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THE COGNITIVE APPROACH TO LANGUAGE

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1. Introduction¹

Natural language is a product of the human mind. It is part of our overall cognitive make-up and relates to perception, reasoning, imagination, and, most importantly, to the experience of our body and the world around us. The approach to be adopted in any study of human language should therefore take all these aspects into account: it should be cognitive. Like all cognitive sciences, the goal of cognitive linguistics is to explain how the mind works. It would, in fact, be rather odd to treat language as a self-contained "module", as if it was detached from the people who use it in communicating meanings. Yet, generations of linguists and teachers have attempted to reduce language to a formal system of rules resembling laws of physics or formal logic. Psychological experiments have, however, shown that human reasoning is different from logical reasoning. For example, in an experiment discussed in D'Andrade (1989) students were given the following problem and had to decide which of the three conclusions applied.

- (1) GIVEN: If this rock is a garnet then this rock is a semi-precious stone.
 SUPPOSE: This rock is not a semi-precious stone.
 THEN: a. It must be the case that this rock is a garnet.
 b. Maybe this rock is a garnet.
 c. It must be the case that this rock is not a garnet.

Most students gave the correct answer that conclusion (c) was the correct one. But only half of the students were able to draw the correct conclusion when the problem was

¹ This article is a completely revised version of a paper published in Radden (1992). The paper was meant to introduce students of English to cognitive linguistics and stimulate their interest in this new field of study. A prepublished version of this paper appeared in "Gleanings in modern linguistics", a collection of linguistic articles compiled by Béla Korponay and Péter Pelyvás at Kossuth Lajos University at Debrecen in 1991. Thanks to Béla Korponay, Debrecen University was one of the first Hungarian universities to introduce Cognitive Linguistics, and it was my privilege to provide a short survey of the "Cognitive approach to natural language" for their reading list. It is my great pleasure now to present an updated version of the paper in honor of my colleague and friend Béla on the occasion of his 80th birthday.

presented with the fairly meaningless content of (2):

- (2) GIVEN: If Roger is a musician then Roger is a Bavarian.
 SUPPOSE: Roger is not a Bavarian.
 THEN: a. It must be the case that Roger is a musician.
 b. Maybe Roger is a musician, maybe he isn't.
 c. It must be the case that Roger is not a musician.

In logic, this problem of conditional reasoning involving the negation of a subsequent is known as *modus tollens*. It can be stated more abstractly by the formula: *if p then q; not q; therefore not p*. When the students were asked to judge the validity of the abstract rule, hardly any of them was able to do so. The students' performance in these three tasks differed so vastly because they, like most of us, reason on the basis of meaningfulness and not on the basis of rules of logic. We can see a meaningful connection between garnets and semi-precious stones, but the strange information about musicians and Bavarians makes no sense in the world as we know it, and the abstract formula is fully beyond our imagination. If all of us were wired like computers, we would have answered all three versions of this problem correctly, but we are, of course, no computers but human beings.

Research done by cognitive linguists over the last 30 years has shown that natural language is not just a system consisting of arbitrary signs and abstract rules. Large areas of language structure are motivated as part of our cognitive system and can be reasonably explained. The notions of *motivation* and functional *explanation* have in fact become key concepts in Cognitive Linguistics. The following survey of Cognitive Linguistics aims to present the gist of the cognitive approach to the study of language. Only a few representative linguistic areas could, of course, be selected to illustrate this new approach. Section 2 introduces the reader to the important notions of *categories* and *categorization*. The first studies on categorization were carried out by psycholinguists in the 1970s; these studies have been very influential in the rise of Cognitive Linguistics. Section 3 is devoted to larger *conceptual structures* which are relevant in processing language. These include cognitive domains, conceptual frames, scripts and mental spaces. Section 4 presents work on *metonymy* and *metaphor*. Lakoff and Johnson's (1980) insights into the conceptual basis of metaphor spawned a vast amount of research not just on metaphor but on the interdependence of language and cognition in general. Section 5 discusses some of the research done on *iconicity* in language. In iconic relationships, our conception of reality is reflected in the structure of language. Iconicity thus provides a convincing case against the dogma of arbitrariness and for the notion of motivation in language. Section 6 presents some notions of *cognitive grammar*, as developed mainly by Ron Langacker. His approach to grammar is the first description of English syntax that integrates cognitive insights into a fully fledged coherent theory.

2. Categories and categorization

2.1. Categories

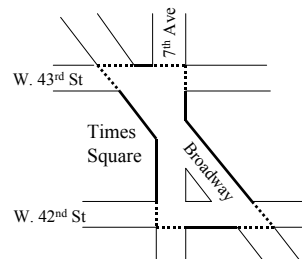
Our ability to treat similar, but distinct, phenomena as equivalent and group them

together as a category is central to our cognition and language.² A category is a conceptual unit formed for things that are relevant, or "matter", to the people of a community. If our experiences of the world around us were not categorized, we would be engulfed in a chaos of individual impressions, similar to the world which a new-born baby faces. In our early stages of concept formation we begin structuring our mental world. For example, we come across all kind of animals, small terriers and large Saint Bernard dogs, collies with pointed noses and boxers with flat noses, sweet, loveable Pekinese dogs and awe-inspiring German shepherds, and in spite of their different appearances, we see certain commonalities shared by all these kinds of dogs and group them together as members of one and the same category. At first this category may still subsume cows, horses and cats, but it will eventually be narrowed down to include dogs only. The process of category formation is reinforced by having a label for a category: at first it is *bow-wow*, and later on it is replaced by *dog*. Animals may also be able to form categories, for example for people who give them food or for things which are edible at all, but man is the only creature who names his categories and thus can talk about them. The formation of categories and the acquisition of names for them is largely an unconscious and effortless process. Yet it is a highly complex mental achievement and poses fundamental problems, in particular: what exactly is the nature of conceptual and linguistic categories and what determines category membership?

The notion of category goes back to Aristotle. In the "classical" view, categories are discrete entities that are characterized by a set of necessary and sufficient conditions, i.e. conditions that are necessary and, taken together, are sufficient to define its meaning. Thus, a square is defined by the following conditions:³

- (3)
- it is a closed, flat figure
 - it has four sides
 - its sides are equal in length
 - its interior angles are equal

These four defining properties capture the essence of squarehood and distinguish squares from other geometrical figures. They allow us to include in this category squares of any size and exclude, for example, cubes, triangles, rectangles and parallelograms. When we apply these criteria to real geometric figures, however, these criteria may not fully apply. For example, the crossroads in Manhattan where Broadway, Seventh Avenue and 42nd and 43rd Street meet is known as Times Square. However, Times Square is certainly not a closed and flat figure, but an open three-dimensional space surrounded by skyscrapers with neon advertisements, it has not four but many sides, its sides are not equal but different in length, and its interior angles are not equal but different. The word *square* is apparently used differently depending on the domain in which it



² Issues of categories and categorization are dealt with in Rosch (1978), Lakoff (1987), Zerubavel (1991) and Taylor (2004).

³ The example is taken from Aitchison (1987: 43).

occurs: in the domain of geometry, a square has a strictly defined sense, and in the domain of urban communities, a square is an open place which may, but doesn't have to, resemble a geometric square. Even when a place does not have the shape of a square, the use of the word *square* is motivated. When the crossroads in Manhattan was named *Times Square* in 1904, the New Yorkers did not have the geometric shape of a square in mind but the downtown area of a city where urban life takes place. The centers of most cities and towns in the US have the shape of a square but the geometric sense of squarehood is no longer primary but has been supplanted by the social function which people have come to associate with city squares or town squares. We would not even be surprised if a round place was named a square.⁴

The discussion of 'square' has shown that categories can be defined by a set of conditions but that such senses are typically restricted to a technical domain. In everyday language, the meanings of most categories tend to be vague and fleeting and the borderlines between categories are fuzzy. But the vagueness of categories is compensated for by a considerable advantage: categories are flexible enough to meet all communicative needs. If new things need to be categorized and named, we can readily make use of existing categories and extend their meanings. For example, American politicians used the word *surge*, which is associated with the swelling of waves or billows, in reference to the increase of troops in Iraq in 2007, or the word *outsourcing* in reference to private contractors taking over military duties. These words and their meanings are motivated and, once accepted by the speech community, take on lives of their own. There are zillions of potential categories which we feel the need to express. For example, the word *hijacking* was commonly used in the US in the 1920s for 'stealing bootleg alcohol'.⁵ Possibly because of its association with the word *high* and the sense of illegality, the meaning of *hijacking* was then extended to 'seizing control of an aircraft', which is also described as *sky jacking*. Since there are many types of things that can be illegally seized, this pattern has motivated a number of new lexical categories, among them *car jacking*, *bus jacking*, *truck jacking*, *bike jacking*, *iPhone jacking*, and many types of internet crime such as *page jacking* ('the use of the same key words or Web site descriptions of a legitimate site on a fake site') and *web jacking*, or *homepage hijacking* ('cracking and changing a website's admin passwords').

Our conceptual world is infinitely rich, but our language only provides a limited number of words to express our concepts. People have often formed a category for which they lack a word and wonder if there is a name for it. Sometimes, readers ask so-called experts of language in newspapers questions like the following:

- (4) When you're peeling an apple or a potato, and the peel comes off not in little bits but one long continuous strip which can sometimes measure a foot or more in length, is there a word to describe that long length of peel?

⁴ Town squares in Polish towns are mostly square or rectangular in shape and are called *rynek*, a word of German origin meaning 'ring'. Here the reverse process happened: the ring of medieval fortifications defined the town and ultimately its center, the market square.

⁵ According to *The New Penguin English Dictionary*, s.v. *hijack*, "there is some evidence that it was earlier used by hoboos to mean 'to rob a sleeping person'. It has been conjectured that the word derives from *High, Jack!*, i.e. a command to the victim to put his hands up, or possibly from *Hi, Jack!*, i.e. a menacing greeting to the victim, but neither explanation is very convincing."

Dr Wordsmith of *The Independent* answered this question by saying, "No. At least, I think not." A long strip of peel was a category to the reader and it is certainly possible that it could become a word but, according to our above definition of categories, it is not relevant to the speech community: people simply do not care about the length of apple or potato peels.

Once a category is named, it gives people stability in their world of thoughts and judgements: they have the strong feeling that a word captures the essence of a thing. Words and the categories they denote do not exist in isolation but are understood in contrast to other words and categories. As convincingly demonstrated by Zerubavel (1991) in his highly readable book *The Fine Line*, in using categories we divide reality into "islands of meaning": we categorize people into 'rich' and 'poor', 'intelligent' and 'failure', or 'law-abiding citizens' and 'criminals', music into 'classical' and 'popular', etc.⁶ We even have names reinforcing these divisions such as *poverty line* and *color line*. Our firm belief in divisions created by categories is reflected in rites performed in all cultures when crossing a "line" that is considered an important caesura, such as the transition from adolescence to adulthood, one's graduation from college, or crossing the equator.⁷ Most of these divisions are arbitrary cuts along a conceptual continuum. They give us a very crude, but efficient, tool of handling reality. For example, at a World Cup football match, supporters are, for practical reasons, divided by the police into three categories of potentially violent fans:

- (5) Category A: majority of fans, do not cause trouble
- Category B: will fight if they meet the opposing supporter if he is of same mind
- Category C: have criminal convictions related to football disorder

Being cognitive linguists, we are aware of the fact that all these distinctions are not "real" or God-given but human constructs: in reality, there are no dividing lines between drizzle, rain and a shower. These divisions are solely imposed by the language users of a community. Not surprisingly, therefore, different languages may categorize reality differently. For example, English has only one word for putting on clothes while Japanese has four depending on the body part,⁸ or English categorizes a paper cup

⁶ In general semantics, scholars like Hayakawa (1941) have pointed out that we typically think in terms of dichotomies such as good/bad, rest/work, moral/immoral, false/true, us/them, ally/enemy, etc. In Nazi Germany, the polarization between Aryan and non-Aryan provided the mental foundation for the discrimination and ultimate extermination of Jews. In line with this over-simplified dichotomy the German Government was forced to classify its Japanese ally as Aryan.

⁷ Zerubavel (1991) points out that children even believe the equator to be a real line. It should also be mentioned that the word *define* derives from Latin *finis* 'end, boundary' and suggests establishing boundaries and drawing a line.

⁸ Noriko Matsumoto kindly informed me about the verbs used for putting on clothes in Japanese:

Kaburu is used for donning headgear such as a hat, a cap, a helmet, a veil and a hairpiece and for pulling things over one's head such as a sweater or a blanket.

Kiru is used for putting on clothes on the upper body such as a shirt, a sweater, a jacket and a coat, for putting on a set of clothes such as a suit, a jogging suit or a pair of pajamas, and as a generic term for putting on things such as Japanese-style dressing, a formal dress, a uniform and swimwear.

Haku is used for putting on clothes on the lower body such as trousers, a skirt and socks and footwear like shoes, sandals and slippers.

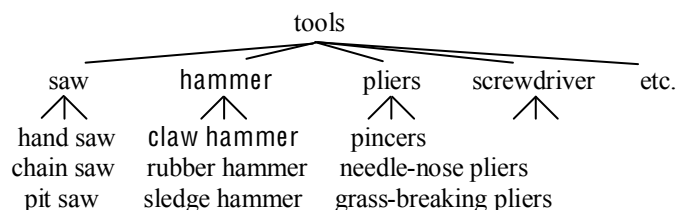
Suru is used for putting on clothing accessories such as a muffler, a scarf, a tie, a belt, gloves, an apron and a bib as well as glasses, contact lenses, earrings, a necklace, a watch, etc.

together with cups, whereas German and Finnish categorize their equivalent, i.e. *Papierbecher* and *paperimuki*, with mugs.

2.2. Taxonomies

Categories are related to other categories in various ways, and we just mentioned contrasting categories. Categories also occur in hierarchies, in particular whole-part relations, as in ‘table’ and ‘table-top’, and superordinate-subordinate relations, as in ‘table’ and ‘kitchen table’. Here we will only look at the latter type of hierarchy, which is also known as taxonomy. Most categories are located in a hierarchical structure whose superordinate categories pass their defining features on to the categories at the level below them. Thus, whatever is said of animals is true for cats, and whatever is said of cats is true for angora cats, but not vice versa. People’s “folk taxonomies” do not always correspond to scientific taxonomies. They may assign objects to the “wrong” superordinate category. Thus, bats are mammals but, due to their capability of flight, tend to be categorized as birds, or jellyfish are grouped together with fish because they live in water. Folk taxonomies may also lack a superordinate term like the scientific higher-order term *cetacean*, which subsumes whales, dolphins and porpoises—though, thanks to their popularity, these animals may be collectively known as marine mammals. Most importantly, however, folk taxonomies attach different cognitive salience to the hierarchical levels. Cognitive anthropologists and cognitive psychologists have found that categories at the middle, or basic, level of a hierarchy are conceptually more salient than categories at the higher and lower levels. Basic-level categories tend to elicit the most responses and richest images. People associate no single mental image with superordinate categories such as *furniture* or *musical instrument*, but they form very detailed and vivid mental images with basic-level categories such as *chair* or *flute*, which bring to mind various parts and properties of these objects.⁹ Basic-level categories provide the most information to us because they are “human-sized”. Subordinate categories such as *office chair* or *piccolo flute* may be too specialized to evoke rich imagery.

The different subcategories subsumed under a category have different degrees of salience as well, as shown in the following taxonomy of tools:



⁹ Tversky (1990) observed that subjects produce the most names for parts of a category at the basic level like, e.g., the handle and head of a hammer or the top and legs of a table. She surmises that, in noticing perceptually salient parts, people form a conceptual bridge to their functional importance.

Figure 1. Partial taxonomy of ‘tools’

In this hierarchy, the kind of tool that comes to mind most readily would probably be a hammer, and the kind of hammer that we are most likely to think of is a claw hammer as used in households. “Mind-readers” in shows make use of such conceptually salient subcategories when they ask people to think of a tool or musical instrument or piece of furniture and correctly “read” their thoughts, namely that they were thinking of a hammer, a violin and a table.



2.3. Prototypes

In cognitive psychology, such salient subcategories have been described as prototypes.¹⁰ Prototypes are those members of a category that are felt to be the “best”, i.e. the most central, salient and typical subcategories or individuals of their category.¹¹ For example, a young person in his early twenties who is enrolled at a college or university is a prototypical student and a better member of this category than a 65-year old pensioner who is attending an evening class on Thai cooking. Likewise, a printed book is a “better” book than an audio version of it on CD (this may, of course, change). This is common knowledge to all language users of a speech community, so there is no need to explicitly name the prototypical subcategory when we talk about it, i.e. we need not speak of *university students* or *printed books* when we talk about prototypical students or prototypical books.

George Lakoff (1987: 80-4) has demonstrated that subcategories are also used to comprehend the category as a whole. Thus, we understand the category ‘mother’ in terms of the unnamed subcategory ‘housewife mother’.¹² In Western cultures, mothers are expected to stay at home nurturing their child rather than go to work. This social stereotype is reflected in sentences with *but*, which describe counter-expectations. Thus, sentence (6a) is fine because it expresses a counter-expectation to the house-wife stereotype, while sentence (6b) sounds strange because it is consonant with our expectation that mothers should not be working mothers:

- (6) a. *Normal*: She is a mother, but she has a job.
 b. *Strange*: She is a mother, but she doesn’t have a job.

These observations reveal a number of cognitive properties of language.

First, they show that the meaning of a category, or a word, is not solely defined by

¹⁰ Unfortunately, the term *prototype* is used in a different sense in technology, namely as a new type or design, as in a new type of car.

¹¹ Prototypes have been shown to display a number of “prototype effects” in experiments: they are rated as the best examples of a category, have the shortest reaction time in verifying them, are associated with the most attributes, and are mentioned first in naming tasks.

¹² As shown by Lakoff, the category ‘mother’ is highly complex. Prototypical mothers are females who contribute the genetic material, give birth to a child, nurture and raise the child, and are married to the father. Non-prototypical mothers are, for example, stepmothers, who didn’t supply the genes and give birth to the child but nurture and raise the child and are married to the father, foster mothers, who did not give birth to the child and are being paid by the state to provide nurturance, biological mothers, surrogate mothers, unwed mothers and other kinds of mothers who lack certain properties of prototypical mothers.

lexical features but may also include social stereotypes.

Secondly, since most categories have prototype structure, we may assume that categories in general are understood in terms of their prototypes. Thus, the image of a young university student determines our understanding of the category ‘student’, that of a printed book our understanding of books, and that of a housewife mother our understanding of mothers.

Thirdly, our understanding of categories is governed by metonymy. When we think of a category or talk about a category, we have a prototypical subcategory in mind, i.e. a subcategory metonymically stands for the category. What makes these metonymic shifts particularly interesting is their conceptual nature: they operate only at the conceptual level and do not, or not necessarily, involve language. The notions of metonymy and metaphor will be dealt with in some more detail in Section 4.

3. Larger conceptual structures: domains, frames, scripts and mental spaces

3.1. Cognitive domains

Categories and the words expressing them do not occur in isolation but are always part of, and evoke, larger conceptual structures. The only exceptions might be pronouncing or bilingual dictionaries, which abstract away from the normal, communicative use of language. The preceding discussion has already mentioned subcategories (such as ‘housewife mother’) which evoke a category (‘mother’); conversely, when we talk about mothers, the word *mother* evokes the prototypical subcategory ‘housewife mother’. Likewise, a wheel cap lying on the roadside evokes the wheel it is part of, and a wheel evokes the vehicle it is part of, etc. A part thus evokes the whole it belongs to, and a whole typically evokes at least some of its typical parts. Thus, we expect that a car has wheels, that a clock has two hands, that a game of soccer has two half-times, and that a fancy dinner includes an appetizer, a main dish and a dessert—and is served in this order.

Some of the conceptual background evoked serves as the basis for characterizing a category. Langacker (1987: 183-9) describes such background knowledge characterizing a linguistic unit as its base or cognitive domain. Domains are typically used in definitions. Thus, the word *knuckle* is defined with respect to the domain ‘finger’, which is characterized with respect to the domain ‘hand’, which is understood with respect to the domain ‘arm’, etc. Here, the domains are the immediately larger entities in a physical part-whole relationship. In addition, domains may involve abstract part-whole relationships, as in the word *Friday*, which is defined with respect to the domain ‘week’, which in its turn is characterized with respect to ‘time’. Domains may also involve other than part-whole relationships. For example, *faithfulness* is characterized by the domain ‘personal relationship’, whereas *adultery* only applies to married couples and hence presupposes the domain ‘marriage’.

A word may evoke different culture-specific domains. In the Western world a knife is used to cut meat at the dinner table and hence belongs to the ‘eating’ domain. A knife may, however, also be used as a weapon and would then belong to the ‘fighting’ domain. Even a category like ‘Friday’ may be understood with respect to different domains. For example, a mother might ask her son, “Don’t you have any homework to do?” and be given the answer, “It’s Friday”, which tacitly invokes the ‘weekend’ domain. Or the

mother of a Catholic family might answer her child's question, "Why are we having fish today?" by saying, "It's Friday", invoking the 'Catholic week' domain. *Friday* is not just a unit of time but gives rise to many domain-specific associations. In the 'work' domain of Western cultures, it marks the beginning of the weekend and is the day on which workers get, or used to get, their pay checks, in the domain of Christianity, it is the day on which Christ was crucified, in the historical judicial domain, it used to be the "hangman's day", and in the superstition domain, it is the day of bad luck.

3.2. Conceptual frames

Associations evoked by a category, or word, are usually referred to as a conceptual frame.¹³ Conceptual frames are coherent packages of knowledge that surround a category. Like domains, frames are evoked, but unlike domains, they are not characterizing. An often-cited example of a frame is that of a commercial transaction. A prototypical commercial transaction involves four central elements: the buyer, the seller, the goods, and the money. In English, we can focus on any pair of these elements by using different verbs. *Buy* focuses on the buyer and goods, *sell* on the seller and the goods, *pay* and *spend* on the buyer and the money, *charge* on the seller and the money, *cost* on the goods and the money, and *buy* in sentences such as *What does a million dollars buy nowadays?* on the money and the goods. The four central elements of the 'commercial transaction' frame and the verbs expressing relations between them are represented in Figure 2.

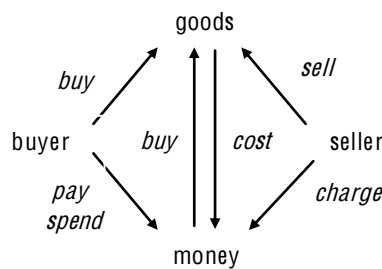


Figure 2. Elements and relations of the 'commercial transaction' frame

The mention of any one of the elements of a frame activates in our mind the whole frame. Thus, when my friend proudly shows me the iPhone he *bought*, I know that someone sold it to him and that it cost him a fortune. Frames make situations meaningful and allow us to make inferences. For example, when someone speaks about his Toyota as a "lemon", we infer that he bought the car some time ago, paid good money for it, and feels cheated by the car dealer. Or when the 35-year-old daughter announces to her parents that *Mario popped the question last night*, the 'marriage' frame springs into their mind, including the wedding ceremony and possibly also the chance of becoming grandparents. We can now also more fully explain why the logical problem discussed in

¹³ The notion of frame was introduced to linguistics by Fillmore (1982) and discussed in Croft & Cruse (2004) and Ungerer and Schmid (2006).

Section 1 was easy or difficult to solve depending on the form it was presented in. Presenting the premises as *If this rock is a garnet then this rock is a semi-precious stone* and *This rock is not a semi-precious stone* is meaningful to people because garnets and semi-precious stones evoke the same coherent frame of ‘precious stones’, which is not the case with Bavarians and musicians or “p” and “q”.

Frames have a powerful impact on our thinking. In his study of the language of politics, Lakoff (2004) demonstrates the powerful impact of the phrase *tax relief*, which was used by George Bush “on the day he arrived in the White House.” The word *relief* evokes the frame of an affliction and a reliever who removes the affliction and is therefore a hero. The word *tax* in connection with *relief* suggests that taxation is an affliction so that the person who relieves citizens from paying high taxes appears as a hero as well. Taxation might also be framed differently, as duties or investments in the future, but these frames would evoke very different reactions from the American public.

Frames are conceptual in nature but also have reflections in language structure. Since frames are part of our shared knowledge, the elements that are evoked in a frame are familiar as well and therefore expressed by definite noun phrases. This would be the case if you told a friend about your wedding, as in (7a). The Western ‘wedding’ frame might, however, not be familiar to speakers of Chinese or an African language. In this case, we would probably use indefinite noun phrases, as in (7b):

- (7) a. Then *the priest* gave God’s blessing to our marriage and asked us to exchange *the rings*, and at our wedding party we cut *the wedding cake*.
- b. Then *a priest* gave God’s blessing to our marriage and asked us to exchange *rings*, and at our wedding party we had to cut *a wedding cake*.

3.3. Scripts

The notion ‘script’ goes back to studies of human knowledge structure in Artificial Intelligence, in particular to Schank and Abelson (1977). A script is a mundane series of subevents of a complex event. In the same way that a film script lays down chains of episodes to be acted out, certain successive routines of our lives are fixed. The classic example of a script is that of a visit to restaurant. It involves the following order of scenes: 1. entering, 2. ordering, 3. eating, and 4. exiting. Each scene is in its turn composed of a number of actions: for example, the ordering scene includes the waiter bringing the menu, the customer choosing the food, signaling to the waiter and ordering the food, the waiter passing the order to the cook, and so on. The point is that such scripts are so routinized that mentioning one or some of its elements evokes the whole script and allows the hearer to infer the whole series of episodes. For example, if my friend told me that he went to a Thai restaurant and ordered delicious rice noodles with seafood I immediately infer that, amongst other things, he ate the dish and paid for it. Since the restaurant script is familiar to us all its subevents need not be mentioned. Scripts have therefore been successfully implemented in computers, which then can act “intelligently”. For example, if the computer was instructed that the customer left a big tip it would infer that the customer ate the food and was probably satisfied with the service. However, if the computer was asked if the waiter walked, danced or flew to the customer’s table, it might not be able to answer this question because this information

has not been taught to the computer as part of the script.

We said above that the successive subevents of a script need not be mentioned. In fact, we should rather say that the events are not mentioned unless the speaker wants to convey a certain meaning. Posner (1986: 305f) provides a convincing example of differing interpretations derived from an "underspecified" description and a more explicitly specified description of the same sequence of events:

- (8) a. Mr. Smith stopped in front of his house. He waved to a passing neighbour and got out of his car.
 b. Mr. Smith stopped in front of his house. He raised his arm and smiled to a passing neighbour. He pulled the handle of the door of his car, pushed the door open, swung his legs out, heaved his body out, and shut the door.

Description (8a) is less detailed, but the reader will easily supply the actions that are explicated in description (8b). Moreover, Mr. Smith in description (8a) is understood to be a normal adult and his actions to be everyday behavior. The painstaking description in (8b), by contrast, is not just more detailed but suggests great effort involved in the actions: Mr. Smith is seen as a cautious elderly gentleman who plans every step carefully. None of these meanings is explicitly expressed in the description—they are inferred, or constructed by the reader.

3.4. Mental spaces and conceptual blending

In talking about things in the world we constantly evoke all kinds of knowledge. These short-lived packages of knowledge evoked in on-line communication are known as mental spaces.¹⁴ Mental spaces provide the conceptual background which enables us to contextualize and assess the ideas presented to us by the speaker. Mental spaces typically represent the speaker's status of knowledge and are invoked in communication by expressions known as "space-builders". For example, when the speaker uses expressions such as *I think* or *I believe* she sets up a 'belief' space for her ideas, when she uses *will* or *tomorrow* she locates her ideas in a 'future' space, and when she uses the negation marker *not* she invokes an 'irreality' space. It is due to different mental spaces that the sentence *In Len's painting, the girl with blue eyes has green eyes* is not contradictory.¹⁵ The girl has blue eyes in the reality space and green eyes in the representation space.

Incompatibilities such as these are often resolved by conceptually blending information from different mental spaces.¹⁶ This is illustrated in the following joke:

- (9) A man driving a car collided with a cow and completed the requested form as follows:
 Q: What warning did you give the other party before the collision?
 A: Horn.
 Q: What warning was given by the other party?
 A: Moo.

¹⁴ For mental spaces see Fauconnier (1997), Croft & Cruse (2004: 32-3) and Evans & Green (2006: 363-99).

¹⁵ Fauconnier (1985: 20).

¹⁶ For conceptual blending see in particular Fauconnier & Turner (2002) and Evans & Green (2006: 400-44).

In order to understand the information given in the first two clauses—a collision with a cow and the completion of a form—we first need to invoke a ‘collision’ frame and an ‘insurance’ frame. It is only by virtue of these frames that the events described in the story become coherent; notice that the word *insurance* is not mentioned. The two frames remain active up to the last line, where a new frame is invoked: the ‘cow’ frame. The ‘cow’ frame is superimposed on the ‘collision’ and ‘insurance’ frames and to a certain extent fits in with these frames. Cows are comparable to cars: both produce sounds, but cars do so by hooting their horn and cows do so by mooing. However, we know from our ‘driving’ frame that drivers hoot their horn as a collision warning, but our ‘cow’ frame tells us that cows moo when they want to be milked or they moo for no apparent reason at all. In the punch-line of (9), the ‘collision’ frame and the ‘cow’ frame are conceptually blended. The conceptual blending of these frames may be represented as shown in Figure 3.

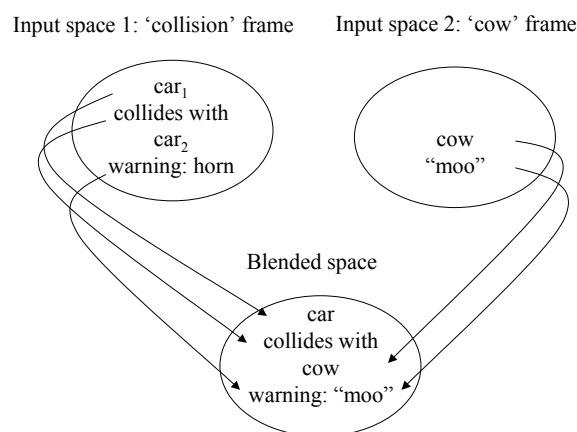


Figure 3. Conceptual blending: Collision with a cow

The blended space inherits elements from both input spaces, and their conceptual integration gives rise to new emergent meaning: we visualize the absurd situation of cows mooing to warn of collision. Probably most jokes and puns gain their humorous effect from blending such incompatible frames. Incidentally, one of the most common types of humor derives from blending spaces which are evoked by the idiomatic and literal senses of an expression, as in *Does the name Pavlov ring a bell?* or *On the other hand, you have different fingers*.

Blending is traditionally known as a word-formation process, as in *brunch*, where two clipped words are fused: *br(eakfast)* and *(l)unch*. These two clipped words provide the input spaces and, as in the examples of conceptual blending, the blended meaning is not the sum of the meanings of the inputs but also contains additional, emergent meaning. Thus, brunches are served at a time between breakfast and lunch, but unlike these two meals, brunches tend to be served at special occasions and at restaurants, include a large variety of dishes and may even include alcoholic drinks. These emergent meanings are only associated with the blend.

The notions pertaining to larger conceptual structures which we discussed in this section are, unfortunately, not easily distinguished from one another. This applies mainly to the distinction between the terms *domain* and *frame*. Instead of going into further details we will, as a synopsis of this discussion and for easy reference, summarize the notions as they are used in this survey. A *cognitive domain* is the field to which a category or frame belongs. A domain may be specific such as the domain 'finger' in defining the word *knuckle*, or general such as the domains 'space' or 'time'. A *conceptual frame* is a coherent package of knowledge about a segment of experience, such as the 'marriage' frame, which includes the elements of husband, wife, family, marriage vow, etc. A *script* is a series of episodes, or subevents, of an overall event such as the 'restaurant' script. A *mental space* is a package of knowledge evoked as we think and talk and used for local understanding and action. A mental space may be connected to long-term knowledge structures such as frames or to a specific situation, as in *She may get married*, which evokes a 'marriage' frame within a 'potentiality' space. *Conceptual blending* refers to the integration of two or more mental spaces into a newly created "blended space", as in the word *brunch*. Conceptual blending is a powerful means of creating new meanings from input spaces and is found in many areas of language, including metonymy and metaphor.

4. Metonymy and metaphor

Metonymy and metaphor have traditionally been treated as tropes, or figures of speech, i.e. as non-literal uses of words or phrases in place of some literal expressions. *Merriam Webster's OnLine Dictionary* defines metonymy as "a figure of speech consisting of the use of the name of one thing for that of another of which it is an attribute or with which it is associated (as *crown* in *lands belonging to the crown*)" and metaphor as "a figure of speech in which a word or phrase literally denoting one kind of object or idea is used in place of another to suggest a likeness or analogy between them (as in *drowning in money*)". Moreover, metonymy and especially metaphor are traditionally seen as rhetorical devices used to create aesthetic or poetic effects.

By contrast, cognitive linguists have shown that metonymy and metaphor are conceptual in nature—they have, therefore, also been described as figures of thought.¹⁷ They are imaginative processes that allow us to conceive one conceptual entity (the target) by means of another conceptual entity (the source). Typically, the source is more basic, more salient and more easily accessible than the target. Metonymy and metaphor are ubiquitous phenomena in thought and language and have substantially enriched our modes of thought and the senses of our word stock.

4.1. Conceptual metonymy

Conceptual metonymy is a shift which operates within the same frame or domain.¹⁸ Let us, by way of example, consider the frame for books, which includes a number of

¹⁷ See in particular Lakoff & Johnson (1980; 1999), Gibbs (1994), Barcelona, ed. (2000), Dirven & Pörings, eds. (2002) and Kövecses (2002).

¹⁸ For conceptual metonymy see the articles collected in Panther & Radden, eds. (1999).

elements such as reading, the contents of a book, parts of a book like its printed pages and cover, the author, a library, bookshelves, a bookstore, etc. Whenever one of these elements is mentioned, the whole ‘book’ frame is activated in our mind. The links between some of these conceptual elements is particularly strong and may be exploited by metonymy, as shown in the following examples:

- (10) a. Have you read *Doris Lessing*?
 b. Would you like a *hardcover* or *paperback*?
 c. It is a pleasure to *leaf* through your book.
 d. Let’s take a look at the *book shelves* over there.
 e. This *grammar book* is fascinating.

Sentence (10a) is intended to mean ‘Have you read a book (or books) by Doris Lessing?’, i.e. an author is used to stand for a book or books by this author. The metonymy is a specific version of the conceptual metonymy PRODUCER FOR PRODUCT, which also applies to well-known artists, musicians, architects, etc. and their works. Sentences (10b) and (10c) illustrate PART FOR WHOLE metonymies, in which the parts are particularly salient. The use of *leaf* as a verb in (10c) involves a further metonymy: an object is used to stand for an action involving the object. Sentence (10d) may literally be about inspecting book shelves or metonymically about finding books on the shelves. In this case, the metonymy involved is PLACE FOR OBJECT. The metonymy in sentence (10e) is hardly noticeable: what is fascinating is not the book as such but, in all likelihood, its contents, i.e. the metonymy involved is WHOLE FOR PART.

In all of these instances of metonymy, the metonymic source stands out as highly salient: an outstanding author, especially a Nobel-prize winner, is salient, the cover of a book is salient when it serves to distinguish different physical formats of a book, the leaves of a book are salient when they are turned over rapidly in order to gain a first impression of a book, the shelf on which books are sitting is salient, and a book as a whole is salient since its contents is dependent on the book. The metonymic source has, therefore, been described as a reference point providing mental access to the metonymic target.¹⁹ The target itself remains unnamed, and the hearer has to infer it from many possible targets. In (10b), if we didn’t know the meanings of *hardcover* and *paperback*, we would not easily access the target ‘books’ because many things may be, or may have, a hard cover, such as a roof or a binder, and many things may have a paperback, such as a newspaper. This is the reason why *hardcover* and *paperback* tend to occur with a head noun clarifying their character as a book, as in *hardcover book* and *paperback edition*. Normally, however, there are clues which facilitate the inferential process: in (10a) it is the verb *read* – hence the target must be something readable, and in (10c) it is the noun *book* – hence we are not talking about trees, etc. The process of accessing a metonymic target from a reference point as a metonymic source is diagrammed in Figure 4. Here, the conceptualizer has a salient entity, the source, in mind from which he accesses, by way of a conceptual metonymy, a less salient entity, the target. Source and target as well as other potential targets belong to the same frame.

¹⁹ See Langacker (1993) and Radden & Kövecses (1999).

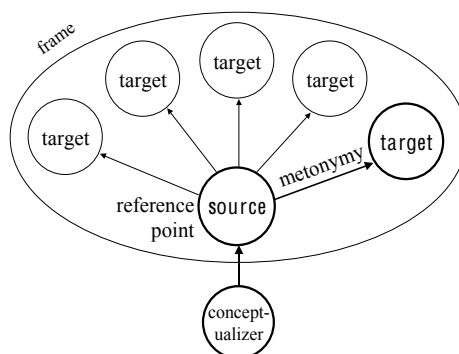


Figure 4. Accessing a metonymic target

As a rule, hearers have no difficulty inferring the metonymic target for two reasons: first, both metonymic source and target are part of the same frame, and secondly, metonymic source and target are related by a conceptual metonymy. The inventory of conceptual metonymies is limited, and some of them are highly frequent. Conceptual metonymies may, therefore, be seen as pathways leading to the metonymic target.²⁰

The source and target of some metonymies are intimately linked as complementary pairs. For example, a cause evokes an effect (11a) and an effect its cause (11b), a part evokes its whole (12a) and a whole its parts (12b), and a container evokes its contents (13a) and contents evokes its container (13b):

- (11) a. CAUSE FOR EFFECT: *healthy* food for ‘food that makes you healthy’
- b. EFFECT FOR CAUSE: *healthy* complexion for ‘complexion resulting from good health’
- (12) a. PART FOR WHOLE: *England* for ‘Great Britain’
- b. WHOLE FOR PART: *America* for ‘United States’
- (13) a. CONTAINER FOR CONTENTS: Can I have another *glass*? for ‘beer’
- b. CONTENTS FOR CONTAINER: I dropped the *beer*. for ‘glass’

In (13), the metonymy CONTAINER FOR CONTENTS is much more common than its reversed form CONTENTS FOR CONTAINER because containers are visible and hence make much better referents points than the contents within a container, which may be hidden. Principles such as ‘visible over non-visible’ govern the selection of the preferred directionality of a metonymy.²¹

Metonymy is an economical and efficient device in communication: it gives us two ideas for one expression: the expressed metonymic source and the inferred metonymic target. As mentioned in the beginning of this section, metonymy (like metaphor) is often

²⁰ The notion of metonymy as an inferential pathway in meaning construction has been developed by Panther & Thornburg (2004).

²¹ See Radden & Kövecses (1999) for principles governing the selection of the preferred metonymic vehicle, or source. They include, for example, ‘human over non-human’, ‘concrete over abstract’, and ‘functional over non-functional’.

taken to be a matter of substitution, where the metonymic expression replaces a literal expression. This is also what the notation "stand for" suggests. However, the metonymic source is not simply erased once we have reached the target. The source is downplayed but still active in our mind. Evidence for its presence can be seen in the possibility of referring back to a metonymic source in the same way that we can refer back to a metonymic target, as illustrated in the following examples:

- (14) a. The first violin is on sick leave. *She* won't be back until next month.
 [*She* = 'the first violinist', i.e. the metonymic target]
 b. The first violin is on sick leave. *It* will be played by the second violin].
 [*It* = 'the first violin', i.e. the metonymic source]

Both metonymic source and target are conceptually blended. In the blend the violinist is on sick leave and can't play the violin. Our 'orchestra' frame also makes us see emergent meanings: as a result of her absence, the part of the first violin needs to be replaced.

4.2. Conceptual metaphor

Metaphor has traditionally attracted much more attention than metonymy mainly because it is felt to be a more creative and expressive figure of speech. Studies of metaphor, especially by literary critics, have therefore mainly focused on novel and imaginative metaphors. Paradoxically, these types of metaphor reveal less about the cognitive nature of metaphor than those that have been dismissed as uninteresting: the everyday, or "dead", metaphors. Dead metaphors have become conventionalized and ubiquitous phenomena of language just because they are so well-motivated conceptually. Lakoff & Johnson (1980) have shown that whole conceptual domains, not just words, are metaphorically understood in terms of other conceptual domains. These systematic projections, or mappings, from a source domain to a target domain are referred to as conceptual metaphor.

The first study to show such systematic mappings was Reddy's (1979) analysis of conventional expressions used for language and communication. We understand the relationship between form and meaning in language in terms of a container model: meanings are conceptualized as objects which are "contained" in words, sentences, poems, etc. This can be seen in expressions such as *The meaning is right there in the word*, *These sentences carry little meaning* or *The poem is filled with deep love*. The object character of meanings can be seen in expressions such as *grasp the meaning of something* or *hit upon an idea*. When we talk about communication, this naïve folk understanding is further elaborated. We use descriptions as in:

- (15) a. I can't put my idea into words.
 b. Your talk came across beautifully.
 c. I got many new ideas out of your paper.

These expressions literally refer to concrete physical actions: objects are put into a container (15a), sent over to a person (15b), and taken out from the container (15c). Metaphorically, we put idea-objects into word-containers and send the word-containers with the idea-objects inside them to the hearer, who then takes the ideas out of the

container. Our metaphorical folk model of communication, which Reddy coined "conduit metaphor", may be illustrated as shown in Figure 5.

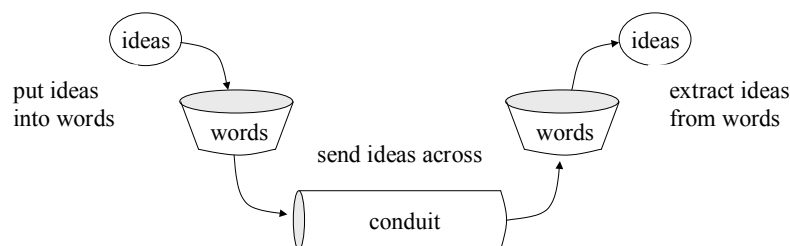


Figure 5. The conduit metaphor

The impact of the conduit metaphor on our thinking is so pervasive that, in Reddy's estimate, more than seventy percent of the English expressions denoting communicative processes make use of this conceptual metaphor: thus, we "force" meanings into the wrong words, "load" sentences with profound thoughts, "fill" paragraphs with meaning, "extract" the essence from a poem, etc. Even technical expressions used in communication theory such as *encode*, *decode*, *transport* and *transmit* reflect in their etymology the physical world of filling, extracting and sending things. This model of language and communication is, of course, incorrect—but yet we strongly believe in it. Firstly, as we pointed out in the discussion of frames and blending, the meaning of a sentence or utterance is much richer than the sum of the meanings of its words, and secondly, as remarked by Langacker (1987: 162), "nothing travels from the speaker to the hearer except sound waves." Whatever these sound waves "mean" is a matter of the hearer's meaning construction. Why, then, do we use this misleading folk model in talking about language and communication? We do so because this model is rooted in our basic familiar experience of manipulating things. This physical experience is immediately insightful and meaningful to us and, in using it as a metaphorical source domain, allows us to make sense of the highly complex and abstract notions of language and communication.

Conceptual metaphors like the conduit metaphor abound in any natural language and usually go unnoticed. The source domain is typically concrete and part of our basic experiences while the target domain is abstract. One of the most basic domains is that of space. Here are some of the conceptual metaphors whose source domain involves spatial concepts:

- | | | |
|------|----------------------------|---|
| (16) | a. TIME IS MOTION | <i>The years flew by.</i> |
| | b. STATES ARE LOCATIONS | <i>Sally is in love with Mario.</i> |
| | c. CHANGE IS MOTION | <i>Sally fell in love with Mario.</i> |
| | d. ACTION IS MOTION | <i>Let's move on to the next topic.</i> |
| | e. SIMILARITY IS PROXIMITY | <i>That's close to the truth.</i> |
| | f. MORE IS UP | <i>Oil prices are soaring.</i> |

Time is probably universally understood in terms of motion as in (16a) because we have

no "detectors" for the passage of time. States are comparable to locations because they are static, as in (16b), while changes of a state as in (16c) are dynamic and often appear as motional. The metaphor STATES ARE LOCATIONS in fact implies that CHANGES OF STATE ARE CHANGES OF LOCATION, i.e. MOTION. The most typical kinds of action are motions, hence the metaphor in (16d) is well-motivated. Things that are similar tend to be seen close to each other, as in (16e); hence the saying *Birds of a feather stick together*. Conversely, things that are different tend to be seen apart from each other, as in *These colors are worlds apart*. The metaphor MORE IS UP in (16f) and its counterpart LESS IS DOWN are hardly noticeable. Their motivation derives from our common experience that more of a fluid makes its level go up and less of a fluid makes it go down. We also use the spatial notion of verticality when talking about such diverse domains as health, emotions, social status or evaluations. Thus, we speak of being in *top shape* and *on cloud nine*, belonging to the *upper classes* and holding someone *in high esteem*. All these expressions are so deeply entrenched in our minds that we have to think twice before we notice that they are metaphorical.

Conceptual metaphors and their experiential basis provide the foundation for abstract thought. There is not only a wide pool of conceptual metaphors to draw from in any language,²² but the correspondences between source and target domain may be elaborated in almost infinite ways. For examples, we metaphorically understand learning in terms of eating, and the various aspects of eating can be projected onto learning, as in the following examples:

- (17) a. IDEAS ARE FOOD: *This is food for thought.*
 b. INTEREST IS APPETITE: *Our kids have an appetite for learning.*
 c. CONSIDERING IDEAS IS TASTING: *The cover gives us a taste of the book.*
 d. PROCESSING IDEAS IS DIGESTING: *I first need to digest the proposal.*

We may also "swallow" ideas, "chew" on a problem, be "spoon-fed" by our teacher, or "regurgitate" everything we have learned. Since the concrete domain typically serves as the source and the abstract domain as the target, we cannot reverse these metaphors, i.e. I cannot, for example, say that *I processed my lunch* when I mean that I had lunch.

In the beginning of this section we pointed that everyday language is more revealing for our metaphorical thought. This does not mean, however, that the metaphors used in literary language are not based on conceptual metaphors. Of course they are. The following poetic lines by the English philosopher and statesman Francis Bacon are fully rooted in the conceptual metaphor LEARNING IS EATING:

- (18) Some books are to be *tasted*, others to be *swallowed*, and some few to be *chewed* and *digested*.

5. Iconicity

5.1. Sound symbolism

²² A list of conceptual metaphors of English is available at the Conceptual Metaphor Home Page under <http://cogsci.berkeley.edu/lakoff/>.

Iconicity, i.e. the conceived similarity between a form of language and its meaning, has mainly been associated with onomatopoeic words, or sound-symbolism. The sound shape of the word *cuckoo*, i.e. /kYku:/, iconically represents this particular bird's cry, which metonymically stands for the bird of that name. The strong motivational force behind this word is reflected in the fact that its vowels resisted the regular sound changes from Middle English to Modern English: the short vowel /Y/ regularly developed into a *but*-sound—this also happened in the first syllable of a derivative of *cuckoo*: *cuckold*; and the long vowel /u:/ regularly developed into the diphthong /AY/, as in the pronunciation /kAY/ for *cow*, which in Middle English times was pronounced like present-day German *Kuh*. If speakers of Early Modern English had not felt the strong desire to imitate the bird's cry in the sound shape of the word, *cuckoo* would today be pronounced /kʌkAY/. For a similar reason, speakers of English recently reintroduced the adjective *teeny* /ti:ni/ as a variant of the existing word *tiny*. *Tiny* is the form that developed regularly from Middle English *tine* by the Great Vowel Change. However, the high front vowel in /ti:ni/ was apparently felt to render the idea of smallness more appropriately than the diphthong /aI/ in /taInI/, in analogy to the many other words denoting smallness such as *little*, *bit*, *slim*, *thin*, *kid* or *midget* and diminutive suffixes as in *auntie*, *sweetie* or *Charlie*.

5.2. Quantity principle

The iconic principle of quantity says that something that carries more meaning is given more wording and, conversely, something that carries less meaning is given less wording. This principle accounts for the fact that the plural, which generally refers to more than one thing of the same kind, is nearly always marked by an additional morpheme.²³ Its iconic motivation is straightforward: formal complexity corresponds to conceptual complexity. The quantity principle is best illustrated in reduplications of a stem, which many languages use in marking plurality or other complex notions. For example, Japanese *ie* 'house' becomes *ieie* 'houses', and Hopi *suaqua* 'ladder' becomes *saa-saqa* 'ladders'. A reduplicated plural form may give rise to a new meaning, as in the Tok Pisin word *wilwil* 'two wheels', which means 'bicycle'. Apart from expressing plurality, reduplication is also widely used as a means of expressing notions such as collectivity (Indonesian *orang* 'man', *orang orang* 'people', Malay *pohon* 'tree', *pohon pohon* 'wood'), intensity (Samoan *taaba* 'speak', *taaba taaba* 'scream'), or complex notions of time (Tagalog *bili* 'buy', *bibili* 'will buy'). In English, reduplication is no longer a productive word-formation process except in child language. Words such as *pee-pee*, *poo-poo* or *choochoo* may be iconically motivated in referring to a collection or iteration or they may reflect children's general fondness for reduplication. Thus, children may call Christmas *didi* and a spoon *bobo*.

At the syntactic level, the quantity principle is responsible for reducing linguistic material that is uninformative and increasing linguistic material for information that is

²³ Principles of motivation in language such as the principle of quantity are not absolute but relative: they are tendencies and allow for exceptions (for motivation in language see Radden & Panther, eds. 2004). Exceptions to the principle that the plural form carries more phonological weight than the singular form are, for instance, found in certain declensional classes of Latin. For example, the singular forms *oppidum* 'town' and *murus* 'wall' contain more phonemes than their plural forms *oppida* 'towns' and *muri* 'walls'.

considered important. Thus, repetition of the same thing is not informative and leads to linguistic reduction: *The man drank and then the man fell asleep* is reduced to *The man drank and then he fell asleep* or further to *The man drank and fell asleep*. By increasing the linguistic material, on the other hand, the speaker wishes to attach more weight to her message. Thus, the speaker may want to convey respect to the person spoken to and, apart from using "polite words", may use more words. For example, the elaborate wording in *Would you mind if I asked you to come here?* sounds more polite than the short direct request *Come here*.²⁴ Many languages like Japanese have developed special "honorific" forms for deferential speech to superior persons. These forms are invariably longer than their equivalent casual expressions.²⁵ A greater quantity of linguistic material may also signal the importance of the situation the participants are engaged in or of the subject matter talked about. Immediate reflections of the iconic quantity principle are, therefore, also formal style as in the question asked by an MP in the House of Commons in (19a) and legal jargon, also called gobbledygook, as in (19b):

- (19) a. Will my right honorable and learned friend ensure that some urgent action is taken?
 b. The person who is in the best position to evaluate and make a judgment regarding the sufficiency of appointed counsel's conduct during a state death penalty trial is the state district judge before whom that case is being tried.

5.3. Proximity principle

The iconic principle of proximity, or distance, says that units that belong together conceptually are placed next to each other in language structure and, conversely, units that do not belong together conceptually are placed at a distance from each other. In the phrase *a delicious Italian pepperoni pizza*, the order of the attributive modifiers cannot be freely changed without making the phrase sound odd or even ungrammatical: both **an Italian delicious pizza* and **a pepperoni Italian pizza* sound odd. The relative order of the modifiers reflects their conceptual proximity to the entity designated by their head noun, i.e. 'pizza'. The modifier *pepperoni* occupies the closest position to the noun because it denotes ingredients that inherently belong to this type of pizza; the adjective *Italian* is placed further away from the head noun but still closer than *delicious* because it denotes a permanent property of this type of pizza, its provenance; the adjective *delicious* occupies the most distant position from the head noun because it describes a changeable property of a pizza and hence is conceptually least part of our understanding

²⁴ In their theory of politeness Brown and Levinson (1987: 142f) state that an utterance is universally felt to be more polite the more effort a speaker expends in preserving the hearer's face wants. See also Haiman (1985: 147f).

²⁵ Comrie, ed. (1990: 877f) gives the following examples of unmarked (a) and honorific speech (b) in Japanese:

(a) *Atasi kare ni au wa.*

I he DATmeet

(b) *Watakusi sono kata ni o-me ni kakarimasu.*

Here, the speaker pronoun *watakusi* is more formal than *atasi* (female speaker), the distancing expression *sono kata* 'that person' is more deferential than the pronoun *kara* 'he', the suppletive form *o-me ni kakaru* is more polite than *kare* 'see/meet', and the honorific ending *-imasu* is more deferential than the sentence-final particle *-wa*.

of pizzas.²⁶

The iconic principle of conceptual proximity is universal but its impact may, of course, vary from language to language. English, for example, provides two structural possibilities of expressing an event of transfer: the recipient may be coded as an indirect object, as in *Heidi sent her Mom a letter*, or as an adjunct, as in *Heidi sent a letter to her Mom*. These structural alternatives convey differences in meanings which relate to the different distances of the recipient-phrase to the verb: in *Heidi sent her Mom a letter*, the direct proximity of the recipient-phrase *her Mom* suggests that Mom received the letter, while in *Heidi sent a letter to her Mom*, the separation of the recipient-phrase from the verb by the preposition *to* leaves it open whether Mom received or did not receive the letter.²⁷ The same iconic principle also holds for abstract distances: the closeness of verb and recipient-phrase in *Bonnie taught Ronnie linguistics* suggests that Ronnie learned linguistics as a result of Bonnie's instruction, which, however, is not implied in *Bonnie taught linguistics to Ronnie*.

5.4. Principle of sequential order

The iconic principle of sequential order says that the conceived order of events is reflected in the structure of language. Compare the following coordinated sentences:

- (20) a. Aurora inherited a fortune and Juan married her.
b. Juan married Aurora and she inherited a fortune.

We understand sentence (20a) to mean that Aurora first inherited a fortune and Juan then married her and sentence (20b) to mean that Juan first married Aurora and she then inherited a fortune. The coordinating conjunction *and* itself does not indicate the order in which the events occurred. We probably also interpret the first sentence in the sense that Juan married Aurora *because* of her inheritance, which is not explicitly said either. Sentence (20b) does not invoke this interpretation.

The principle of temporal order also applies to the fixed order of certain coordinated phrases, such as *now and then*, *come and see*, *cash and carry* and *bed and breakfast*.²⁸ Thus, a B&B offers a bed for the night and breakfast in the morning. As a rule, we cannot reverse the order of these conjuncts, and if we do, they convey different meanings. Thus, *now and then* means 'at present and at some time in the future', but *then and now* would mean 'at some time in the past and at present'.

²⁶ For a fuller discussion of the order of attributive modifiers see Posner (1986).

²⁷ Following Dahl's (1987) analysis of indirect objects and their corresponding prepositional phrases, the concept underlying verbs of giving involves both physical movement and change of possession. Hence, it is quite natural that the recipient may be marked in the same way as the goal of a movement, which is the only structural possibility in Finnish, or as an indirect object, which is the only structural possibility in Russian. In languages which, like English, allow both structures, the indirect object is related to the "close" notion of possession while the prepositional phrase is iconically associated with the "distant" notion of the end point of a movement.

²⁸ For these so-called "binomial freezes" see Cooper & Ross (1975). Tai (1985) has shown that, in Chinese, the principle of temporal sequence systematically applies within the structure of a clause. For example, the Chinese word order corresponding to *He fell in the water* would be as in English because he first fell and then ended up in the water, whereas the order corresponding to *He cooked in the kitchen* would be 'He in the kitchen cooked' because he first would have to be in the kitchen before he can cook.

6. Cognitive Grammar

Language has traditionally been studied at different levels of description: phonology, lexicon, morphology and syntax. In such a compartmentalized view of language, lexical and morphological items are seen as the meaningful parts of language, while grammar provides the rules of syntactic structure. Cognitive linguists, however, emphasize that grammatical units are meaningful as well and that the differences between lexicon, morphology and syntax are only a matter of degree along a continuum of symbolic units. For example, notions of time are expressed by different forms: morphologically by a past tense form, as in *I wrote the paper*, lexically by a future form like *will*, as in *I will write the paper*, and syntactically by a future form like *be going to*, as in *I am going to write the paper*. We of course expect to find these three tense forms to be dealt with in the same chapter on tense in a grammar of English and not in separate chapters or volumes.

From a cognitive-linguistic point of view we will also look for the motivation underlying these different tense forms. Past events are factual and are not felt to be in need of finer differentiation,²⁹ but we can never be certain about an event's occurrence in the future and may want to give expression to our judgment of certainty. Thus, we use *will* when we want to express our prediction about a future event to occur, possibly associated with a tinge of volition when it concerns ourselves, and we use *be going to* when we want to express our intention to bring about a future event. This sense of *be going to* metaphorically derives from physical motion to a goal and is motivated from the common experience that we normally have a purpose in mind when we go to some place. We are now also in the position to explain the differences in form between the past (and present) tense and the future tense forms in terms of iconicity. The past tense morpheme is fused with the verb stem because it solely expresses past time, whereas the future tense forms are coded as separate words or word complexes because they express more complex notions: the notion of futurity and the speaker's judgement of the event's occurrence. Here, more meaning is reflected in more form (= quantity principle), and greater conceptual distance (between the speaker's judgement and the future event) is reflected in separate words (= proximity/distance principle).

This discussion of English tense forms was meant to demonstrate that grammatical phenomena which appear to be irregular at first sight often turn out to make sense if looked at from a cognitive perspective. The grammar of a language is, in fact, considerably more motivated than isolated words. Thus, the iconic principles discussed in the preceding section on iconicity have mainly been illustrated by grammatical phenomena. The function of grammar is to express conceptual structures, and it stands to reason that language structure fulfils this task best if it conforms to the conceptual structure it expresses as closely as possible.

This condensed survey can of course only give a very small glimpse at the cognitive foundations of grammar, and the reader is referred to the many treatises on cognitive grammar that are available now.³⁰ As a final illustration of the cognitive nature of grammar we will look at the notion of construal, an important concept of cognitive grammar that has been introduced by Langacker. The notion of construal refers to the

²⁹ This applies to English but not to many other languages, which use evidentials to express the nature of evidence supporting the situation described, such as reported or non-reported evidence.

³⁰ See in particular Langacker (1987; 1991a; 1991b; 2000), Taylor (2002), and Radden & Dirven (2007).

speaker's choice among alternative ways of conceptualizing and describing a scene. We may describe the contents of a bottle as being *half full* or *half empty*. These alternative descriptions are not interchangeable but convey different perspectives of the bottle and its contents: a perspective from an empty bottle and a perspective from a full bottle, respectively. Many construals relate to perception, others to prominence. Here we will briefly look at three kinds of construal which are related to visual perception: vantage point, fictive motion, and figure and ground.

A vantage point is the position from which an observer looks at a scene. In conceiving and describing a situation, the speaker also adopts a certain vantage point. Thus, in the sentence *The men came into the bedroom*, the imaginary observer is in the bedroom, while in *The men went into the bedroom*, the observer is likely to be looking at the scene from outside the bedroom.³¹ A speaker can also mentally switch her vantage point, which we cannot do in perception. In *I'm going to see you*, the speaker adopts her own viewpoint, while in *I am coming to see you*, the speaker adopts the hearer's viewpoint and, as a result, sounds more sympathetic or polite.³²

Fictive motion refers to our imagination of a static scene as motional. This is only possible in our conception and expression of situations, not in the physical world: a scene is either static or motional. Like physical motion through space, this kind of abstract, or fictive, motion is directional. Compare the following descriptions of the same scene:³³

- (21) a. The hill gently *rises* from the bank of the river.
- b. The hill gently *falls* to the bank of the river.

In (21a) the observer lets his eye travel from the bank of the river up the hill while in (21b) the observer's eyes wander from the top of the hill down to the river.

The notion of figure and ground refers to the division of a scene into parts that stand out as the foreground and parts that form the background. The perceptual organization of incoming sensations as "figure" and "ground" has its equivalent in linguistic structure. For example, the situation described by *The bicycle is near the Cathedral* is in conformity with our expectations of normal figure/ground alignment, according to which the larger, stationary entity, the Cathedral, serves as the background for the location of the smaller, mobile figure entity, the bicycle. The inverse alignment of these entities in *The Cathedral is near the bicycle* imposes the odd understanding of the small bicycle serving as the stable background for locating a huge building. Figure/ground alignment enables us to make subtle distinctions, as in *study alongside work*, which suggests work combined with part-time studies, as opposed to *work alongside study*, which suggests studies combined with part-time work. We may also reverse the normal figure/ground alignment in sentences such as *The Rocky Mountains are flying by*. This sentence might be said when travelling on the train and looking out of the window: we are taking

³¹ This sentence pair is adopted from Fillmore (1971: 226-27).

³² Brown & Levinson (1987: 118-22) point out that taking the addressee's point of view is a conventionalized strategy of positive politeness in that it suggests that speaker and addressee share a "common ground". This strategy also applies to descriptions such as *I really had a hard time learning how to drive, you know*, where the hearer can't possibly know about the speaker's problems of learning how to drive.

³³ The examples are taken from Langacker (1991b: 157). The issue of fictive motion has attracted quite some interest in the recent cognitive-linguistic literature. A convincing explanation of this phenomenon is seeing it as an instance of blending static and motional scenes (see Fauconnier 1997: 177-81).

ourselves as the stationary ground and the world around us as passing by. Such twists of reality nicely confirm Kant's observation that "we see things not as they are but as we are."

7. Conclusion

The picture of cognitive linguistics that emerges from the selection of studies surveyed here is characterized by a new awareness of language as being inextricably entrenched in our general cognitive make-up. The interdisciplinary field subsumed under the label *cognitive linguistics* is wide as aspects of cognition motivate, underlie or reflect aspects of language. There is not just one cognitive approach to the study of language but a diversity of legitimate and rewarding approaches, each highlighting different aspects of their interplay. For example, an iconic approach to language shows that linguistic proximity reflects conceptual proximity, as demonstrated in Section 5.3. A "perceptual" approach to language looks at proximity as a gestalt-perceptual principle. Thus, we perceive the six lines || || || as forming three pairs of lines by virtue of their proximity. A metaphorical approach to language discovers the relevance of proximity for conceptual metaphor. Proximity occurs as the source domain in the metaphors EMOTIONAL INTIMACY IS PROXIMITY as in *My sister and I are very close*, SIMILARITY IS PROXIMITY as in *These fabrics aren't the same but are close*, and STRENGTH OF EFFECT IS CLOSENESS as in *Dick Cheney is a close friend of Bush*, which is understood to mean 'Cheney has a strong influence on Bush'.³⁴ The different interpretations which linguistic phenomena like these allow are, of course, not to be seen in isolation but as manifestations of general cognitive abilities such as perception, reasoning, imagination and meaning construction.

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³⁴ For the first two metaphors see Grady (1997), for the latter one Lakoff & Johnson (1980: 128-32). Lakoff & Johnson mistakenly describe the metaphor as CLOSENESS IS STRENGTH OF EFFECT. The relationship between STRENGTH OF EFFECT and CLOSENESS might also be viewed as metonymic (CAUSE FOR EFFECT) or as implicated (being close to a person invites the implicature that I can also influence that person).

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