

Monika Elisabeth Bründl. *Lexikalische Dynamik: Kognitio-linguistische Untersuchungen am englischen Computerwortschatz.* Linguistische Arbeiten 443. 2001, XII + 293 pp. ISBN 3 484 30443 X. Tübingen: Max Niemeyer. Price: €72.00.

Nowhere is the dynamic character of the English lexicon more apparent than in the case of computer vocabulary. Elisabeth Bründl's study investigates this field with two aims in mind (as pointed out in chapter one): firstly, the author wants to find out which principles underlie the creation of words in this field; secondly, her study aims at the integration of cognitive insights into the traditional field of lexicology.

Research in the field of cognitive linguistics as well as its (lack of) application in lexicology and lexicography is reviewed in chapter two. Key concepts are the mental lexicon, metaphor and metonymy as central processes in the creation of new lexical units (as defined by Cruse 1986: 77), and iconicity as the cognitive answer to the structural tenet of the arbitrariness of the linguistic sign. Bründl argues that the cognitive approach so far has been mainly applied to the syntactic-semantic level but rarely to the level of word-formation (p. 8). Yet, the study of word-formation can profit from the integration of cognitive insights. For example, there is arguably a connection between the position of a concept in a conceptual hierarchy and its morphological realisation: the morphological realisation of basic level terms tends to be simple, whereas concepts above or below the basic level (in Rosch et al.'s (1976) sense) tend to be morphologically complex (p. 36). (One might add in parenthesis that this insight was utilized in reverse by Berlin and Kay as early as 1969 to distinguish basic from non-basic colour terms.) The cognitive approach also allows for submorphemic chunks of language to play a role in word-formation (p. 41f.) as long as they can be said to be cognitively salient. It therefore broadens the possibilities of word-formation.

However, the fact that Bründl's call for the integration of cognitive insights into lexicological studies is generally convincing does not mean that one always has to agree with her in detail. For example, her claim that the partial realization of morphemes in blends is iconic because it mirrors the fact that the fused concepts are only present in part as well, may work for a blend such as *Germlish* (p. 52), because this is neither fully German nor English, but it is much less convincing with other blends such as *televangelist* (who is not a hybrid of a television and an evangelist but rather an evangelist who (typically) appears on TV) or *sexploitation*.

Chapter three starts out by discussing lexical processes (word-formation and semantic shift) on the basis of the insights gained in chapter two. Bründl here distinguishes between rule-governed productivity and non-rule-governed creativity, emphasizing that from a cognitive point of view processes which are traditionally seen as creative (e.g. clippings, metaphor) can be seen as productive, i.e. rule-governed (p. 60, 65). The force behind productivity and creativity

alike is analogy, which can work on the formal level (word-formation, i.e. the creation of new lexemes) or the semantic level (semantic transfer, i.e. the creation of new lexical units). Once new lexemes have been created, they can be institutionalised and lexicalised (p. 67f.). Bründl then returns to the issue of the mental lexicon with the aim of integrating the dynamic aspects of the lexicon into that model, discussing suggestions by Meijs and Tournier. One central aspect here is the differentiation of existing and potential lexical items with the latter being governed by lexical processes, which need to be an integral part of a model of the mental lexicon.

In a somewhat surprising turn, the author proceeds by discussing methodological issues such as the character of the lexical material, which constitutes the empirical basis of her study. The designation *corpus*, which Bründl uses for her collection of more than 700 lexemes, is slightly misleading, since she gets her data from secondary sources — a range of general and specialized dictionaries — whereas the term *corpus* in linguistics usually designates a collection of primary sources, i.e. authentic text (cf. McArthur 1992 s.v. *corpus*). Bründl usefully subdivides the subject field of computing terms into those which belong to the common vocabulary of English and those which belong either to the official technical jargon of computing, *computerese*, or to the less official *hackers' slang*. The focus of her study is on the first-mentioned class, i.e. those computer terms which have entered the common vocabulary of English. Unfortunately, this focus on predominantly one class of computer terms prevents a comparison of these classes with respect to the lexical processes employed in the creation of new lexical items in each class.

The last section of chapter three returns to more theoretical issues, discussing each lexical process which will feature in her analysis in turn, as well as discussing the "building blocks" which enter into the formation of complex lexemes. In both respects, Bründl goes beyond the limitations of traditional morpheme-based word-formation. For example, she not only considers morphemes as building blocks, but also submorphemic *splinters* such as *emot-* in *emoticon*. Also, following her cognitive orientation she supplements traditional word-formation by semantic and phonetic processes. The main categories of semantic processes are metaphor, metonymy, metaphonymy (containing both elements of metaphor and metonymy) and shifts in application (the use of an established meaning in a new context without thereby creating a new meaning) (p. 106ff.). Phonetic processes are instrumental in explaining e.g. the formation of *screenager* in analogy to *teenager* (p. 116ff.). Again, while one can easily agree with Bründl's general outline, one need not necessarily agree with the details. For example, she gives the word *careware* as an example of phonetic-stylistic motivation by internal rhyme (*Binnenreim*; p. 116); while this is undeniably true, the more important fact about *careware* is the analogy to *shareware*, which is an example of external rhyme (*Echo-Reim*; p. 117).

The detailed analysis and discussion of Bründl's data with respect to the role of the different lexical processes discussed in the previous chapter makes

up the substance of chapter four. Her statistics show that semantic processes play a role in more than 50% of her data, either alone — as in *mouse* "animal" → "input device" — or in combination with morphological processes — as in *motherboard*. A statistical comparison of her data of computer terms with the frequencies given by Algeo (1991, which, unfortunately, is missing in her bibliography) for English neologisms in general shows that although the ranking of lexical process types is the same (with combining, i.e. compounding and affixation, as the most frequent type followed by semantic shifting), the computer vocabulary contains a much higher number of neologisms based on semantic shift. However, her contention that English computer vocabulary contains approximately 50% of semantically shifted neologisms whereas semantic shift accounts for only 11% of English neologisms in general (p. 145) must be questioned, since she counts neologisms of the combined morphological-semantic type (*motherboard*) as examples of semantic shift whereas it is not quite clear where these are put in Algeo's classification.

Since metaphor is the most important type of semantic process in her data, Bründl proceeds to discuss the role of metaphor in the creation of computer neologisms. She argues in favour of a cognitive approach to metaphor as opposed to a semantic feature approach, taking *spam* as one of her examples. The metaphorical relationship between *spam* meaning 'a type of canned meat' and 'mass advertising by email' is too complex, she argues, to be reduced to a single semantic feature. Instead she sees associations such as 'spam mails "taste" just as bad as the meat' and 'the flooding of mail boxes by spam mail is just as annoying as the spilling of the meat when opening the can' (p. 156). Regardless of the plausibility of these associations, it is clear that it is almost impossible to substantiate them, i.e. to show that it is these associations which lead to the semantic shift and which are foremost in average speakers' minds when they encounter the word *spam*. After all, the fact that specialists in the field try to give a more or less fanciful motivation for *spam* does not automatically imply that the word is motivated for the average computer user (cf. the similarly fanciful motivations for *cookie*, p. 199ff.). Furthermore, an (admittedly non-atomic) semantic feature such as UNPLEASANT JUNK might have served the same purpose; Bründl herself gives *junk e-mail* as a synonym for the computer meaning of *spam* without, however, drawing the obvious parallel to *junk food*.

Following Lakoff and Johnson's (1980) notion of the conceptual metaphor, Bründl identifies 13 cognitive concepts under which she subsumes the majority of metaphors occurring in her data. A central role is played by the concept COMPUTERS ARE HUMAN BEINGS, which results in metaphors such as *guest – host*, *master – slave* or *peer-to-peer*; also computers partake in human activities such as *read* and *write* and show human characteristics, being *ill-* or *well-behaved*. More unexpected and therefore also more interesting are metaphors of the type COMPUTING IS HANDLING FOOD, which can be seen not only in items such as *byte* (as a homophone of *bite*; "an informational unit consisting of 8 bits") and *cookie* ("a file stored on a computer by a website"), but also in verbs such as *feed* (*data into*

a computer) or *crunch* (data). Metaphors in the vocabulary of computing thus turn out not to be an arbitrary and idiosyncratic set; rather, they are governed in the main by generalisable tendencies. Chapter four is completed by a discussion of other semantic processes (metonymy, shifts in application) found in her material.

Bründl herself readily admits that there is a certain amount of subjectivity in her method of analysis (p. 162). Consequently, a number of her analyses admit of a different interpretation. One problem concerned is the differentiation between metaphor and shift in application. For example, she analyses *browse* as a shift in application, by which a general term 'to look through or glance at casually' becomes specialised to mean 'read or survey data files' (p. 194). However, common collocators of *browse* in its non-computing meaning are *book*, *magazine* or *catalogue*, so *browse* could have been analysed as a metaphor of the A COMPUTER/A COMPUTER-NETWORK IS A BOOK type along with items such as *home page* and *bookmark*. On the other hand, she considers the names of some standard Windows programs such as *calculator* and *clock* as cases of metaphorical shift from the concrete to the virtual domain (p. 187; for some reason she only mentions the German equivalents *Rechner* and *Uhr*); here the analysis as shifts in application would have been more convincing, since the Windows *calculator* is just that, a calculator, and the *clock* is a clock although a virtual one.

In a similar vein, some of her metonymies would have been better analysed as metaphors. Thus, *crack* and *crash* are analysed as metonymies of the type SOUND FOR ACTIVITY (p. 190). However, in their application to the domain of computing, these items could have been analysed perhaps more convincingly as metaphors; *crack* meaning 'break into a computer system' as metaphorical extension of *cracking a safe* and *crash* meaning 'shutdown because of hard- or software malfunctioning' as extension of a *plane crash* (cf. the German equivalent *Absturz*). Surely, metonymy has played a role in the semantic shifts these items underwent from signifying a sound to signifying a process that involves this sound, but this happened in all likelihood at some earlier stage in the semantic history of these lexemes before they were applied to the domain of computing.

The analysis of *crack* and *crash* thus points towards the more general problem of which meaning of a polysemous item is to be taken as the source of a metaphor. Bründl discusses this question using *bomb* as an example (p. 163): starting out from the general meaning 'explosive device' as the source, the meaning in computing 'spectacular hard- or software failure' would be seen as a metaphor. However, there is also a slang meaning of *bomb* 'absolute failure; fiasco'; taking this as point of departure, the meaning in computing would be a mere shift in application. Bründl handles problems like these by always starting out from what she calls the "dominante, allgemeinsprachliche Primärbedeutung" (p. 163). However, a look at her data shows that finding the one dominant primary meaning, which would then serve as the source of the metaphor, is by no means a straightforward task. For example, Bründl sees a human

service provider (*Dienstleister*) as the source for the metaphorical extension of *server* meaning 'computer which provides access to data, etc. to other computers' (p. 169); as such it fits together nicely with *client*, which signifies the computer making use of the server's services. However, the meaning 'human service provider' is not mentioned at all in a synchronic dictionary such as the *Oxford Advanced Learner's Dictionary* (1995⁵). A common meaning mentioned, however, is 'implement used for putting a portion of food onto sb.'s plate'. Given the fact that Bründl herself assumes a general concept COMPUTING IS HANDLING FOOD, this meaning could easily be seen as the source of the *server* metaphor.

Similarly, Bründl sees the computing meaning of *shell* 'graphical user interface of a program or operating system' as a metaphorical extension of the type COMPUTER PARTS ARE OBJECTS/ARTEFACTS (p. 175); however, especially together with *kernel* 'the inmost layer of an operating system', which Bründl also mentions in this context, *shell* would also fit nicely into the category of FOOD-metaphors; after all, nuts consist of a shell which is around a kernel.

It is thus clear that in the absence of direct historical evidence, which is not always available, the analysis of a metaphor with respect to its source domain can only amount to informed guesswork.

Chapter five evaluates the relevance of cognitive concepts for lexicology on the basis of the analyses described in the previous chapter. Not surprisingly, Bründl argues in favour of the usefulness of these concepts. The computer lexicon is seen as a highly structured web of items, which are connected and motivated by such cognitive factors as metaphor, iconicity, underlying cultural knowledge and cognitive economy. Cognitive aspects provide a deeper understanding of lexicon processes not only of the semantic type (metaphor, metonymy) but also of the morphological type such as compounding, derivation or reduction (clipping, acronymy). While Bründl's conclusions are generally convincing, it has to be added that not all concepts, which she labels as "cognitive", are proprietary to cognitive linguistics. Thus, her "conceptual relations" have been known to structural semanticists in terms of antonymy, synonymy and hyponymy for a long time and Bründl openly admits this (p. 208). What is new here is not so much the insight, but rather the perspective from which it is approached.

In sum, Bründl's study shows the rich cognitive structuring of computer vocabulary and through that the value of the application of cognitive linguistic concepts to lexicology. At the same time, the considerable level of subjectivity inherent in her analyses also points at the price linguistics has to pay by embracing the cognitive approach. On the gradient between the sciences and the arts, the cognitive approach certainly moves linguistics closer to the arts.

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