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Introduction: what is cognitive linguistics?

Cognitive linguistics is taken here to refer to the approach to the study of language that began to emerge in the 1970s and has been increasingly active since the 1980s (now endowed with an international society with biennial conferences and a journal, *Cognitive Linguistics*). A quarter century later, a vast amount of research has been generated under the name of cognitive linguistics. Most of the research has focused on semantics, but a significant proportion also is devoted to syntax and morphology, and there has been cognitive linguistic research into other areas of linguistics such as language acquisition, phonology and historical linguistics. This book can only outline the basic principles of the cognitive linguistic approach and some of its more important results and implications for the study of language. In this chapter, we briefly describe the major hypotheses of cognitive linguistics (as we see them), and how we will develop these hypotheses in the rest of the book.

We see three major hypotheses as guiding the cognitive linguistic approach to language:

- language is not an autonomous cognitive faculty
- grammar is conceptualization
- knowledge of language emerges from language use

These three hypotheses represent a response by the pioneering figures in cognitive linguistics to the dominant approaches to syntax and semantics at the time, namely generative grammar and truth-conditional (logical) semantics. The first principle is opposed to generative grammar's well-known hypothesis that language is an autonomous (indeed, innate) cognitive faculty or module, separated from nonlinguistic cognitive abilities. The second principle is opposed to truth-conditional semantics, in which a semantic metalanguage is evaluated in terms of truth and falsity relative to the world (or, more precisely, a model of the world). The third principle is opposed to reductionist tendencies in both generative grammar and truth-conditional semantics, in which maximally abstract and general representations of grammatical form and meaning are sought and many grammatical and semantic phenomena are assigned to the 'periphery'.

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Generative grammar and truth-conditional semantics are of course still vigorous research paradigms today, and so cognitive linguists continue to present arguments for their basic hypotheses as well as exploring more specific empirical questions of syntax and semantics within the cognitive linguistic paradigm. Some of these arguments will be presented in the course of this book. Here we describe in somewhat more detail the content of these three hypotheses and how they are manifested in subsequent chapters.

The first hypothesis is that language is not an autonomous cognitive faculty. The basic corollaries of this hypothesis are that the representation of linguistic knowledge is essentially the same as the representation of other conceptual structures, and that the processes in which that knowledge is used are not fundamentally different from cognitive abilities that human beings use outside the domain of language.

The first corollary is essentially that linguistic knowledge – knowledge of meaning and form – is basically conceptual structure. It is probably not difficult to accept the hypothesis that semantic representation is basically conceptual (though what that entails is a matter of debate; see below). But cognitive linguists argue that syntactic, morphological and phonological representation is also basically conceptual. This might appear counterintuitive at first: sounds are physical entities, and ultimately so are utterances and their formal structure. But sounds and utterances must be comprehended and produced, and both of those processes involve the mind. Sounds and utterances are the input and output of cognitive processes that govern speaking and understanding.

The second corollary is that the cognitive processes that govern language use, in particular the construction and communication of meaning by language, are in principle the same as other cognitive abilities. That is, the organization and retrieval of linguistic knowledge is not significantly different from the organization and retrieval of other knowledge in the mind, and the cognitive abilities that we apply to speaking and understanding language are not significantly different from those applied to other cognitive tasks, such as visual perception, reasoning or motor activity. Language is a distinct human cognitive ability, to be sure. From a cognitive perspective, language is the real-time perception and production of a temporal sequence of discrete, structured symbolic units. This particular configuration of cognitive abilities is probably unique to language, but the component cognitive skills required are not.

This position is sometimes taken as a denial of an innate human capacity for language. This is not the case; it is only a denial of an autonomous, special-purpose innate human capacity for language. It is of course reasonable to assume that there is a significant innate component to general human cognitive abilities, and that some of those innate properties give rise to human linguistic abilities that no other

species apparently has. However, innateness of cognitive abilities has not been a chief concern of cognitive linguists, who are more concerned with demonstrating the role of general cognitive abilities in language.

The hypothesis that language is not an autonomous cognitive faculty has had two major implications for cognitive linguistic research. Much cognitive linguistic research has been devoted to elucidating conceptual structure and cognitive abilities as they are seen to apply to language, in the effort to demonstrate that language can be adequately modeled using just these general conceptual structures and cognitive abilities. Part I of this book is devoted to explicating cognitive linguistic models of cognitive structure and abilities (see also chapter 11).

Second, cognitive linguists appeal at least in principle to models in cognitive psychology, in particular models of memory, perception, attention and categorization. Psychological models of memory have inspired linguistic models of the organization of linguistic knowledge into frames/domains (chapter 2), and grammatical knowledge in networks linked by taxonomic and other relations (see chapters 10–11 in Part III). Psychological models of attention and perception, especially Gestalt psychology, have led to the explication of many conceptualization processes in semantics (chapter 3, and see also the next paragraph). Finally, psychological models of categorization, in particular prototypes and graded centrality, and more recent models of category structure, have had perhaps the greatest influence on both semantic and grammatical category analysis in cognitive linguistics (chapter 3; see, e.g., Lakoff 1987, Taylor 1989[1997]).

The second major hypothesis of the cognitive linguistic approach is embodied in Langacker's slogan 'grammar is conceptualization.' This slogan refers to a more specific hypothesis about conceptual structure, namely that conceptual structure cannot be reduced to a simple truth-conditional correspondence with the world. A major aspect of human cognitive ability is the conceptualization of the experience to be communicated (and also the conceptualization of the linguistic knowledge we possess). A major theme of the chapters in Part I of this book is that all aspects of conceptual structure are subject to construal, including the structure of categories (chapter 4) and the organization of knowledge (i.e., conceptual structures; chapter 2). In particular, it is argued that grammatical inflections and grammatical constructions play a major role in construing the experience to be communicated in specific ways (chapter 3). Part II of this book also explores and defends the conceptualization hypothesis for a wide range of lexical semantic phenomena, including topics widely discussed in cognitive linguistics (polysemy and metaphor) and lexical semantic topics that have not generally been examined by cognitive linguists (namely lexical relations such as antonymy, meronomy and hyponymy).

The third major hypothesis of the cognitive linguistic approach is that knowledge of language emerges from language use. That is, categories and structures

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in semantics, syntax, morphology and phonology are built up from our cognition of specific utterances on specific occasions of use. This inductive process of abstraction and schematization does not lose the conventionalized subtleties and differences found among even highly specific grammatical constructions and word meanings.

As we noted above, this hypothesis is a response to approaches to syntax and semantics in which highly general and abstract schemas and categories, sometimes claimed to be innately given, are assumed to govern the organization of linguistic knowledge, and apparently idiosyncratic or anomalous patterns are relegated to the periphery. Instead, cognitive linguists argue that the detailed analysis of subtle variations in syntactic behavior and semantic interpretation give rise to a different model of grammatical representation that accommodates idiosyncratic as well as highly general patterns of linguistic behavior (see, e.g., the arguments in chapter 9). In semantics, this model is manifested in Fillmore's semantics of understanding (chapter 2), and Cruse's dynamic construal approach to categorization (chapter 4 and Part II; see also Croft 2000:99–114). In syntax, this hypothesis has given rise directly to construction grammar as a new theory of syntax, and the usage-based model, developed in greatest detail for morphology and phonology. These models of syntax and morphology are described in Part III of this book.

PART I

A conceptual approach to linguistic analysis

2

Frames, domains, spaces: the organization of conceptual structure

2.1   Arguments for frame semantics

What is it that words denote, or **symbolize** as cognitive linguists usually put it? A simple assumption that has guided much research in semantics is that words denote **concepts**, units of meaning. Concepts symbolized by words such as *stallion* and *mare* can be compared and contrasted with one another. Comparisons of words is the approach taken by **structural semantics**, which analyzes types of semantic relations among words, including hyponymy and antonymy. Some approaches to (lexical) semantics have proposed that word concepts such as STALLION and MARE[1] are not atomic. Many concepts can be broken down into **semantic features**, so that STALLION is [EQUINE, MALE], and MARE is [EQUINE, FEMALE]. Finally, in the logical tradition that underlies much work in semantics, concepts are ultimately defined by their **truth conditions**: the conditions under which one can say that a concept does, or does not, appropriately apply to a situation in the world.

In this widespread approach to semantics, it is recognized that concepts do not simply float around randomly in the mind. First, there are the relations between words and their corresponding concepts described by structural semantics. But there has been a strong feeling that concepts are organized in another way as well. Certain concepts 'belong together' because they are associated in experience. To use a classic example (Schank and Abelson 1977), a RESTAURANT is not merely a service institution; it has associated with it a number of concepts such as CUSTOMER, WAITER, ORDERING, EATING, BILL. These concepts are not related to RESTAURANT by hyponymy, meronymy, antonymy or other structural semantic relations; they are related to RESTAURANT by ordinary human experience. The concept of RESTAURANT is closely tied to the other concepts, and cannot be isolated from the other concepts.

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[1] We follow the practice of Fillmore (1982a) and Langacker (1987) in using lower-case italics to represent the word form, and capitals to represent the concept underlying the word meaning.

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The need for another means for organizing concepts has been felt by researchers in cognitive psychology and artificial intelligence as well as in various branches of linguistics, and has led to a variety of similar proposals, each typically with its own name. Among these names are: frame, schema, script, global pattern, pseudo-text, cognitive model, experiential gestalt, base, scene (Fillmore 1985:223, n. 4). The most influential version of this proposal in cognitive linguistics has been the model of **frame semantics** developed by Fillmore. We present Fillmore's theory and arguments in this section, and turn to extensions of Fillmore's ideas by other cognitive linguists in later sections.[2]

Fillmore views frames not as an additional means for organizing concepts, but as a fundamental rethinking of the goals of linguistic semantics. Fillmore describes his frame semantic model as a model of the semantics of **understanding**, in contrast to a truth-conditional semantics: the full, rich understanding that a speaker intends to convey in a text and that a hearer constructs for that text. Fillmore argues that in the analysis of linguistic meaning, understanding is the primary data; truth-value judgments and judgments of semantic relations such as synonymy and implication are derivative and theory-driven (Fillmore 1985:235). Fillmore's frame semantics brings linguistic semantics back to that primary data and does not exclude any of it from consideration.

Fillmore uses a tool metaphor to describe the understanding process (Fillmore 1982a:112): a speaker produces words and constructions in a text as tools for a particular activity, namely to evoke a particular understanding; the hearer's task is to figure out the activity those tools were intended for, namely to invoke that understanding. That is, words and constructions evoke an understanding, or more specifically a frame; a hearer invokes a frame upon hearing an utterance in order to understand it.

Fillmore uses a wide range of examples to demonstrate that there are significant phenomena in linguistic semantics that cannot easily be captured in a model of structural semantics, semantic features and/or truth-conditional semantics. We survey his arguments here.

The analysis of semantic features is often justified on the basis of lexical sets that appear to be analyzable in terms of a simple set of features. For example, the lexical set in (1) can be analyzed in terms of the features [MALE/FEMALE], [ADULT/YOUNG], and [UNMARRIED]:

(1)   [MALE]   [FEMALE]
          MAN   WOMAN   [ADULT]
          BOY   GIRL   [YOUNG]
          BACHELOR   SPINSTER   [UNMARRIED]

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[2] The basic sources for Fillmore's ideas are Fillmore 1975, 1977 (an expanded version of the first paper), 1982a, 1985, 1986. Unfortunately all of these are difficult to access.

Yet our understanding of these concepts is more complex than this paradigm of feature constrasts implies. The relation between *man/boy* and *woman/girl* is not the same: for many people, the term *girl* is used for female humans at a significantly higher age than the term *boy* is used for male humans (Fillmore 1982a:126). Moreover, the attitudes towards the sexes that this linguistic behavior is assumed to evoke has led to changes in the relationship and hypercorrection such that the term *woman* is attested as being applied even to an eight-year-old girl (ibid., 127). In a frame semantic analysis, *man*, *boy*, *woman* and *girl* evoke frames that include not just the biological sexual distinction but also differences in attitudes and behavior towards the sexes that would explain the traditional asymmetry in the use of *boy/girl* and the more recent change in the use of *woman*, including its hypercorrective use. Likewise, the difference between our understanding of *bachelor* and our understanding of *spinster* involves much more than a simple feature [MALE/FEMALE] (ibid., 131).

Many lexical contrasts contain semantic asymmetries that cannot be captured by features (except in an ad hoc fashion), but lend themselves easily to a frame semantic account. For example, the opposing terms used for the vertical extent of an erect human being are *tall* and *short*, for vertical distance from a bottom baseline (e.g. a branch of a tree) they are *high* and *low*, but for the vertical dimension of a building they are *tall* and *low* (Fillmore 1977a:71). It would be difficult if not impossible to come up with a unitary feature definition of *tall* that captured its different contexts of use from *high*, and did the same for *short* vs. *low*. Instead, one can simply describe the frames for humans, buildings and other objects, and specify which words are used for vertical extent or distance in that frame.

Similarly, no simple unitary definitions would capture the contrast between the adjectives *live* and *alive* given in (2)–(4) (Fillmore 1977a:76–77):

(2)   a. Those are live lobsters.
        b. Those lobsters are alive.
(3)   a. Her manner is very alive.
        b. She has a very alive manner.
(4)   a. His performance was live.
        b. He gave a live performance.

Moreover, one cannot define the features in terms of applicability to a semantic class, such that the sense illustrated in (2a–b) applies to living things; this would give an incorrect understanding to the theatre advertizing *live naked girls* than the one intended (presumably, as opposed to naked girls on a film screen, not dead naked girls; ibid.). In a frame semantic analysis, *live* and *alive* are simply associated in different ways to three different frames: life in (2), personality in (3), and mode of performance in (4). In other cases, there are outright lexical splits, such as *brother/brothers* and *brother/brethren*, which represent a split in frames

including different plural forms; a unitary definition of *brother* would miss the frame contrast (ibid., 76).

Fillmore notes that his frame semantic model shares significant properties with lexical (semantic) field theory (Fillmore 1985:225–26; 1992:76–77). Lexical field theory groups together words that are associated in experience, not unlike frame semantics. However, lexical field theory differs from frame semantics in that words are defined relative to other words in the same lexical field, whereas in frame semantics, words are defined directly with respect to the frame. For example, in lexical field theory, one would observe that *large* in the field of sizes of packages of soapflakes is in contrast with *jumbo*, *economy giant* and *family size* and hence describes the smallest size in the field, unlike uses of *large* in other lexical fields (Fillmore 1985:227).

In frame semantics, the same observation can easily be captured: *large* labels the smallest size in the SOAPFLAKES frame. But lexical field theory predicts that the meaning of a word in a field can only be defined in contrast to neighboring words in the field. Lexical field theory has difficulties if there are no neighboring words, or a speaker does not know the neighboring words: it predicts that the term has a different meaning. Fillmore notes that while German has a word for the sides of a right angle triangle other than the *Hypotenuse*, namely *Kathete*, most English speakers do not have such a word (ibid., 228–29). Yet the understanding of English *hypotenuse* and German *Hypotenuse* is the same, provided the speaker understands what a right angle triangle is. This is not a problem in frame semantics, where the word concept is linked directly to the frame, in this case the RIGHT ANGLE TRIANGLE frame.

Another argument in favor of a frame-based approach to lexical semantics are words whose corresponding concepts inherently refer to other concepts extrinsic to the concept denoted by the word. Some word concepts refer to a prior history of the entity denoted. A *scar* is not just a feature of the surface of someone's skin, but the healing state of a wound; a *widow* is a woman who was once married but whose husband has died (Fillmore 1977a:73). Other word concepts, especially for properties and actions, cannot be understood without understanding something about the participant in the action or possessor of the properties: one cannot understand *gallop* without knowing about the body of a horse, or *hungry* without understanding the physiology of living things (ibid., 73–74). This is true of object concepts as well: *lap* cannot be understood except in reference to a person's posture and the function of one's lap in supporting another object (ibid.).

Another clear class of examples that requires reference to extrinsic entities are deictic expressions that evoke the speech act situation (Fillmore 1982a:117). For example, the past tense situates an event in a point or interval or time relative to the speech act situation. The speech act situation, including its time of occurrence,

functions as the frame against which past time reference is profiled. Likewise, all other deictic words and inflections, such as person deixis (*I*, *you*, *he/she/it*, *we*, *they* and person-based agreement inflections) and spatial deixis (*this*, *that*, *here*, *there*), evoke the speech act situation. Other types of grammatical words and inflections also have meanings evoking the speech act situation. For example, the definite articles *the* and *a* define the identity of the noun referent relative to the mutual knowledge of speaker and hearer (*the* basically indicates mutually known, *a* not mutually known, in most contexts). The meanings of *the* and *a* evoke the speech act situation because they make reference to the mental states of speaker and hearer (see also §3.4).

Above all, many word concepts cannot be understood apart from the intentions of the participants or the social and cultural institutions and behavior in which the action, state or thing is situated. For example, the concept VEGETARIAN only makes sense in the frame of a culture in which meat-eating is common; the concepts STRIKE or BORROW can only be understood in the frame of a culture in which such actions occur (Fillmore 1982a:120). Even something as simple as an *apple core* evokes a frame describing a particular way of eating apples: 'an apple-core is that part of the apple that somebody who eats apples the way most of us do has left uneaten' (Fillmore 1977a:73).

Another respect in which a word meaning makes reference to extrinsic entities is that a word allows the speaker and hearer to focus their attention on only part of an entire frame; no one word gives the full structure of the frame. The classic example is the commercial transaction frame (Fillmore 1977a:58–59; 1977b); but a much clearer case is the RISK frame (Fillmore and Atkins 1992). Fillmore and Atkins identify the following elements of the RISK frame: Chance (uncertainty about the future), Harm, Victim (of the Harm), Valued Object (potentially endangered by the risk), Situation (which gives rise to the risk), Deed (that brings about the Situation), Actor (of the Deed), (Intended) Gain (by the Actor in taking a risk), Purpose (of the Actor in the Deed), Beneficiary and Motivation (for the Actor). The verb *risk* occurs in many syntactic constructions, some of which are exemplified in (5a–e), but none of them include all or even most of the elements of the RISK frame (Fillmore & Atkins 1992: 83, 87, 89, 94, 96; all but the first are corpus examples):

(5)   a. You've (*Actor/Victim*) risked your health (*Valued Object*) for a few cheap thrills (*Gain*).
       b. Others (*Actor/Victim*) had risked all (*Valued Object*) in the war (*Situation*).
       c. She (*Actor/Victim*) had risked so much (*Valued Object*) for the sake of vanity (*Motivation*).
       d. Men (*Actor/Victim*) were not inclined to risk scalping (*Harm*) for the sake of settlers they had never seen (*Beneficiary*).
       e. I (*Actor/Victim*) didn't dare risk a pause (*Deed*) to let that sink in (*Purpose*).