

Chapter 1

Introduction

Cognitive science is “the scientific study of the mind and brain and how they give rise to behavior. The field is highly interdisciplinary and is closely related to several other areas, including psychology (especially cognitive psychology), artificial intelligence, linguistics and psycholinguistics, philosophy (especially philosophy of mind), neuroscience, logic, robotics, anthropology and biology (including biomechanics)” (Wikipedia 2005:1). Within this broad domain of cognitive science is the narrower domain of cognitive linguistics which focuses on language as a cognitive or mental phenomenon. The term **cognitive linguistics** (in lower case) will be used to refer to the domain of cognitive science with language as its main area of study, whereas the term **Cognitive Linguistics** (in upper case) will be used to refer to a particular school within the broader domain of (cognitive) linguistics and cognitive science. This study falls within the broad domain of cognitive science, and particularly seeks to address the question of the nature of the mental representation of (linguistic) knowledge in the minds and brains of mature, normal adults. This question will be addressed from a particular perspective, namely that of **creative cognition**. Ward et al. (1997: 4) describes creative cognition as a new area that sees as its goal the characterisation of creativity in terms of fundamental cognitive processes on previously stored knowledge. According to the creative cognition view, creativity in all domains (including science, technology, medicine, arts and day-to-day living) emerges from

a relatively small set of basic mental operations which are available to all normal human beings. Mundane every-day creativity and exotic or exceptional creativity may form end-points on a continuum of human creativity, but they form part of the same continuum. According to Ward et al. (1997: 1), a “complete account of human cognition requires an account of creativity.”

1.1 Linguistic creativity

In the early years of generative linguistics Chomsky (1966) argues that linguistic creativity is a problem that has to be solved by contemporary linguistic theories. He then argues extensively for a formal syntactic structure in the form of recursive algorithmic rules as part of an innate and universal language acquisition device. Linguistic creativity as a concept therefore formed part of the motivation for a generative grammar, even though it was eroded and eventually discarded altogether. In this thesis, I will argue that a complete account of human language requires an account of linguistic creativity. I will show that linguistic creativity as a notion in linguistics has been reduced to one of the following two approaches: only the formal productive rules of syntax and word formation, or the (diachronic) semantic shift in lexical items. Since linguistic creativity is an essential human trait and pervasive in human language, it should be re-investigated and put in centre stage in any linguistic theory that claims to be psychologically real. I will show that linguistic creativity is a rich concept that can provide a fruitful perspective on problematic empirical phenomena such as (intercategorical) polysemy. The following metatheoretical assumption therefore forms the background to this thesis:

Linguistic creativity is an essential characteristic of all types of linguistic knowledge, and of lexical knowledge in particular, and as such, any theory of linguistic knowledge, and of lexical knowledge in particular, should explicitly account for linguistic creativity.

1.2 The mental representation of lexical knowledge as a linguistic problem

The notion that the linguistic abilities of normal mother-tongue speakers of a language includes, amongst other things, their knowledge of the words (or, the lexical items) of their language is uncontroversial. But what exactly the notion 'knowledge of the words of a language', or *lexical knowledge* means and particularly how this knowledge is mentally represented is not uncontroversial. In fact, it is one of the main issues that both lexical semantics and applied linguistics have to deal with, and they have done so in various ways. More so, there has also been some controversy about whether linguistics (as opposed to psycholinguistics) has any contribution to make regarding the nature of mental representation (cf. Sandra and Rice 1995, Croft 1998, Sandra 1998 and Tuggy 1999). Sandra (1998) makes a distinction between 'representational content' (i.e. *what* is represented in the mind) and 'representational format' (*how* this content is represented mentally or even physically). I will argue that a thorough investigation of the empirical phenomena in the domain of linguistics (such as linguistic creativity in general, and polysemy in particular) forms one of the main aspects of our understanding of representational content. Even though representational format is not the main

focus of linguistics, a framework for psycho- and neurolinguistics can be suggested. Since the nature of the representational format is, in a certain sense given, representational content and the way in which it is organised should eventually be linked up with the given biological format. For example, the by-now-standard view in Cognitive Linguistics that encyclopaedic knowledge should form part of linguistic knowledge, is an issue of representational content. However, the nature of this content suggests a certain kind of format (network-like frames and cognitive models rather than the traditional classical semantic features), but the way in which frames might be mentally or neurologically encoded and accessed in the minds and brains of speakers, the representational format, is not a primary matter for linguistics as a discipline.

That part of linguistic knowledge which adult mother-tongue speakers have of the vocabulary of their mother tongue, is usually referred to as the **mental lexicon**. Speakers are purported to know an open-ended collection of words (or, more precisely, lexemes) which are listed, or represented, in the mental lexicon in some or other way. The term **word** is used as an umbrella term for the sake of convenience, and is meant to include all lexical items (whether they are content or function words, or free or bound morphemes). As the main empirical focus in this study will, eventually, be on nouns and verbs in English, using the term **word** (as opposed to **lexeme** or **morpheme**) has no real implications. Where such implications may be an issue, they will be pointed out. Traditionally the mental representation of words in the mental lexicon has been achieved by way of lexical entries. Such a lexical entry must represent all the relevant information that will

enable the speaker to use a word appropriately. The theoretical constructs that have been proposed by various theories (such as, for example, whether the meaning of a word is to be represented by decompositional features or a prototype, or whether the syntagmatic information is to be represented by a subcategorisation frame with selection restrictions) are, for the moment, left aside. Consider the relevant information in a lexical entry for a word such as *eat* in English:

- (1) (a) a specification of the phonetic and/or graphemic *form* of *eat*
- (b) a specification of the *meaning* of *eat*; amongst other things, that *eat* refers to an activity in which life-sustaining food is ingested by animate beings
- (c) a specification of the *syntagmatic relations* into which *eat* may enter; this will be a specification, amongst other things, that *eat* is a transitive verb that can be used with an animate noun subject and a direct object noun that has the property 'edible'
- (d) a specification of the *paradigmatic relations* into which the word may enter; for example, the morphological paradigm of *eat* must include *eats*, *eating*, *eaten*, *ate* and possibly *edible*, either by means of productive morphological rules or by means of explicit listing
- (e) a specification of the *lexical relations* and usage conventions, such as the register of the word; for example, the lexicon must contain an indication that *eat* is similar to, but also different from *gobble up*.

Apart from the form of the word, the two crucial issues that link all the remaining elements in the list in (1) together, are the *meaning* of the word and the *syntactic*

category or class of the word. The meaning of the word is specifically referred to in (b), and is necessarily involved in specifying the lexical relations in (e)). The (syntactic) category of the word is necessarily involved in specifying both the syntagmatic and the paradigmatic relations in which a word can occur, i.e. (c) and (d). This knowledge forms the basis for the speaker to use a word appropriately in any given linguistic context.

The problem that will be addressed in this thesis can, therefore, be phrased as

What is the nature of the lexical knowledge of normal, adult, mother-tongue speakers of a language, specifically, what does it involve for a normal, adult, mother-tongue speaker to know the meaning of a word and to be able to use the word in a specific linguistic context, and how is this knowledge represented mentally?

In the light of the earlier discussion on linguistic creativity, this problem can also be rephrased as

What is the nature of the lexical knowledge of normal, adult, mother-tongue speakers of a language and the mental representation of this knowledge, so that it can form the basis for the cognitive processes that will enable speakers to be linguistically creative?

To address the problem outlined above, the notions 'lexical meaning', 'concept' and

'mental representation' will be investigated in detail.

1.3 Intercategorical polysemy as a test case for theoretical models of linguistic creativity

Shanon (1992) uses polysemy as an argument against what he calls classical technical-psychological representations (which are based on abstract, static, fixed, determinate, well-defined, canonical and symbolic concepts). Traditionally polysemy is defined as the phenomenon where a word has more than one, related meaning. Taylor (2003) shows how this definition leads to various controversies in the domain of polysemy, but it will nevertheless be used as a working definition to delineate the empirical phenomenon discussed here. A conventional example of polysemy can be found in *school*_N which can be used, amongst others, to refer to

(2) the building, as in *The school is on fire.*

(3) the institution, as in *Brooklyn School is a good school.*

(4) the collection of staff and pupils, *The whole school is in the hall for assembly.*

(5) educational activities, as in *School starts at 7:45.*

As was pointed out earlier, lexical knowledge also involves knowledge of how to use a word like *school* in a nominal position in the expressions (2)-(5). However, a word such as *school* can also be used as a verb, as in

(6) *He schooled himself in the art of public speaking.*

(7) *She schooled her horse for show-jumping.*

Polysemy, as well as intercategoryal polysemy such as in *school*_{NV}, is usually regarded as a good example of a productive process in English through which many novel instances of polysemous pairs can be created. Clark and Clark (1979: 767) claim that “part of this [general lexical] creativity can readily be accounted for, linguistically, by rules of composition... But innovations such as *enfant terrible*’d ... do not appear to be explainable in that way. ... Innovations within this category [nouns used as verbs] are abundant.” However, after an extensive empirical investigation, Clark and Clark (1979: 808) come to the conclusion that “they do not allow a unified semantic description”. The phenomenon of intercategoryal polysemy as a test case, and as an example of the product or result of the process of linguistic creativity will be re-explored in this study. Three theoretical models or proposals for dealing with intercategoryal polysemy as a specific empirical phenomenon will be presented and will be evaluated by the extent to which they can account for linguistic creativity. By ‘types of proposals’ is meant that proposals will be presented and evaluated in terms of certain general principles, rather than, necessarily, in the specific details of their theoretical mechanisms. The principles that underlie this evaluation are

- the nature of the lexical knowledge that is required to account for both conventional and novel instances of intercategoryal polysemy, and
- the nature of the cognitive processes that are required for the online interpretation **and** production of conventional and novel instances of

intercategorical polysemy.

This study is not an empirical study as such. I will, however, use the extensive empirical studies that have been carried out in this domain (particularly Clark and Clark 1979, Lehrer 1990 and Zawada 1996) as a data base for the evaluation of the three theoretical models. The three models that will be evaluated are: the representational-derivational model, the network-activation model and conceptual integration. The evaluation of the three theoretical models of linguistic creativity in terms of the empirical phenomenon of (intercategorical) polysemy as a test case, will lead to the formulation of a general account of the mental representation of lexical knowledge.

1.4 The structure of the thesis

The thesis is structured in the following way: In Chapter 2, the views on linguistic creativity during the 20th century will be mapped out, and certain problems with these views will be identified. Chapter 3 maps out the general phenomenon of linguistic creativity in some detail, and argues for the use of linguistic creativity as a criterion for linguistic theories. The notions 'lexical meaning', 'concept' and 'mental representation' are central to this discussion and will be investigated in more detail in Chapter 4 against the backdrop of various relevant semantic theories. In Chapter 5, the empirical phenomenon of polysemy in general, and intercategorical polysemy in particular, will be presented. The representational-derivational and the network-activation model will also be evaluated, and I will show that they have certain fundamental shortcomings. In Chapter 6 the theory of conceptual integration, also

called blending, will be presented as an alternative, together with illustrative analyses of how blending could account for intercategory polysemy. Chapter 7 contains a summary of the study, its conclusions and some suggestions for future research are made.