Shieber, 1986) and makes it compatible with generative theories such as Head-driven Phrase Structure Grammar (HPSG)(Pollard & Sag, 1994). Another recent addition to this quest for formalization is the Embodied Construction Grammar approach, which, though quite far from generative fields, is striving towards a formalism which is "precise enough to support a computational implementation" (Bergen & Chang, 2005:2). An even more recent newcomer has arrived from the field of Robotics: Luc Steels is working in the "Fluid Construction Grammar" formalism, a computational formalism that takes Construction

²⁰ For example, Zlatev's opinion "there is a neglect of the social character of language" and "the cognitive attempt to ground meaning in bodily schemata (...) is matched by an underestimating of linguistic systematicity within "language use" (Zlatev 1997: 48)

²¹ See for example Kay and Fillmore (1999).

Grammar as the foundation on which artificial agents (e.g. robots) can learn in a self-organized way language systems which are grounded in the real world through sensori-motor embodiment (Steels, 2005).

5.3. In the study of lexical networks and polysemy

Lexico-semantic networks have proved quite efficient methodological tools for the analysis of highly polysemous linguistic items. However, at the light of some of these analyses, specially of prepositions, some authors have worried such analyses can be “too powerful”, so to speak, since this methodology allows for the relatively easy extraction of very detailed and subtly-differentiated senses. In this sense, Sandra and Rice (1995) warn that some of these analyses could in fact be “artifacts” of the explanatory devices, more than real differences established in the minds of speakers. Their study has had an influence in subsequent research, and the more recent studies take this potential risk into account (e.g. Tyler & Evans 2003); it is to expect that future investigations will include this issue and distinguish the purely linguistic analyses from the models which are proposed as having psycholinguistic existence in the minds of speakers (cf. also the exchange between Croft 1998, Sandra 1998, Gibbs & Matlock 1999 and Tuggy 1999 in the journal *Cognitive Linguistics* on the limits of linguistic analyses).

5.4. Metaphor, metonymy and blending

The CTMM has highlighted the fundamental conceptual nature of metaphor and metonymy, the fact that metaphor is a complex unidirectional mapping, and several other important properties. However, there still remains a sizable number of issues in the CTMM that require clarification. Many of them have to do with the distinction between metaphor and metonymy; sometimes it is not easy to say with certainty whether an observed mapping is to be regarded as metaphorical or metonymic.²² To some of these scholars, both phenomena are neatly distinguishable, whereas to others, they are simply the two ends of a continuum of mapping processes.

Closely linked to the problems of distinction are those presented by the frequent interaction between metaphor and metonymy. The patterns of interaction, especially when manifested linguistically, should be identified and described more systematically.²³ A

²² There has been lots of discussion on this area. See, e.g., Lakoff and Turner (1989: 100ff), Barcelona (1997a, 2002a, 2003), Goossens et al (1995).

²³ Some interesting attempts in this direction can be found in Barcelona (2000a), Dirven and Pörings (2002), and Goossens *et al.* (1995) among many others.

hypothesis linked to one of these interaction patterns, namely, the possible metonymic motivation of *every* metaphor, is particularly important for its theoretical consequences.²⁴

Other problems affect specifically the nature of metonymy: is it an essentially different conceptual shift from the one called “modulation” by Cruse? Is there a continuum from purely literal uses of linguistic expressions to clearly metonymic ones?²⁵

Yet another type of problem is how to account for the effect of general discourse-pragmatic principles on the exploitation of a metaphor or a metonymy in a text (Which submappings are foregrounded? Which ones are backgrounded? How are they elaborated or extended? etc.). All of these groups of problems are, in fact, closely related.

Something else that the CTMM still has to do is compile a systematic typology of the major metaphors and metonymies in English and other languages with a specification of their systematic connections with each other and their hierarchical relationships.²⁶

As regards BT, its claim that the blended space includes new conceptual structure not derivable from the input spaces has met with some important criticism (see Ruiz de Mendoza and 2002).

Both the CTMM and BT also require some more experimental support to assess their neurological and psychological correctness.²⁷

Despite these problem areas, I think that the CTMM is, compared with other approaches to metaphor and metonymy developed in linguistics, rhetorics or philosophy, the theory that best accounts for these conceptual mechanisms from a cognitive science perspective. And BT is the first really comprehensive and systematic account of the general human mapping ability

²⁴ In this respect, see Barcelona (2000b), Radden (2000, 2002), Goossens (1990), Goossens *et al.* (1995).

²⁵ On this point, see Barcelona (2002a, 2003).

²⁶ See Lakoff's Master Metaphor List at <http://cogsci.berkeley.edu/lakoff/> for English metaphors, quite incomplete. See also the Hamburg Metaphor Database (on French and German metaphors) at <http://www.metaphorik.de/03/eiltsloenneker.htm>. As for metonymy, the best (yet limited) typology can be found in Kövecses and Radden (1998). Fass (1997) and Norrick (1991). All of these lists and typologies either assume or are compatible with the CTMM.

²⁷ There has been lots of important experimental research in psychology supporting the CTMM (see, among many others, Boroditsky 2000, Gibbs 1994, Valenzuela and Soriano's experiments as reported in Soriano n.d., and the experiments by Julio Santiago and his co-workers at the University of Granada; see Santiago *et al.* n.d.), but much more still has to be done, and the same can be said with respect to BT.

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