43
Cognitive linguistics

Hans-Jörg Schmid and Friedrich Ungerer

Introduction

Like many other notions in linguistics, the term *cognitive linguistics* is used in a number of ways. What may be special about this notion, however, is that two competing and in many respects incompatible approaches to the study of language go by the same name. While these two approaches share the idea that linguists should consider psychological aspects of speakers' knowledge about language (cf. the Latin *cognoscere* '(get to) know') rather than merely describe linguistic behaviour, they differ with regard to how they explain the nature and sources of this knowledge. The first view, very much associated with Chomsky and known as *generative grammar* (cf. Wakabayashi, this volume), sees knowledge about language – i.e. *linguistic competence* – as a very special human ability which is not, or only remotely, related to other cognitive faculties such as perception, attention or memory. The second view of cognitive linguistics takes a completely different perspective and emphasizes the experiential nature of linguistic competence. It is this approach, and its vision of explaining the cognitive foundations of linguistic structure and usage, that this chapter will be concerned with. In this account, knowledge about linguistic structures is explained with recourse to our knowledge about the world, and it is assumed that language both reflects and contributes to shaping this knowledge. Introduced by linguists such as Fillmore, Lakoff, Langacker and Talmy in key publications in the 1980s, this notion of cognitive linguistics is today represented, for example, by the International Cognitive Linguistics Association (ICLA) and in the papers published in the journal *Cognitive Linguistics*.

History and key issues

Categorization, prototype theory and basic levels

An important starting-point of cognitive-linguistic thinking – which actually predates the term *cognitive linguistics* itself, which was not used before the early 1980s – was the empirical research into the nature of conceptual categories carried out by the anthropologists Berlin and Kay (1969) and the psychologist Rosch (1973, 1978). Studying the denotational ranges of basic

colour terms like *red, blue* and *yellow* in a large number of languages, Berlin and Kay found that there was a surprising degree of agreement on what informants from different linguistic and cultural backgrounds considered as the best examples of *red, blue*, etc. For the border areas, e.g. the range of colours from dark red to purple or from a turquoise-like blue to green, there was much less agreement. Berlin and Kay referred to the areas on the colour spectrum which represented the best examples of basic colours as *focal colours*, and Kay and McDaniel (1978) later demonstrated that physiological aspects of the visual apparatus were responsible for the observed inter-subjective and cross-cultural commonalities. This is an interesting and very straightforward example of how properties of linguistic units, in this case the meanings of basic colour terms, are influenced by other cognitive abilities, here perception.

Berlin and Kay's work was taken up by Rosch and extended to other types of categories including geometrical shapes (SQUARE, TRIANGLE) as well as everyday concepts such as FURNITURE, VEHICLE, WEAPON and others. What Rosch found was that just like in the case of colour categories, the members of these object categories could be rated on a goodness-of-example scale by informants in psychological tests. For example, informants agreed that cars and trucks were very good examples of the category VEHICLE, but rated skis, skateboards and elevators as very poor ones. Rosch introduced the term *prototype* for the best examples of categories and argued that they served as cognitive reference points for the storage and retrieval of categories. This idea was complemented by the notion of *fuzzy boundaries* between categories (cf. Labov 1973), referring to the observation that conceptual categories such as CUP, MUG and BOWL are not separated by strict category boundaries, but seem to fade into each other, with objects possibly being named as *cup* by some informants and as *mug* by others. In short, rather than being subject to a checklist of necessary and sufficient features as suggested by structuralist semantics (and Aristotelian philosophy), conceptual categories are internally structured in terms of prototypes, good and less good members, as well as fuzzy boundaries to 'neighbouring' categories. This idea is one of the cornerstones of what is known as *prototype theory of categorization* and, since these categories are labelled by words and have conceptual content, as *prototype semantics*. Prototypes can be shown to differ from less typical members of categories with regard to the number (and nature) of attributes associated with them. For example, while cars and trucks are associated with crucial attributes of the concept VEHICLE such as 'used to transport people and things', skis and skateboards can indeed be used as a means of transport but are much more strongly linked with attributes like 'sports' or 'fun'.

Although the idea of prototype theory first came up in connection with superordinate categories such as FURNITURE, VEHICLE and WEAPON, it soon emerged that the notion of prototype is even more helpful when it comes to explaining *basic level categories* or *concepts* (BED and TABLE, CAR and TRUCK, GUN and KNIFE rather than FURNITURE, VEHICLE and WEAPON, etc). It is here that we find words which are short, morphologically simple, acquired early in ontogenetic development and introduced into discourse in unmarked contexts. As shown by Rosch *et al.* (1976), the members of basic level categories have a similar shape which lends itself to perception, and possibly representation, as a holistic gestalt. In addition, we interact with similar motor movements with members of basic level categories; for example, we sit down on all types of chairs. Superordinate categories, on the other hand, rely on a different principle, also often subsumed under the label *prototype theory*, the principle of family resemblances. As Rosch and Mervis (1975) showed, the seemingly different members of superordinate categories such as FURNITURE or VEHICLE, rather than depending on large numbers of category-wide attributes as basic-level categories do, are held together by clusters of overlapping attributes, just like the members of one family will usually not all resemble each other but have certain sets of characteristics in common. Indeed, the notion of family resemblances had been invoked

much earlier to explain the internal conceptual coherence of the category GAME by the philosopher Wittgenstein (1958).

Frames, cognitive models and conceptual metaphors

Conceptual categories are not only linked in memory with attributes associated with the category members, but also embedded in a huge conceptual network of more or less firmly stored knowledge structures. One type of these structures is known as *frames* and defined as 'cognitive structures [...] knowledge of which is presupposed for the concepts encoded by the words' (Fillmore and Atkins 1992: 75). A classic and very influential example from the pre-cognitive-linguistic era is the so-called *commercial transaction frame* (Fillmore 1977) presupposed by verbs such as *buy*, *sell*, *pay* or *cost*. The frame is described in terms of the frame components BUYER, SELLER, MONEY and GOODS, and it is assumed that even though the verbs do not require all of these components to occur on the syntactic surface (cf. examples 1 and 2), mention of any of the verbs will invariably activate the whole frame.

1 *The book* [GOODS] *cost ten pounds* [MONEY].
2 *Mary* [BUYER] *bought an expensive book* [GOODS].

In addition, depending on the verb chosen, certain components of the frame are highlighted to various degrees. For example, while the verb *cost* draws attention to the GOODS and the MONEY which fill the subject and object slots in the sentence (example 1), the verb *buy* highlights the BUYER (subject) and the GOODS (object) (example 2). Obviously, this has to do with putting a certain perspective on a scene and deploying attention to certain aspects, a cognitive ability reflected in other areas of language we will look at later.

While frames are conceived of as somehow delimitable knowledge structures, other types of cognitive models are less restricted. Lakoff, for instance, in his treatment of *idealized cognitive models* (1987), takes up Fillmore's discussion of the noun *bachelor* and argues that this concept only makes sense within an idealized cognitive model of a society whose members share certain expectations as to the institution of marriage. Ungerer and Schmid (2006: 49), who opt for a deliberately comprehensive definition of cognitive models as 'stored representations that belong to a certain field', provide the example ON THE BEACH, which 'includes' closely interrelated person and object categories such as PEOPLE, SAND, SHELLS, BUCKET as well as action and event categories, for example SWIM, SUNBATHE, BUILDING A SANDCASTLE and others. While it may be criticized that these descriptions of cognitive models are totally subjective, open-ended and apparently of a somewhat unscientific ad-hoc nature, it may well be the case that this is exactly how our minds work. The psychological reality of these knowledge structures can be tested with priming experiments and other tests and gleaned from language use, for example when speakers use definite noun phrases with anaphoric reference to components of frames that are not explicitly mentioned but still activated, cf. the NP *the sea* in example 3:

3 *We spent some time on the beach yesterday. The sea was very rough.*

Cognitive models are not individual, purely subjective knowledge structures, but presumably shared to a large extent by the members of a culture and therefore also seen as *cultural models*. It goes without saying that frames and cognitive as well as cultural models are also based on our experience of the world around us.

One particularly fruitful early field in cognitive linguistics which relies on the idea of cognitive models (or *domains*) is the conceptual theory of metaphor, introduced in the pioneering book by Lakoff and Johnson ([1980] 2003). In a nutshell, this theory claims that conventionalized metaphorical expressions such as examples 4 or 5 are by no means dead metaphors but surface manifestations of deeply entrenched underlying mappings of one domain, the *source domain*, onto another, the *target domain*:

4 *He got all* steamed up.
5 *I almost* exploded.

In these two examples the cognitive model of a hot fluid in a container is mapped onto the concept of anger, yielding a conceptual metaphor dubbed ANGER IS A HOT FLUID IN A CONTAINER. Other examples of conceptual metaphors discussed by Lakoff and Johnson include AN ARGUMENT IS A JOURNEY (cf. 6 and 7), IDEAS ARE OBJECTS (cf. 8 and 9) or COMPANIES ARE PLANTS (cf. 10 and 11):

6 *We have* arrived at *a disturbing conclusion.*
7 *Do you* follow *my argument*?
8 *We* dropped *the idea.*
9 *They* canvassed *a new idea.*
10 *The company has several* branches.
11 *We've been* growing *continuously over the past years.*

From an experiential point of view, it is important to emphasize that conceptual metaphors typically use a more tangible and concrete domain as a source, which is mapped onto a more abstract domain in need of conceptual structure.

Figure and ground, prominence and salience

Another experiential aspect related to the cognitive abilities of perception and attention is the gestalt psychological principle of figure and ground. This principle suggests that when viewing a given scene we will invariably single out certain elements as prominent figures while relegating others to the less prominent ground. For example, looking up into the dark sky at night, we inadvertently select the moon as a salient figure which stands out from the black ground behind it. Arguably, a reflection of this perceptual principle can be identified in the structures of linguistic utterances describing such a scene: while example 12 sounds fairly natural, as it highlights the salient figure in the more prominent syntactic slot of subject, a complementary utterance like example 13, although an equally true depiction of the scene, would be decidedly weird, or at least marked:

12 *The moon is in the sky.*
13 *The sky is around the moon.*

Perceptual stimuli which are likely to be selected as figures tend to be smaller, more movable, geometrically simpler, more dependent and more prominent (once perceived) than typical ground entities (Talmy 2000: 315); in addition, figures tend to be more relevant, and thus both perceptually and conceptually more salient, for the language user, and this is all reflected in degrees of prominence awarded to the linguistic material referring to these salient entities in actual utterances.

A large part of the early research into figure-ground phenomena focused on prepositions (Brugman 1981; cf. Lakoff 1987: 416ff.). Central to these and later studies on prepositions is the notion of *image-schema*, defined as

> relatively simple structures that constantly recur in our everyday bodily experience: containers, paths, links, forces, balance, and in various orientations and relations: up-down, front-back, part-whole, center-periphery, etc. These structures [...] are directly meaningful, first, because they are directly and repeatedly experienced because of the nature of the body and its mode of functioning in our environment.
>
> *(Lakoff 1987: 267–8)*

It is common practice to refer to the figure in these schemata as *trajector* and to the ground as *landmark*. Probably the most powerful aspect of these schematic structures is the potential of schematic mental imagery for specific context-sensitive elaborations. This explains, for instance, the wide range of semantic variation for the preposition *over* illustrated in examples 14 to 18:

14 *They have a horseshoe over their door.*
15 *The dog jumped over the fence.*
16 *Carl cycled over the bridge.*
17 *The village clouded over.*
18 *The wall fell over.*

Example 14 describes a stative configuration of a trajector above a landmark, which is considered as representing the fundamental image schema associated with *over* in a recent treatment by Tyler and Evans (2003: 66). Examples 15 and 16 represent dynamic scenes in which the trajector moves through a stage that corresponds to the central schema, with the trajector being in contact with the landmark in 16. In 17, the trajector is encoded in the verb *clouded* and covers the landmark, while in 18, trajector and landmark coincide but perform a movement similar to the trajector in 15.

Yet image schemas can also be metaphorically extended and then account for the motivation behind figurative, non-spatial or non-visual experiences. For example, Tyler and Evans (2003: 85–9) trace the meaning 'excess' encoded by *over* in example 20 to more concrete meanings like the one exemplified in 19, and the 'completion' sense in 22 to uses of type 21:

19 *The arrow flew over the target and landed in the woods.*
20 *Many students wrote over the word limit.*
21 *The cat's jump is over.*
22 *The film/game/match is over.*

Image-schemas and their elaborations and metaphorical extensions thus contribute to accounting for meaning relation in the complex polysemy networks associated with linguistic elements such as *in*, *over*, *out* or *up*, which function, among other things, as prepositions, particles and prefixes in English. Unlike in conventional dictionary entries, which simply list meanings of lexemes, the motivations and links between the wide range of senses become plausible – an effect on the internal conceptual coherence of these 'radial categories', which is sometimes considered a further amendment to the prototype theory of meaning introduced in the section on categorization above.

More recent developments

Prototype theory, basic levels and entrenchment

Though by no means uncontroversial, prototype theory has gained a firm place in linguistic theorizing. A substantial part of the recent discussion of the prototype model of categorization has revolved around the issues of the theoretical status and cognitive reality of prototypes. This has to do with the question as to whether the results of goodness-of-example ratings are basically just a superficial effect of the rating task (e.g. with low ratings for an ostrich as a bird), or whether they reflect a marginal membership of the subcategory OSTRICH within the category BIRD. Croft and Cruse (2004: 79–81) insist on the importance of the distinction, stressing that while OSTRICH may indeed be a poor example of the category BIRD, it is still undoubtedly a fully fledged member. Taylor (2003), like Ungerer and Schmid (2006: 55–6), makes a distinction between folk and expert models of categories and claims that everyday models corresponding to discrete, hard-and-fast expert categories can still show prototypicality effects and fuzzy boundaries. Taylor also transfers the notion of prototypicality to technical categories in linguistics, for example in the area of phonology and morphology.

The notion of basic level has recently come to be viewed as just one manifestation of the more general cognitive process (and product) of *entrenchment* (Langacker 1987: 100, 2008a: 16–17; Geeraerts *et al.* 1994; Schmid 2007). For example, when telling a story of a dog chasing a cat, the terms that will first come to mind are precisely these basic-level terms, *dog* and *cat*, rather than superordinates such as *mammal* or subordinates like *retriever* and *ginger cat*. Observations of this type are interpreted as evidence of the higher degree of entrenchment of basic-level terms vis-à-vis words on other levels of categorization. It is assumed that the entrenchment of linguistic units is facilitated by repeated use, which, due to increasing automatization and routinization of access and retrieval, reduces the cognitive effort required for processing. Entrenchment is also linked with an increasing conventionality of linguistic units in the speech community (Langacker 2008a: 21) and diachronic changes such as grammaticalization, which can be explained as a gradual shift from syntactic structures constructed afresh each time they are used towards the storage of entrenched and conventionalized patterns and routines (cf. Bybee 2006). For instance, complex prepositions such as *with regard to*, *on behalf of* or *in terms of* presumably undergo entrenchment and conventionalization processes similar to those already completed by coalesced prepositions or conjunctions like *notwithstanding* or *nevertheless*.

From specific frames to universal event-frames

As has been shown above, frames were originally envisaged as linguistically relevant knowledge structures pertaining to fairly restricted conceptual domains, which are abstracted from similar actual situations. If the mind indeed distils such frames from recurrent experiences that are perceived as being comparable in their overall structure, it does not seem unlikely that frames can be stored on several levels, or layers, of specificity. A highly schematic, i.e. unspecific, type of knowledge structure has been postulated by Leonard Talmy in his highly influential work on event-frames (Talmy 1991, 2000). Talmy defines event-frames as sets 'of conceptual elements and interrelationships that [...] are evoked together or co-evoke each other' (2000, vol. 1: 259). Being related to very fundamental experiences of concrete physical events such as moving objects or people causing objects to move, event-frames are very likely universal. While this does not mean that all languages use the same means of encoding certain

types of event-frames, Talmy actually manages to show for one type, the so-called *motion event-frame*, that there are two basic ways of mapping the components of the frame to linguistic elements to be found in the languages of the world. The two patterns of encoding are illustrated with equivalent English and Spanish examples in Figure 43.1 taken from Ungerer and Schmid (2006: 235; based on Talmy 1991):

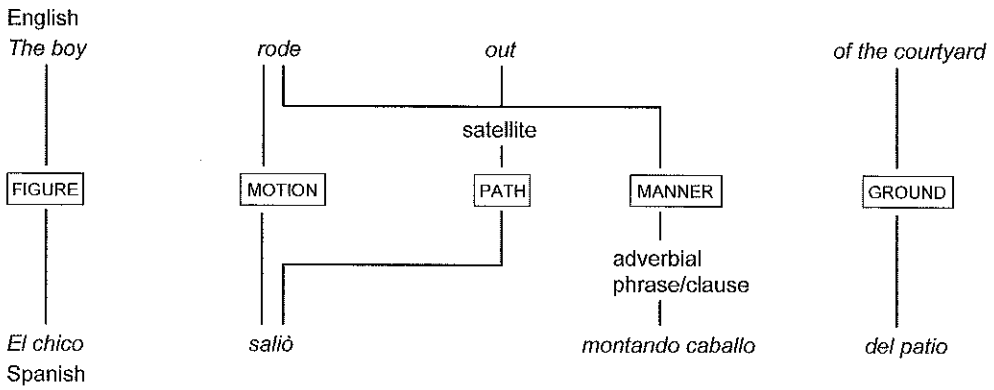

Figure 43.1 Illustration of the encoding of motion event-frame components in English and Spanish
Source: Ungerer and Schmid 2006: 235; based on Talmy 1991.

As the figure shows, the motion event-frame consists of five components (plus the optional CAUSE, not represented in the example sentences): FIGURE, GROUND, MOTION and PATH are the essential core components, MANNER (and CAUSE) have a less central status. While the mappings of frame components onto syntactic slots are identical for FIGURE (surfaces as subject), MOTION (verb) and GROUND (adverbial), the crucial difference concerns the encoding of PATH and MANNER. In English, information about the PATH is typically encoded in particles ('satellites', here *out*) accompanying the verbal form proper (*rode*), while in Spanish it is conflated with the motion component in the verb (*salió*, 'exited'). On the other hand, the MANNER component is lexicalized in the verb in English (*rode*), but must be added by means of an optional adverbial in Spanish (*montando caballo*, lit. 'mounted on horse'). Talmy (2000, vol. 2: 117–18, 221–30) refers to the two types of encoding, or 'lexicalization', patterns as mainly *satellite-framed* (e.g. English, German, Russian, Finno-Ugric, Chinese) and *verb-framed* (e.g. the Romance and Semitic languages, Japanese, Tamil, Bantu).

From an applied linguistic perspective, the problems that arise from these systematic contrasts for translation are particularly interesting (cf. Slobin 1999). Starting from English to Spanish, although it is no problem to render the MANNER component encoded in the English verb *rode* by means of an adverbial such as *montando caballo* in Spanish, this clearly has an extra effect: the manner of the action is much more prominent in the translated Spanish than in the original English version, as it is encoded by a fully fledged clause constituent consisting of two 'heavy' words. Whether the Spanish translation is really conceptually equivalent to the English is therefore doubtful. Conversely, translators from Spanish to English often face the problem that translations which sound natural in English are strictly speaking not true to the original version in the respect that they bring in a MANNER component that is not expressed in the Spanish original. While this would not be too difficult for *El chico salió del patio*, which

could quite naturally be rendered as *The boy went out of the yard*, Slobin (1999: 212) shows that 'English translators actually *add* manner to the Spanish originals in almost a quarter of their translations' (ibid., emphasis in original). Spanish translators, on the other hand, omit information about the manner of motion events in about 50 per cent of their translations.

Conceptual metaphor, metonymy and blending

Ever since it was launched by Lakoff and Johnson (1980), conceptual metaphor theory has aroused massive interest among cognitive linguists. While the paradigm has essentially remained intact, some theoretical developments, many of which are summarized in the afterword to the second edition of *Metaphors We Live By* (Lakoff and Johnson 2003), can be observed. These include the idea that the major part of the metaphorical system has a bodily basis and that this embodied nature of metaphor and the connections between concrete bodily and abstract experience is even reflected in the structure and workings of the brain (Lakoff and Johnson 1999; Gallese and Lakoff 2005). To readers of this *Handbook of Applied Linguistics*, it may be of particular interest that conceptual metaphor theory has spawned a huge number of applications on a wide range of registers, among them advertising, political, media, medical, religious and sports discourse (cf., for example, Cameron and Deignan 2006; Lakoff 2004; Musolff 2006; Nerlich 2010). As a further recent development, metaphor theorists have begun to search for methods of identifying metaphors in large corpora in a more or less automatic way (cf. Charteris-Black 2004; Deignan 2005; Stefanowitsch and Gries 2007).

Although Lakoff and Johnson did mention metonymy in *Metaphors We Live By* as a second basic type of figurative language, which is based on contiguity rather than similarity, it was not until much later that cognitive linguists started to see the fundamental role of this linguistic phenomenon for conceptualization. Triggered to a large extent by an important paper by Zoltan Kövecses and Günter Radden (1998) and the volume edited by Klaus-Uwe Panther and Günter Radden soon afterwards (1999), linguistic effects of metonymic conceptualizations such as PART FOR WHOLE, CAUSE FOR EFFECT or AGENT FOR ACTION have been found in many areas of language. For example, the conversion of *tutor* from noun to verb illustrated in example 23 can be interpreted as being cognitively motivated by the conceptual metonymy AGENT FOR ACTION. In the field of pragmatics, the functioning of indirect speech acts such as example 24 has been explained with recourse to the metonymy ABILITY FOR ACTION (Panther and Thornburg 1999). That metonymy is a highly productive process in the lexicon creating new meanings for existing lexemes (cf. example 25) is of course hardly a new insight, but has thus been placed in a wider cognitive context:

23 *She has tutored many students.* [AGENT FOR ACTION]
24 *Can you step aside, please.* [ABILITY FOR ACTION]
25a *wear glasses* 'spectacles' [SUBSTANCE FOR OBJECT]
b *have another bottle* 'content of a bottle' [CONTAINER FOR CONTENT]
c *she married money* 'a rich man' [POSSESSED FOR POSSESSOR]

As pointed out in the section on frames and cognitive models above, the conceptual theory of metaphor (and metonymy) is mainly interested in highly conventionalized metaphorical expressions and tries to unveil their conceptual underpinnings. A cognitive-linguistic theory that focuses on the online combinatorial processes involved in the interpretation of novel and original figurative expressions is known as *conceptual blending* or *conceptual integration theory*. This approach, introduced by Fauconnier and Turner (1998; cf. also Fauconnier and Turner

2002), works with the notion of *mental spaces*, that is, 'small conceptual packets constructed as we think and talk, for purposes of local understanding and action', which 'operate in working memory but are built up partly by activating structures available from long-term memory' (Fauconnier and Turner 2002: 40, 102). Conceptual blending theory tries to account for all kinds of conceptual combinations, not only metaphors and metonymies. For example, a reader not familiar with the recent coinage *fridgegoogling* ('using the names of the things in your fridge as input for a Google search in order to find a useful recipe') will, according to the model, construct two mental spaces triggered by the familiar constituents *fridge* and *google*. These spaces presumably include information retrieved from long-term memory such as 'cool', 'used to store food', 'located in the kitchen' and 'cook' for *fridge* and 'computer', 'search the Internet' and 'look for information' for *google*. Given a facilitating context such as example 26, the reader then tries to project what seems to be relevant information from these two input spaces and to integrate this information in the 'blended space' in such a way that a sensible conceptual structure can emerge:

26 *We couldn't think of anything nice to cook for dinner last night, but when we switched on the computer and did some fridgegoogling we came across an excellent recipe for chicken cassava.*

Information likely to be projected from the *fridge* space includes 'food' and 'cook', and from the *google* space 'search the Internet' and 'look for information'. Once these pieces of information are brought together by means of basic cognitive relations such as 'identity' (what is searched for in Google is identical to the food found in the fridge) or 'cause-effect' ('the reason for the googling is the aim of preparing food in the fridge'), a sensible and relevant interpretation can be arrived at.

Figure and ground, cognitive grammar and construction grammar

The basic principle of figure and ground lies at the heart of the most detailed and comprehensive cognitive-linguistic theory of grammar known as cognitive grammar. Introduced by Langacker in the 1980s (cf. Langacker 1987, 1991), this approach explains, for example, the structural properties and conceptual impact of basic sentence patterns as manifestations of the allocation of different degrees of prominence. In simple SVO-sentences, the subject is regarded as syntactic figure or trajector and the object as syntactic ground or landmark. From this perspective, syntactic surface structures are the effect of cognitive processes such as profiling, perspectivizing and focusing, which are subsumed by Langacker under the label *construal* (cf. Langacker 2008a: 55–89). To take a very simple example, in 27 *Dylan* is profiled as syntactic figure and *Patrick* as syntactic ground. Encoding the identical content from a truth-conditional point of view, 28 reverses the perspective and allocates complementary degrees of prominence to the two participants:

27 *Dylan resembles Patrick.*
28 *Patrick resembles Dylan.*

Cognitive grammar departs from more formal models of grammar, especially the generative one, in other fundamental respects. Knowledge of grammar is not modelled as a set of rules and high-level generalizations based on the linguist's introspection. Instead, grammar is conceived as a huge network of symbolic units consisting of semantic and phonological poles, which in a way are reminiscent of the pairing of *signifier* and *signified* in Saussure's classic model of the linguistic sign. These symbolic units vary in terms of specificity and size from

simple lexemes or even derivational morphemes (e.g. suffixes such as *-er*, *-ize* and *-able*) to schematic clause-level constructions (as illustrated in examples 27 and 28), thus bridging the gap between what has traditionally been strictly separated as (idiosyncratic) lexicon and (rule-based) grammar. What is also important is that the knowledge of symbolic units including syntactic structures is claimed to be derivable from the actual use of linguistic structures: it is usage-based.

These basic assumptions are also shared by a range of recent cognitive-linguistic models commonly subsumed under the label of *construction grammar*. Protagonists and milestone publications include Fillmore and Kay (e.g. Fillmore *et al.* 1988), Goldberg (1995, 2006) and Croft (2001). As stressed for instance by Goldberg (2006), form-meaning pairings can be observed on all meaning-bearing linguistic levels, from single morphemes, lexemes and idioms to abstract argument-structure constructions, such as the caused-motion construction, the resultative construction or the ditransitive, or better 'cause-receive', construction exemplified in examples 29, 30 and 31. Even more significant, constructions acquire a constructional meaning, which does not necessarily depend on the meaning of the lexical items involved. This is particularly impressive on the syntactic level of argument structure. A well-known case is Goldberg's *sneeze* example rendered in 32. Here, the overall semantic impact is one of caused-motion, even though, taken by itself, the meaning of the intransitive verb *sneeze* as such would not be interpreted as expressing caused motion:

29 *Joanna kicked the ball to Sally.* [Subject – Verb – Object – Adverbial]
'someone causing someone else to move'
30 *Joanna wiped her mouth clean.* [Subject – Verb – Object – Object complement]
'someone causing something to change state'
31 *Joanna sent a text message to Sally.* [Subject – Verb – ind. Object – dir. Object]
'someone causing someone else to receive something'
32 *Fred sneezed the tissue off the table.*

(Goldberg 1995: 152)

A very productive area of construction grammar relies on the (semi-)automatic retrieval and advanced statistical analysis of attested uses of constructions from large computer corpora to study degrees of attraction between schematic constructions and lexical elements filling slots in them (cf. Gries and Stefanowitsch 2004; Stefanowitsch and Gries 2003). For example, it has been shown, perhaps not surprisingly, that the verb attracted most strongly by the cause-receive construction is *give*, followed by *tell*, *send*, *offer* and *show*. Known as *collostruction analysis* (a blend from 'collocation' and 'construction'), representatives of this framework have recently stepped up efforts to bring together quantitative corpus data with results from psychological tests to produce converging evidence from several sources using different methods (Gries *et al.* 2005).

If collostruction analysis is applied to corpora of carer-child talk, it can also be used to support a usage-based language acquisition theory, which, to some extent at least, promises to mediate between the behaviourist emphasis on imitative learning and Chomsky's insistence on an innate language function based on universal grammar. Following Goldberg (2006), for example, the extremely frequent and early use of general purpose verbs like *go*, *put* or *give* by carers encourages the child to use these verbs as item-specific constructions because they reflect basic patterns of experience and can also be applied to a fairly wide range of arguments without overgeneralization. The more these specific constructions are entrenched, the more generalizations in terms of argument-structure constructions are facilitated, and this can be taken as a general pattern of grammatical development, as investigated in numerous studies by Tomasello and Lieven (e.g. Lieven and Tomasello 2008; Tomasello 2000, 2003).

Cognitive linguistics and language teaching

Although the implications of cognitive linguistics for language teaching have attracted a great deal of attention in the last few years, Langacker's remark (2008b) that his own article has been 'long on theory and short on practical recommendations' applies to many contributions of recently published collections in this field (e.g. Achard and Niemeier 2004; Boers and Lindstromberg 2008; de Knop and de Rycker 2008; Robinson and Ellis 2008). Against this background, the following summary is restricted to selected aspects whose regular use in the second-language classroom is feasible.

The usage-based account of first-language acquisition provides support for a number of well-established teaching principles and methods: Even where rule-based competence is the goal, as in grammar, it is best derived inductively from practice and explanation of item-specific constructions. Lexical items, in turn, should be mainly selected from basic-level categorization, where frequent and therefore deeply entrenched lexical concepts are readily available in prototypical examples and simple morphology (e.g. *girl*, *boy*, *pen*, *paper*, *book*), and they should be presented in combination with general purpose verbs (e.g. *go*, *put*, *give*) and basic evaluative adjectives (*good*, *bad*, *big*, *small*) in frequent collostructions.

Another key notion suggested by cognitive-linguistic thinking is the notion of 'anchoring'. New lexical items and item-specific structures are not only to be represented in suitable situational contexts. Equally, if not more, important is their embedding in mind maps – the frames, scripts, scenarios or, more generally, cognitive models through which lexical concepts are motivated. Care should be taken that, at least in the initial stages of language learning, these mind maps are based on a grid of part-whole, container-contained or path relationships, namely links that have been identified above as being based on our bodily experiences. Concepts like KITCHEN, BEDROOM, BATHROOM, ROOF and CHIMNEY would be shown as parts of houses; HOUSE, GARAGE, GARDEN, SHOP and CHURCH as parts of villages and VILLAGE, TOWN and CITY as contained in a country, etc. (Ungerer 2001). Later, the cognitive explanation should be extended to the motivation of figurative language, especially where metonymic and metaphorical extensions of basic conceptual models can be explained both verbally and visually (Boers and Lindstromberg 2008). An area particularly suitable for the anchoring approach is the acquisition of prepositions and phrasal verbs, where meaning extension can be related to the figure-ground (or trajector-landmark) contrast discussed above (Dirven 2001; Tyler and Evans 2003).

Anchoring can also take the form of 'grounding', especially where a deictic perspective is involved, as in the teaching of articles (Achard 2008) and tense (Niemeier and Reif 2008) as well as modals; their root meaning can be explained and visually represented as the impact of external authority-based force or internal will-powered force on the path pursued by an individual, while the choice of present and past forms of modals is accounted for by the proximal-distal metaphor (Tyler 2008: 470–6). In a wider sense, anchoring also applies to clause patterns, which need no longer be taught as formal configurations, but should be seen as semantic constructions 'anchored' in human experience (as shown above for the caused-motion construction) or as event frames, as originally suggested by Talmy and developed into a teachable system by Radden and Dirven (2007).

Finally, focusing on our perceptual access to the world, the principle of gestalt perception could be used to facilitate learning, for example in the area of noun grammar, where it is common to distinguish between count nouns and uncountable nouns, although countability is not easily defined in a grammatical context (nor is its cognitive explanation as boundedness/unboundedness). Starting from holistic gestalts like 'person', 'group' and 'collection of things' would make it easier for many students to grasp the use of grammatical number and concord.

In the domain of verb grammar, 'signal' grammar, such as recommending the use of the simple form for habitual concepts indicated by adverbs denoting high frequency and of the progressive form sparked off by simultaneity indicators (e.g. *at this moment, at present*), can be understood holistically. In general, the possibilities of the gestalt approach, especially for young learners, do not seem to be exhausted yet, and this is just one area in which the application of cognitive-linguistic ideas to language teaching requires further research and invites practical recommendations.

Related topics

generative grammar; grammar; psycholinguistics

Further reading

Croft, W. and Cruse, D. A. (2004) *Cognitive Linguistics*, Cambridge and New York: Cambridge University Press. (A textbook with a very strong focus on the construction grammar approach.)

Geeraerts, D. and Cuyckens, H. (eds) (2007) *The Oxford Handbook of Cognitive Linguistics*, Oxford: Oxford University Press. (A comprehensive overview of cognitive linguistics in fifty chapters. Useful as a reference work and as a source of detailed accounts of selected areas.)

Kövecses, Z. (2002) *Metaphor: A Practical Introduction*, Oxford: Oxford University Press. (Accessible and richly illustrated introduction to the conceptual theory of metaphor and metonymy; includes a chapter on conceptual blending.)

Langacker, R. W. (2008) *Cognitive Grammar: A Basic Introduction*, Oxford: Oxford University Press. (Labelled a *basic introduction*, this textbook gives a very good state-of-the-art account of Langacker's cognitive grammar but is still quite demanding.)

Ungerer, F. and Schmid, H.-J. (2006) *An Introduction to Cognitive Linguistics*, 2nd edn, Harlow: Pearson Longman. (Accessible introduction covering all major areas of cognitive linguistics.)

References

Achard, M. (2008) 'Teaching construal: cognitive pedagogical grammar', in P. Robinson and N. C. Ellis (eds), *Handbook of Cognitive Linguistics and Second Language Acquisition*, London: Routledge.

Achard, M. and Niemeier, S. (eds) (2004) *Cognitive Linguistics, Second Language Acqusition and Foreign Language Teaching*, Berlin: Mouton de Gruyter.

Berlin, B. and Kay, P. (1969) *Basic Color Terms: Their Universality and Evolution*, Berkeley and Los Angeles: University of California Press.

Boers, F. and Lindstromberg, S. (eds) (2008) *Cognitive Linguistic Approaches to Teaching Vocabulary and Phraseology*, Berlin: Mouton de Gruyter.

Brugman, C. M. (1981) *The Story of Over*, Trier: LAUT.

Bybee, J. (2006) 'From usage to grammar: the mind's response to repetition', *Language* 82: 711–33.

Cameron, L. and Deignan, A. (2006) 'The emergence of metaphor in discourse', *Applied Linguistics* 27(4): 671–90.

Charteris-Black, J. (2004) *Corpus Approaches to Critical Metaphor Analysis*, Basingstoke: Palgrave Macmillan.

Croft, W. (2001) *Radical Construction Grammar: Syntactic Theory in Typological Perspective*, Oxford: Oxford University Press.

Croft, W. and Cruse, D. A. (2004) *Cognitive linguistics*, Cambridge and New York: Cambridge University Press.

de Knop, S. and de Rycker, T. (eds) (2008) *Cognitive Approaches to Pedagogical Grammar: A Volume in Honour of René Dirven*, Berlin: Mouton de Gruyter.

Deignan, A. (2005) *Metaphor and Corpus Linguistics*, Amsterdam and Philadelphia: John Benjamins.

Dirven, R. (2001) 'English phrasal verbs: theory and didactic application', in M. Pütz, S. Niemeier and R. Dirven (eds) *Applied Cognitive Linguistics II: Language Pedagogy*, Berlin: Mouton de Gruyter.

Fauconnier, G. and Turner, M. (1998) 'Conceptual integration networks', *Cognitive Science* 22(2): 133–87.
——(2002) *The Way We Think: Conceptual Blending and the Mind's Hidden Complexities*, New York: Basic Books.
Fillmore, C. C. (1977) 'Topics in lexical semantics', in R. W. Cole (ed.) *Current Issues in Linguistic Theory*, Bloomington and London: Indiana University Press.
Fillmore, C. C. and Atkins, B. T. (1992) 'Toward a frame-based lexicon: the semantics of RISK and its neighbors', in A. Lehrer and E. Kittay (eds) *Frames, Fields, and Contrasts*, Hillsdale, NJ: Lawrence Erlbaum Associates.
Fillmore, C. C., Kay, P. and O'Connor, M. C. (1988) 'Regularity and idiomaticity in grammatical constructions: the case of let alone', *Language* 64: 501–38.
Gallese, V. and Lakoff, G. (2005) 'The brain's concepts: the role of the sensory-motor system in conceptual knowledge', *Cognitive Neuropsychology* 21: 455–79.
Geeraerts, D. and Cuyckens, H. (eds) (2007) *The Oxford Handbook of Cognitive Linguistics*, Oxford: Oxford University Press.
Geeraerts, D., Grondelaers, S. and Bakema, P. (1994) *The Structure of Lexical Variation: A Descriptive Framework for Cognitive Lexicology*, Berlin: Mouton de Gruyter.
Goldberg, A. E. (1995) *Constructions: A Construction Grammar Approach to Argument Structure*, Chicago: University of Chicago Press.
——(2006) *Constructions at Work: The Nature of Generalization in Language*, Oxford: Oxford University Press.
Gries, S. T., Hampe, B. and Schönefeld, D. (2005) 'Converging evidence: bringing together experimental and corpus data on the associations of verbs and constructions', *Cognitive Linguistics* 16: 635–76.
Gries, S. T. and Stefanowitsch, A. (2004) 'Extending collostructional analysis: a corpus-based perspective on "alternations"', *International Journal of Corpus Linguistics* 9: 97–129.
Kay, P. and McDaniel, C. K. (1978) 'The linguistic significance of the meanings of basic color terms', *Language* 54: 610–46.
Kövecses, Z. and Radden, G. (1998) 'Metonymy: developing a cognitive linguistic view', *Cognitive Linguistics* 9: 37–77.
Labov, W. (1973) 'The boundaries of words and their meaning', in C.-J. N. Bailey and R. W. Shuy (eds) *New Ways of Analyzing Variation in English*, Washington, DC: Georgetown University Press.
Lakoff, G. (1987) *Women, Fire, and Dangerous Things: What Categories Reveal about the Mind*, Chicago and London: University of Chicago Press.
——(2004) *Don't Think of a White Elephant: Know Your Values and Frame the Debate*, White River Junction, VT: Chelsea Green Publishing.
Lakoff, G. and Johnson, M. ([1980] 2003) *Metaphors We Live By* (2nd edn with a new afterword), Chicago and London: University of Chicago Press.
——(1999) *Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought*, New York: Basic Books.
Langacker, R. W. (1987) *Foundations of Cognitive Grammar*, vol. 1: *Theoretical Prerequisites*, Stanford, CA: Stanford University Press.
——(1991) *Foundations of Cognitive Grammar*, vol. 2: *Descriptive Application*, Stanford, CA: Stanford University Press.
——(2008a) *Cognitive Grammar: A Basic Introduction*, Oxford: Oxford University Press.
——(2008b) 'The relevance of cognitive grammar for language pedagogy', in S. de Knop and T. de Rycker (eds) *Cognitive Approaches to Pedagogical Grammar: A Volume in Honour of René Dirven*, Berlin: Mouton de Gruyter.
Lieven, E. and Tomasello, M. (2008) 'Children's first language acquisition from a usage-based perspective', in P. Robinson and N. C. Ellis (eds) *Handbook of Cognitive Linguistics and Second Language Acquisition*, London: Routledge.
Musolff, A. (2006) 'Metaphor scenarios in public discourse', *Metaphor and Symbol* 2(1): 23–38.
Nerlich, B. (2010) 'Breakthroughs and disasters: the politics and ethics of metaphor use in the media', in H.-J. Schmid and S. Handl (eds) *Cognitive Foundations of Linguistic Usage Patterns*, Berlin and New York: Mouton de Gruyter.
Niemeier, S. and Reif, M. (2008) 'Making progress simpler? Applying cognitive grammar to tense-aspect teaching in the German EFL classroom', in S. de Knop and T. de Rycker (eds) *Cognitive*

Approaches to Pedagogical Grammar: A Volume in Honour of René Dirven, Berlin: Mouton de Gruyter.

Panther, K.-U. and Radden, G. (eds) (1999) *Metonymy in Language and Thought*, Amsterdam and Philadelphia: John Benjamins.

Panther, K.-U. and Thornburg, L. (1999) 'The potentiality for actuality metonymy in English and Hungarian', in K.-U. Panther and G. Radden (eds) *Metonymy in Language and Thought*, Amsterdam and Philadelphia: John Benjamins.

Pütz, M., Niemeier, S. and Diven, R. (eds) (2001) *Applied Cognitive Linguistics II: Language Pedagogy*, Berlin: Mouton de Gruyter.

Radden, G. and Dirven, R. (2007) *Cognitive English Grammar*, Amsterdam and Philadelphia: John Benjamins.

Robinson, P. and Ellis, N. C. (2008) *Handbook of Cognitive Linguistics and Second Language Acquisition*, London: Routledge.

Rosch, E. (1973) 'On the internal structure of perceptual and semantic categories', in T. E. Moore (ed.) *Cognitive Development and the Acquisition of Language*, New York, San Francisco and London: Academic Press.

——(1978) 'Principles of categorization', in E. Rosch and B. B. Lloyd (eds) *Cognition and Categorization*, Hillsdale, NJ: Lawrence Erlbaum Associates.

Rosch, E. and Mervis, C. B. (1975) 'Family resemblances: studies in the internal structure of categories', *Cognitive Psychology* 7: 573–605.

Rosch, E., Mervis, C. B., Gray, W. D., Johnson, D. M. and Boyes-Braem, P. (1976) 'Basic objects in natural categories', *Cognitive Psychology* 8: 382–439.

Schmid, H.-J. (2007) 'Entrenchment, salience, and basic levels', in D. Geeraerts and M. Cuyckens (eds) *The Oxford Handbook of Cognitive Linguistics*. Oxford: Oxford University Press.

Slobin, D. I. (1999) 'Two ways to travel: verbs of motion in English and Spanish', in M. Shibatani and S. A. Thompson (eds) *Grammatical Constructions: Their Form and Meaning*, Oxford: Oxford University Press.

Stefanowitsch, A. and Gries, S. T. (2003) 'Collostructions: investigating the interaction of words and constructions'. *International Journal of Corpus Linguistics* 8(2): 209–43.

——(eds) (2007) *Corpus-based Approaches to Metaphor and Metonymy*, Berlin: Mouton de Gruyter.

Talmy, L. (1991) 'Path to realization: a typology of event conflation', *Proceedings of the Seventeenth Annual Meeting of the Berkeley Linguistics Society*, Berkeley, CA: Berkeley Linguistic Society.

——(2000) *Toward a Cognitive Semantics*, 2 vols, Cambridge, MA and London: MIT Press.

Taylor, J. (2003) *Linguistic Categorization*, 3rd edn, Oxford: Oxford University Press.

Tomasello, M. (2000) 'First steps in a usage-based theory of first language acquisition', *Cognitive Linguistics* 11: 61–82.

——(2003) *Constructing a Language: A Usage-based Theory of Language Acquisition*, Cambridge, MA: Harvard University Press.

Tyler, A. (2008) 'Cognitive linguistics and second language instruction', in P. Robinson and N. C. Ellis (eds), *Handbook of Cognitive Linguistics and Second Language Acquisition*, London: Routledge.

Tyler, A. and Evans, V. (2003) *The Semantics of English Prepositions*, Cambridge: Cambridge University Press.

Ungerer, F. (2001) 'Basicness and conceptual hierarchies in foreign language learning: a corpus-based study', in M. Pütz, S. Niemeier and R. Diven (eds) *Applied Cognitive Linguistics II: Language Pedagogy*, Berlin: Mouton de Gruyter.

Ungerer, F. and Schmid, H.-J. (2006) *An Introduction to Cognitive Linguistics*, 2nd edn, Harlow: Pearson Longman.

Wittgenstein, L. (1958) *Philosophical Investigations*, 2nd edn, G. E. M. Anscombe (trans.), Oxford: Blackwell.