LEXICAL COMPETENCE AND FUNCTIONAL DISCOURSE GRAMMAR

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- ABSTRACT: This article discusses the role of the lexicon component within Functional Discourse Grammar. It argues that the treatment of lexical meaning in most grammatical models is not adequate and proposes an alternative analysis based on Marconi's (1997) notion of *lexical competence*, according to which lexical meaning comprises two different dimensions: referential and inferential lexical knowledge. It is further claimed that decompositional models of lexical meaning do not really capture speakers' inferential knowledge, as it is doubtful that they possess detailed and similar definitions for most lexical items. It is claimed that speakers associate beliefs and specifications with lexical items and that communication emerges when those beliefs converge dynamically in verbal interaction. Finally, the implications of this analysis for FDG are examined. It is suggested that abstract meaning definitions are not really needed in the model and that the lexicon should be in close contact with the conceptual component.

- KEYWORDS: Functional Discourse Grammar; lexical competence; lexicon; conceptual component.

1 Introduction

Although it is true that most contemporary grammatical theories grant the lexicon a prominent role in the generation of linguistic expressions, it is equally true that this component has usually been seen as a mere repository of lexemes, morphological rules and lexical irregularities. At most, authors have devised lexical decomposition systems which, apart from characterizing lexical meaning by means of a limited number of primitive relations, have also been employed to establish systematic links between the lexicon and syntax. This strategy may seem adequate to those who see language as a self-contained autonomous entity (roughly contemporary formal linguistics), but it seems less so from a functionalist point of view, as the role of the lexicon in the characterization of speakers' communicative competence (Functional Grammar's ultimate goal) cannot be

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that exiguous. Apart from minor implementation differences, however, this has also been the characterization of the lexicon component in classical Functional Grammar (FG, DIK, 1997) and Functional Discourse Grammar (FDG, HENGEVELD, 2004; HENGEVELD; MACKENZIE, 2006).

The aim of this article is to lay out the aspects of the lexicon component which are necessary in a functional characterization of communicative competence and to examine the implications for FDG. Consequently, the lexicon will be examined from the point of view of the natural language user and not from a grammar-designing perspective, as has been usually the case in contemporary linguistics. The article is divided in two main sections. The first one will deal with the notion *lexical competence* and will try to characterize the semantic content of lexical items and its relation to the conceptual component. The second section will deal with the implications for the lexicon in the FDG model. Given the complexity of the issues involved, which have vexed philosophers of language for many years, and the obvious restrictions of available space, the conclusions of this paper will necessarily be partial and mostly programmatic and the characterization of the different positions in the semantic arena may be too simplistic at times. However, it is to be expected that it will serve to illuminate directions of future research for FDG in the lexicon component, about which the model has had little to say so far.

2 On lexical competence

Dik (1997, p.5-6) claims that the psychological correlate of a natural language is the notion of *communicative competence* as introduced by Hymes (1972). He explicitly states that communicative competence comprises "not only the ability to construe and interpret linguistic expressions, but also the ability to use these expressions in appropriate and effective ways according to the conventions of verbal interaction prevailing in a linguistic community". It seems natural to suppose that *lexical competence*, which could accordingly be defined as the ability to use words in appropriate and effective ways in verbal interaction, is part of communicative competence as defined above. However, in current linguistic theory there has been an unfortunate tendency to concentrate on the meticulous analysis of lexical meaning in order to account for the structural properties of lexical items, while ignoring significant aspects of the use and behaviour of lexemes in linguistic utterances. The reasons behind this strategy may be the following:

(i) From a purely grammar-designing perspective, all a linguistic model demands from the lexicon is the basic semantic and syntactic properties of

lexical items which are necessary to use them in linguistic expressions. This has been captured in formal theories in standard lexical entries through thematic relations and predicate-argument structures, and, in FG, through classical predicate frames. Thus, from the point of view of the grammar system, many aspects of the meaning of a lexical item are simply irrelevant in the generation of a linguistic expression. As Jackendoff (1997, p.91) observes, the words in (1a) are syntactically identical, since the computational system is only sensitive to their syntactic features; the same is true for the words in (1b), (1c) and (1d):

(1)   a. dog, cat, armadillo
      b. walk, swim, fly
      c. gigantic, slippery, handsome
      d. on, in, near

The fact that the word *cat* denotes an entity significantly different from that denoted by the item *dog* is simply irrelevant to the syntactic component, which only needs to know that both lexical items are nouns or that they pluralize in a regular fashion.

(ii) The second reason is aptly expressed by Marconi (1997, p.86-87):

> Ever since Frege, it has seemed that communication and cultural inheritance require uniformity of meanings: if 'cat' did not mean the same for me and you, we could not talk to each other about the same animals; we would forever be equivocating.

If we assume, as it should be obvious to anyone, that members of a linguistic community generally succeed in communicating verbally with each other, it follows that they should possess equivalent meanings/definitions for the lexical items of their language.[2] Most approaches to word meaning assume the classical idea that concepts have definitions, and take standard dictionaries as authoritative sources which reflect the shared meaning of an item available to all competent users. In a way, this is responsible for another factor, which is also cited by Marconi (1997, p.93):

(iii) Individual competences are irrelevant to semantic theories. Objectivistic truth-theoretic semantic theories consider meanings as public entities, and individual semantic competences as particular grasps of those objective entities. However, unlike grammatical knowledge, lexical knowledge is significantly different across speakers. The meaning associated to a given lexical concept

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[2] This may well be an oversimplification, as not all models of language assume the uniformity of meanings to account for inter-human communication. As a matter of fact, it would be convenient to explore in detail the complex question of what counts as communication, but this is well beyond the scope of the present paper.

may be fragmentary for some speakers and even totally incorrect for others. For example, a speaker might foolishly believe that a 'bicycle' is a type of animal. According to the objectivists, this would only show his ignorance of the meaning or extension of that particular item. No matter what speakers believe, they claim, meanings are 'out there', and the item 'bicycle' only denotes the relevant artefacts. Consequently, semanticists disregard individual lexical competences as irrelevant for semantic theory.[3]

These three assumptions have (implicitly at least) guided most recent work on lexical semantics, as lexical definitions are taken to be similar across speakers of the same language (or, at least, they are taken to represent an ideal speaker's lexical competence). Moreover, as most current linguistic models are lexically driven, the study of word meaning has also resulted in a decompositional modelling of definitions of quite a complex nature in an effort to predict the syntactic behaviour of lexemes. It is undoubtedly true that the different decompositional approaches to lexical meaning offer interesting insights into the nature of lexical knowledge. Indeed, they seem to adequately account for speakers' semantic inferences, and relevant patterns in the lexicon of a language and across languages have been discovered. However, these approaches to word meaning ignore many aspects of lexical behaviour which are surely necessary for a full account of language use. Pragmatic, affective, and stylistic features are obviously associated with lexical items, and all of them are relevant for a proper understanding of their felicitous use in linguistic expressions (LEVELT, 1989, p.183; LEECH, 1974, p.10). At the same time, the selection and interpretation of lexical items may obviously be influenced in crucial ways by contextual factors, as different authors have already noted (e.g. CRUSE, 1986; PUSTEJOVSKI, 1995; EVANS, 2006). These are factors which have not taken a prominent position in most work on lexical semantics in grammar models.

Indeed, as pointed out to me by José Luis G. Escribano (p. c.), this may not be a real problem as long as one assumes a distinction between linguistic and pragmatic competence. Communication would thus emerge from the interaction of both, and all pragmatic aspects of lexical units and contextual meaning construction could be accounted for in a theory of language use (note that this is basically Dik's (1997, p.7) position when he assumes a distinction between grammatical and communicative competence). In a way this strategy is understandable in formal linguistic models, in which aspects of linguistic use can just be swept under the carpet of performance, but, if functional linguistics aims at explaining not only our ability to generate linguistic expressions but also how we can produce expressions complying with the rules that govern

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[3] But note that objectivist semantics is rejected by Dik (1997, p.129) in his account of reference.

verbal interaction (Dik's standard of pragmatic adequacy), lexical meaning should be studied from a different perspective.

A sensible strategy to tackle this problem would require examining in detail the structure of lexical competence, including all the factors that contribute to the adequate use of lexical items. Hence, what is needed is a theory of the lexicon that accounts not only for lexical meaning but also lexical use. As my starting point, I will take Marconi's (1997) work on lexical competence. Marconi (1997, p.2) believes that lexical competence comprises two distinct dimensions of knowledge: inferential and referential lexical knowledge:

> It seemed to me that to be able to use a word is, on the one hand, to have access to a network of connections between that word and other words and linguistic expressions: it is to know that cats are animals, that in order to arrive somewhere, one has to move, that an illness is something one may be cured of, and so forth. On the other hand, to be able to use a word is to know how to map lexical items onto the real world (…) The former ability can be called *inferential* (…) the latter may be called *referential*.

Marconi adduces reasons to justify this distinction. For example, although it is not a common situation, it may well be the case that a speaker is referentially competent in the use of a lexical item but inferentially incompetent and vice verse. That is, the two abilities are, to an important extent, independent of each other. Marconi illustrates the situation with the bookish zoologist who knows everything that has to be known about a given type of butterfly but fails to recognize it when he comes across one. Let us examine these two dimensions in more detail.

2.1 Referential knowledge

Marconi defines referential competence as the ability to map lexical items onto the world. In principle, one might think that this is not a linguistic ability, but a cognitive process through which speakers interact with their environment. However, there are reasons to reject such an interpretation.

(i) The relevance of referential competence very much depends on the linguistic community which unconsciously agrees on what counts as knowing the meaning of a lexical item (MARCONI, 1997, p.66). If a speaker cannot tell a dog from a cat, his linguistic community might safely conclude that he does not know what a dog is. However, the same linguistic community might agree that the ability to apply the technical item 'crankset' to the right referent is only available to the expert in the field.

(ii) On many occasions referential competence may be more prominent than inferential competence. When one hears the word 'beer', 'dog', etc. the first thing that comes to mind is possibly a mental image of those entities. Only after considering them in detail might one come up with a characterization of its meaning.

(iii) Many words within the same semantic field are distinguished by average speakers only on the basis of mental representations. Jackendoff makes this very clear in his discussion of the distinction among motion verbs. In particular, he believes that the differences among verbs with a similar conceptual representation should be captured in a complex 3D model structure which, he claims, has no syntactic effects; he says (JACKENDOFF, 1990, p.34):

> how is one to distinguish, say, *running* from *jogging* from *loping*, or *throwing* from *tossing* from *lobbing*? If the lexical entries for these verbs contain a 3D model representation of the action in question, no distinction at all need be made in conceptual structure. The first set of verbs will all simply be treated in conceptual structure as verbs of locomotion, the second set as verbs of propulsion. (...) Differences that appear only in 3D model structure can by hypothesis have no syntactic effects. For example, *run*, *jog* and *lope* are syntactically parallel, as are *throw*, *toss* and *lob*. Thus the members of each set can be identical in conceptual structure and differ only in the associated 3D model.

Unfortunately, the structure of referential knowledge has received very little attention in linguistic theory, certainly as a consequence of its characterization as non-linguistic perceptual knowledge and of the belief that it is irrelevant in the syntactic use of a lexical item. At most, authors have simply assumed that lexical items are attached to mental images (DIK, 1997) or 3D structures (JACKENDOFF, 1990). Although a discussion of this problem is beyond the scope of this paper, I will assume that referential knowledge (or ability) is clearly part of communicative competence and must therefore be accounted for within a theory of lexical use.

2.2 Inferential knowledge

The orthodox treatment of lexical meaning in FG can be found in Dik's (1978) early monograph *Stepwise Lexical Decomposition*. In this work, the author states that defining lexical meaning is a "language internal affair" in which predicates of the object language are employed in the characterization of more complex predicates. Indeed, Dik's approach to lexical semantics leaves aside

non-denotational aspects of meaning, in line with current characterizations of lexical knowledge, which tend to include in lexical entries those aspects of the meaning of an item relevant to account for its use in the construction of linguistic expressions. As mentioned before, this tendency seems a natural strategy in formal grammatical theories which see a clear dividing line between linguistic and non-linguistic or general knowledge, but it seems rather unfortunate that it has also been assumed by some functional theories as FG and, to my knowledge, FDG. The assumption is, therefore, a classical one: words can be defined and speakers possess definitions of lexical items. Let us examine these two hypotheses in more detail.

2.3 Definitions

The assumption that lexical items have definitions is obviously based on the classical idea that concepts can be defined on the basis of a number of sufficient and necessary features which determine the possibility of applying them to the relevant referent. This view has been translated into contemporary linguistics without much discussion. In the case of formal syntactocentric theories, the reason seems quite obvious. Constructing a lexical definition for the computational system is constrained by two basic ideas: first, the definition should contain everything necessary to interpret the word correctly in a linguistic expression and, secondly, if one assumes a powerful linking system between definitions and syntax, then one has to include in the definitions the information required for the system to operate. The field of lexical semantics offers rather complex theories of word meaning such as Jackendoff's (1990) Semantic Structures or, within the functionalist tradition, the so-called Functional Lexematic Model (FABER; MAIRAL, 1999). These models search for systematic relationships among items in the lexicon, as well as principles which predict the syntactic behaviour of an item on the basis of its meaning. Yet, despite the complexity of the systems of representation proposed, they are very far from characterizing speakers' lexical competence as understood here. Classical FG does not propose a linking mechanism between the level of Meaning Definition and Predicate frame,[4] but the construction of definitions is based on Carnap's notion of meaning postulate, a formal system of representation for necessary and sufficient features.

There are obvious problems with the classical view on word meaning, some of which are summarised by Laurence and Margolis (1999) and Rey (1999):

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[4] In the course of the years, however, a number of such linking mechanisms have been proposed (SCHACK-RASSMUSSEN, 1994; CORNISH, 2002; GARCÍA VELASCO and HENGEVELD, 2002; BUTLER, Forthcoming)

(i) Many concepts do not have definitions or, at least, many speakers cannot produce them in the form of necessary and sufficient conditions. These include not only grammatical words (sentence connectors, prepositions, articles, demonstratives, etc.), but also, many other abstract terms: adjectives denoting properties are notoriously difficult to define and the same applies to many abstract nouns. The fact that lexicographers can systematically produce definitions for these items does not of course mean that average speakers can also produce those definitions. As Quine (1999, p.155) notes, a lexicographer just reflects people's "general of preferred usage prior to his own work". One might argue, then, that a dictionary definition is the intersection of all individuals' competences, but that possibility would only be acceptable under an objectivist semantic theory, for that intersection would exist in nobody's mental lexicon.[5] This means that linguists making use of dictionaries in the construction of lexical definitions do little more than translating into some formal language those features they consider essential in the definition of a lexical item, but it is doubtful that this is a proper characterization of a speaker's lexical competence.

Of course, the fact that speakers cannot always come up with definitions for common vocabulary does not mean *per se* that lexical items appear in the lexicon devoid of all content, as Fodor (1998) and Sinclair (1996) would have it (for entirely different reasons!). As pointed out to me by an anonymous reviewer, speakers cannot state the grammatical rules of their language and yet they obviously have knowledge of them. However, the nature of grammatical knowledge is significantly different from that of lexical knowledge. All competent English speakers 'know' that the sequence *house the is ill-formed, but the same competent speakers may have difficulties in deciding whether an ostrich is a bird or not, to cite a classical example. The existence of unclear cases such as these indicates that necessary and sufficient features may not be the stuff lexical meaning is made of (see also (iii) below).

(ii) Even though most speakers cannot produce necessary features for many concepts, still they use lexical items efficiently in verbal interaction. Therefore, having a concept, and that includes lexical concepts, does not necessarily mean possessing all the necessary features which characterize it. Let us illustrate the question with a trivial example. I think we can agree that being a mammal is an essential feature of the concept 'dog'. Yet, speakers need not know that dogs are mammals to be able to refer to them, to identify them, and to use the word

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5 This seems to be Allwood's (2003, p.43) position when he introduces the notion of *meaning potential* as the basic unit of word-meaning: "The meaning potential is all the information that the word has been used to convey either by a single individual or, on the social level, by the language community. The meaning potential, then, does not result from trying to find a generally valid type meaning for a word. Rather, it is the union of individually or collectively remembered uses". It is difficult to see how this proposal could be compatible with a non-objectivistic approach to semantics.

in thousands of well-formed linguistic expressions, such as *I like your dog*, *Dogs are friendly animals* or *Dogs should be forbidden in parks*.

(iii) Prototypicality effects have shown that some elements may be perceived as better examples of a category than others, a possibility which is unexpected in the classical theory: if concepts are well defined, all members of a category should be on a par as long as they satisfy all necessary features. Again, to continue with another classical example, the Pope is not a likely candidate for bachelor even though he satisfies all essential features of the expression (i.e. unmarried & man). Prototypicality effects are difficult to reconcile with the classical view on lexical meaning.

(iv) If concepts consist of necessary features only, there should be a way to distinguishing essential from accidental properties. In principle, this was the job of analytical statements, defined as *a priori* and unrevisable truths, but this possibility was rejected after Quine's attack on the analytic / synthetic distinction and Wittgestein's observations on the basis of the concept 'game', which he used to illustrate the fuzziness of conceptual categories. Carnap introduced meaning postulates precisely to formalize analycity and it seems therefore reasonable to assume that the system of lexical decomposition employed in FG, which is based on meaning postulates, also tries to account for necessary conditions only.

Clearly, all this implies that a characterization of lexical competence should rely on different principles.[6] Given the difficulty in dividing linguistic from enclycopaedic knowledge, proponents of Cognitive Grammar claim that encyclopaedic specifications should be seen as part of the meaning of lexical items (LANGACKER, 1987, p.154). The basic idea is that lexical items, or linguistic expressions, for that matter, are points of access to different bodies of knowledge against which we can make sense of them. Langacker believes that the part of the meaning of a lexical item which can be called conventional is simply contextual (roughly encyclopaedic) knowledge which has been established "as conventional through repeated occurrence" (LANGACKER, 1987, p.158). The question is then, how is that conventional meaning established?

As it is not reasonable to assume that speakers invoke all their knowledge about a concept to interpret an expression, Langacker (1987, p.159) agrees that some aspects of the meaning of a lexical item are more central than others.

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[6] A radical alternative approach is offered in the work of Jerry A. Fodor (FODOR, 1998; FODOR and LEPORE 1998). In Fodor and Lepore's (1998, p.270) review of Pustejovski (1995), we read "We propose to adopt a version of this claim as a sort of null hypothesis: namely, that the only thing a lexical entry specifies is the denotation of the item it describes. Here again we scant the details for the moment. Roughly, though: the lexical entry for *dog* says that it refers to 'dogs'; the lexical entry for *boil* says that it refers to 'boiling'; and so forth." Hence, the valid inferences that obtain from lexical items should be attributed to general knowledge rather than to the meaning of the lexical item in question.

Centrality is seen as a complex notion, not necessarily linked to the fact that an aspect of meaning is a necessary condition.

A more elaborated model along these lines is found in Evans (2006). According to Evans, there is a distinction between *lexical concepts*, which are of linguistic a nature, and *cognitive models*, which would correspond to the "semantic potential that lexical concepts provide access to" (EVANS, 2006, p.496), roughly, encyclopaedic knowledge. Evans argues that meaning construction is a function of language use which arises through the use of lexical concepts in particular communicative situations. In turn, and clearly in line with Langacker's observation above, lexical concepts are "abstractions which language users derive from conceptions" (i.e. constructed meaning). Evans's distinction between lexical knowledge and the encyclopaedia seems to make his thesis incompatible with the allegedly gradual relation between the lexicon and the encyclopedia that cognitive grammarians defend. However, what is relevant in his approach is that conventional lexical meaning is not assumed to be rigid or based upon necessary and sufficient conditions.

Just like Langacker, Marconi (1997, p.41) claims that some of the features associated with a lexical concept are more likely to be considered linguistic; these include **necessary** and **universal** specifications, and those which can be taken as **constitutive** of normal competence by the members of a linguistic community. Crucially, he explicitly denies that lexical knowledge could be equated with the encyclopedia.

Of course, the problem with these notions is that they can offer contradictory results for a given specification. Let us take our previous example again: the feature 'mammal' in the meaning of 'dog'. Undoubtedly, this is both a necessary and universal feature, as it applies to all dogs, but is it constitutive of normal competence? Note that it may not be available to those speakers who have not had the opportunity of receiving primary education. Compare it with the specification 'it has four legs'. This is an observable piece of knowledge probably available to all speakers and clearly constitutive of normal competence. But is it a necessary feature? Not really, as there can be dogs with just three legs. However, what is undeniable is that there cannot be dogs which are not mammals.

This means that it is rather difficult to determine the set of features which can characterize the collective meaning of a given lexeme. Marconi (1997, p.52-53) expresses this neatly:

> two (or more) speakers may be said to share a common language, in the ordinary sense of that phrase, even though they only share some beliefs (…) at the lexical level, individual competence does not

coincide with encyclopedic knowledge, that is, with the totality of true beliefs that can be ascribed to the linguistic community as a collective entity (…) it is extremely hard to isolate a plausible subset of encyclopaedic knowledge as being constitutive of (lexical) semantic competence, that is, a set of propositions we all ought to know or belief in order to be regarded as lexically competent. As a matter of fact, each of us knows or believes partly different things (partly different subsets of the collective encyclopedia), yet we are all competent in the use of our language (…) We ought to speak not of a unique lexical competence, only of individual competences. In this sense, there is no language, only idiolects.

The question is then, how do we account for inter-human communication if individual competences are so varied? An answer immediately suggests itself if, again, we replace the notion lexical meaning with lexical competence, understood as the ability to use words in efficient communication. A speaker need not possess a 'perfect' definition of a word to be able to communicate efficiently. As long as speakers *share* a number of beliefs about concepts, they can be said to communicate.[7] And, as we well know, communication emerges out of intentions and, by default, users talk to communicate with others. Therefore, many differences in lexical competence across speakers go unnoticed as long as communication is not disrupted. If disruption does take place, discourse might need meta-linguistic repair.

So, speakers need not possess an optimal definition of a concept, not even share the same set of beliefs about a concept. All they need is, in the words of Marconi, to *converge* on a number of beliefs for communication to take place. My personal interpretation of the notion *converge* is a dynamic one. Speakers converge on meanings dynamically, on line. They may adapt their own beliefs on the basis of the contextual information available, and thus modify their previous ideas on concepts. Thus meaning is not merely conveyed, it is constructed cooperatively (EVANS, 2006). But this does not mean that two speakers possess exactly the same concept *a priori*. And from this, it also follows that there are no beliefs that are necessarily shared by all competent users. It is enlightening, however, that both Langacker and Marconi agree that being conventional or constitutive or normal competence is a crucial criterion for a feature to be considered central in the meaning of a lexeme, a notion which fits extremely well in a usage-based theory of meaning.

An important consequence of this approach is the flexibility which is attributed to lexical meaning. Thus, it is possible for a given feature to evolve form being contingent or necessary to being constitutive of normal competence

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[7] Of course, the nature of those beliefs is crucial in the approach defended here. As a matter of fact, characterizing speakers' lexical competence is the objective of a research project at the University of Oviedo. At the moment, different and rather exhaustive lexical tests have been applied to 36 Spanish native speakers of different age and education. We hope to provide reports on the results of this project in future work.

and therefore central. Lexical meaning is understood as a dynamic entity, subject to revisions, extensions or adaptations both in context and through time. Secondly, given that the features associated with lexical concepts are in principle open-ended, different aspects of meaning may be highlighted in particular communicative situations. This is what happens in the process called *modulation of senses* (CRUSE, 1986). Consider the following examples (adapted from CRUSE, 1986, p.53):

(2)   a. Sue is visiting her cousin
       b. Sue is visiting her pregnant cousin

In (2a), *cousin* is general with respect to the distinction male or female. This distinction is neutralized in (2b) where the only possible interpretation is 'female' cousin. Hence, the context crucially contributes to selecting/adding one particular trait of meaning under the shared belief that only female human beings can be pregnant. Consider the following examples, also taken from Cruse (1986):

(3)   a. The car needs servicing
       b. The car needs washing
       c. We can't afford that car
       d. Our car couldn't keep up with his

In (3a) and (3b) 'car' highlights different parts of the car, whereas in (3c) and (3d) it is general attributes, the prize and the performance, that are brought to the fore. These interpretations are difficult to explain if one does not assume that certain features (the fact that cars are sold and have a prize or the fact that cars have differences in performance, etc.) are part of speakers' normal lexical competence. They are also difficult to explain in a model claiming that lexical entries are complex bundles which are retrieved in utterances in toto.[8]

Again, it could be argued that modulation of senses or meaning creation in context is a matter of language use which can be accounted for in a theory of meaning which assumes fixed definitions for lexical items. Indeed, the core meanings of *cousin* in (2) and *car* in (3) may be reasonably argued to have remained unaltered and only further constricted in each context. While this may be true from a comprehension perspective, I would think that in the production process speakers select or highlight the relevant meaning specifications from the set associated to a given lexeme in the construction of the message content they wish to convey.

In the following section I will examine the implications of this approach for the selection of lexical items and the start of the formulation process in FDG. As

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[8]   As I also show in García Velasco (Forthcoming), this system allows for a proper treatment of conversion (zero-derivation) phenomena in English.

the standard view in the theory makes use of decompositional definitions, it will be necessary to propose an alternative approach with, possibly, significant consequences for the overall organization of the model. By examining the influence of general knowledge in the linguistic generation process I will also show that this conception of lexical competence is preferable to an approach which rests on the separation between linguistic and communicative competence.

3 Implications for FDG

As mentioned in the preceding section standard FG has characterized lexical meaning in accordance with the classical view, accepting the possibility that necessary and sufficient features can be identified and that they constitute the meaning of lexical items. Dik accepted Carnap's meaning postulates as an adequate way of formalizing this intuition. Moreover, since he assumed that defining language is "a language-internal affair", he rejected the possibility of including general knowledge as part of speakers' lexical competence.

The view that I have defended here, however, suggests that lexical meaning is conventional information associated to lexical items, and rejects the possibility of proposing static definitions for lexical items. Individual competences are varied and the meaning of lexical items is flexible and can be adapted in context and modified through time. FDG, the successor of Dik's FG, has not been very explicit in its treatment of the lexicon component and the exact role it has in the grammar, but certain crucial differences in its organization with respect to classical FG are obvious and merit some discussion.

First, unlike FG, FDG is a top-down grammatical model which takes the *discourse act*, rather than the *sentence*, as the basic unit of linguistic analysis. The theory is strongly inspired by Levelt's (1989) model of language production, which runs from the speaker's communicative intention to its encoding in an adequate linguistic expression in the target language.[9] Levelt's model of the speaker comprises three different components: a *Conceptualizer*, a *Formulator* and an *Articulator*. Conceptualizing involves creating a communicative intention and constructing a preverbal message: a conceptual structure that will serve as input to the Formulator. The process of Formulation translates this preverbal conceptual structure into a linguistic structure (LEVELT 1989, p.11). Finally, Articulating involves executing an acoustic plan by means of the relevant physiological organs.[10]

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[9] See Butler (Forthcoming) for a careful comparison of Levelt's model and FDG.

[10] In FDG, as a model of the natural language user rather than a model of the speaker, articulating involves expressing the output of the grammar component according to the medium chosen (written output, acoustic output, etc.).

The process of Formulation is fed by a set of primitives, including frames, lexemes and primary operators. Frames and Lexemes are the result of García Velasco and Hengeveld's (2002) proposal to separate lexemes from argument structures. These authors suggest that the notion of *predicate frame* in FG should be replaced by a combination of *predication frames* on the one hand, lexemes provided with abstract meaning definitions on the other, and a linking mechanism joining them together. The linking mechanism is sensitive to the number of entities present in the abstract meaning definition which, in the default case, will have to be projected onto syntax. By way of illustration, the authors examine a simple case of linking. They propose the following definition for the lexeme *open*:

(4) *open* [V]
     $[f_1: [CAUSE (x_1) [BECOME \textbf{open'} (x_2)]]]$

This entry states that *open* designates a relation (as represented by the 'f' variable) between two entities (as represented by the 'x' variables). The presence of these variables guides the linking process towards the selection of a transitive predication frame. Predication frames are assumed to define basic syntactic environments for the insertion of lexemes. Thus, the following is the predication frame for the lexeme *open* in its transitive use:

(5) $(\pi e_1: [(f_1: open (f_1)) (x_1)_{Ag} (x_1)_{Pat}] (e_1))$

One of the obvious consequences of this proposal is that the number of arguments of a given lexical item and their semantic functions can be obtained from the abstract meaning definitions in an on-line fashion. What is more, the system allows the same lexeme to choose different frames, thus offering a new scenario in which to treat syntactic alternations.

This approach fits in nicely with Levelt's model. According to Levelt (1989, p.73), preverbal messages must be constructed on the basis of some propositional language of thought in such a way that they meet the conditions required to be expressible in human language. Lexical selection relies on the existence of a match between the conceptual preverbal message and the conceptual specifications of a given lexical item. If that is the case, the relevant lexeme will be retrieved and will trigger the process of grammatical encoding (see LEVELT, 1989, chapter 7). Given the fact that lexical definitions are usually constructed on the basis of decomposition models of lexical meaning and preverbal messages are assumed to be made of similar constructs, the process of lexical selection is thus easily solved.[11]

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[11] According to Bierwish and Schreuder (1992, p.28), lexical decomposition is needed to account for lexical access. At the same time, decomposition models are also useful to link the lexicon with the syntactic system and select syntactic configurations. Hence, all in all, decomposition is useful from a grammar designing perspective and one might even think that its defense relies mostly on theoretical convenience.

In the preceding section, however, I have argued that definitions based on necessary and sufficient features are not valid structures to represent speakers' lexical competence; therefore, the FDG approach just sketched does not seem to be in accordance with the observations on lexical competence presented in the previous sections. In particular, definitions such as (4) should be modified or replaced with structures compatible with the view on lexical meaning here defended. Obviously, this move will also have consequences for the process of lexical selection and the linking between the lexicon and syntax.

Although certain modifications will be necessary, the FDG organization offers a simple solution to the linking issue even if decompositional definitions are dispensed with. Assuming that predication frames (containing the qualitative and the quantitative valency of the lexemes in the language) belong to the primitive inventory of the grammar, there is no need for the system to extract this information from the definitions themselves. Speakers will select a relevant frame on the basis of the specifications or beliefs associated to a lexical item, but the syntactically relevant information will only be present in the frame chosen.

In the preceding section I argued that the meaning of lexical items should be seen as sets of beliefs conventionally attached to lexical items by the members of a linguistic community. I also assumed, following Marconi, that it is not possible to isolate the specific set of beliefs which are shared by all speakers for a given item. Bearing this in mind, the semantic side of a lexical entry should thus be seen as an idealized representation of that partially common knowledge. Let us illustrate the mechanism with an example.

The lexeme 'open' might be linked to the following pieces of information which could be assumed to be part of normal competence:

(6) *Open*:
>   a. Opening is an event.
>   b. By opening somebody allows entrance of something.
>   c. Tins, doors, etc. can be opened.
>   d. People open doors to enter buildings.
>   etc.

The representation in (6) states the following: any competent speaker should 'know' that the item 'open' denotes an event (6a). I would assume, therefore, that lexemes are characterized in the lexicon by competent speakers as 'event-denoting', 'thing-denoting', 'property-denoting', etc., as a basic feature. Secondly, speakers should have an intuition of the number of participants typically involved in the bringing about of the event (6b-c). Finally, speakers will have a variable

number of specifications of pragmatic nature which may even relate to their own private experience.

Assuming that (6a-b) are the minimum required to be competent in the use of this lexeme, speakers will have everything necessary for the selection of a predication frame. First, the fact that 'open' is characterized as an event will guide towards the selection of an eventive frame. The fact that participants will be coded as agents, patients or processed entities is part of the grammar of the relevant languages and should not be included in the lexical entry. All that is needed is a representation of the action of 'opening' either in propositional format as in (6b) or in referential format (i.e. images, 3D representations, etc.). The system also allows new specifications from the conceptual component to enter the characterization of the item. Lexical meaning is thus flexible, it can be adapted in context, and parts of it may be highlighted in a specific discourse act.

One important advantage of this model is that it explains how conceptual specifications may influence the selection of predication frames. It is usually assumed that the semantic representations of linguistic expressions are embeddable into wider conceptual structures so that they can be interpreted (BIERWISH; SCHREUDER, 1992, p.33). In other words, linguistic units convey meaning which is further interpreted on the basis of the information provided by speakers' general knowledge and the particulars of the communicative situation. As mentioned earlier, this position may be related to the distinction between grammatical and pragmatic competence.

However, what authors tend to forget is the fact that general knowledge may have consequences not only for the interpretation of expressions in context but also for the generation of linguistic expressions in very specific ways. I mentioned before that referential knowledge may influence syntactic behaviour. Jackendoff argues that verbs in the same semantic domain are only distinguished through a 3D model with no syntactic consequences. Taylor (1996) explicitly argues against this view by showing that there are important differences in meaning between verbs such as *jog* and *run* that one cannot capture in a 3D perceptual format. In particular, he claims that the activity of jogging is characterized against the convention of a certain first-world society lifestyle emphasizing health and fitness. Although jogging may be considered a type of running, the two verbs are not interchangeable in all syntactic contexts, showing the relevance of the different conceptual nature of both activities. Consider the following contrasts:

(7)   a. Bruce ran against Phil
      b. * Bruce jogged against Phil

(8)   a. He ran to get to the airport

    b. * He jogged to get to the airport

(9)   a. He ran away from the police

    b. * He jogged away from the police

According to Taylor, the ungrammaticality of the 'jog' expressions relates to the nature of the activity of jogging as opposed to running. Jogging cannot be conceived as a competitive activity, as in (7b), and its purpose is not to arrive quickly at a specific destination, as in (8b), or to move away from a given position, as in (9b). The pragmatics of jogging, then, has an influence on its syntactic behaviour and should be part of the meaning associated with this lexeme. This observation is a problem for lexical representations which only include those aspects of the meaning of lexical items that are relevant to syntax.

Even syntactic alternations may be motivated by aspects of pragmatic knowledge associated with lexical concepts. Let us illustrate this with the so called causative alternation. As is well-known, there are significant differences among verb classes with respect to the possibility of participating in the alternation: *manner-of-cutting* verbs do not seem to admit the alternation, unlike *change-of-state* verbs such as *break*, as shown in (10) and (11) respectively:

(10) a. Margaret cut the bread

    b. * The bread cut

(11) a. Margaret broke the window

    b. The window broke

The problem thus lies in determining the factors which forbid the application of the process in one lexical class and allow it in another. Within Generative Grammar, Levin and Rappaport (1994) have tried to identify such a property in their analysis of this alternation. Summarizing their conclusions, it is possible to say that the feature which the verbs participating in the construction share centres on the nature of the instigator of the process. The authors assume that those intransitive verbs which participate in the alternation denote events which are *externally caused*, whereas those intransitive verbs which do not are *internally caused*. Levin and Rappaport (1994, p.49-50) explain these notions in the following way:

> With an intransitive verb denoting an internally caused eventuality, some property inherent to the argument of the verb is 'responsible' for bringing about the eventuality. (...) In contrast to internally caused verbs, verbs which are externally caused inherently imply the

existence of an external cause with immediate control over bringing about the eventuality denoted by the verb: an agent, an instrument, a natural force, or a circumstance. Thus something breaks because of the existence of some external cause; something does not break solely because of its own properties. Some of these verbs can be used intransitively without the expression of an external cause, but, even when no cause is specified, *our knowledge of the world* tells us that the eventuality these verbs denote could not have happened without an external cause. (emphasis mine)

This explains why internally caused verbs such as verbs of 'emission' cannot participate in the alternation:

(12) a. *The jeweller sparkled the diamond
b. *Max glowed Jenny's face with excitement
c. *We buzzed the bee when we frightened it

According to the authors, those transitive verbs which accept an intransitive variant denote an event which can occur without the intentional intervention of an agent. It is common, therefore, that these verbs may take Forces or Instruments as subjects:

(13) The wind/the key opened the door

However, transitive verbs which require a volitional subject do not take part in the alternation:

(14) a. *The candidate assassinated/murdered
b. *The letter wrote
c. *The house built

As expected, they do not readily accept the presence of an Instrument or Force in subject position:

(15) a. *The knife assassinated/murdered the candidate
b. *The pen wrote the letter
c. ?? The crane built the house

As Levin and Rappaport (1994) suggest, it is our knowledge of the world that tells us when the alternation can be applied. Given its cognitive-pragmatic nature, this alternation can be handled in a much more natural way with an approach to lexical meaning in which pragmatic specifications can be attached to the semantics of lexical items.

Even more crucially, speakers may interpret an internally caused verb as externally caused. Take the verb *disappear* in Spanish. This is, as in English, an intransitive verb which does not allow a causative interpretation:

(16) a. El   coche   desapareció
        The   car   disappear.PAST
        'The car disappeared'

   b. * Pepe   desapareció   el   coche
        Pepe   disappear.PAST   the   car
        'Pepe made the car dissappear'

Yet, for some speakers in certain varieties of Spanish, in particular in the geographical area where I was born, (16b) is possible. A similar situation arises in the following expressions (attributed in Radford (1997, p.420) to Melissa Bowerman) which illustrate common errors produced by children in their use of verbs:

(17) a. Can I glow him? = 'make him glow'
     b. It stirs around = 'the ice tea swirls around'
     c. Larry knocked down = 'Larry fell down'

Since we cannot assume that children have obtained these forms from their caregivers, we need a system which allows verbs to be used in different syntactic contexts until the correct conventional use of the relevant verb is learnt.

All this shows that general information is not only needed to interpret linguistic expressions, but also to produce them. Within FDG (and any other theory of language), therefore, room must be made to account for the relation between lexemes and pragmatic features associated to lexical concepts which are part of long-term information, but which can clearly influence the choice of a specific predication frame. Lexical meaning, both referential and inferential, is based on speakers' shared beliefs on the nature of concepts. Basic specifications, such as the fact that a given lexical item denotes an event or a thing should obviously be considered linguistic, but the item should also be directly connected to the conceptual component, which provides specifications subject to revisions or validations. To the extent these specifications become conventional (in the sense of constitutive of normal competence) they will become part of the linguistic system. Thus, there are no lexical entries in the traditional sense, but rather, correspondences between conceptual information, i.e. specifications or properties we conventionally apply to concepts, and linguistic primitives used in the construction of linguistic expressions. Of course, each speaker will have

certain values associated to a lexical item, but they may be revised or adapted on the basis of the information in the conceptual component and the needs of convergence in communication. Given the inherent fragmentary nature of lexical knowledge, then, an upsetting conclusion of this approach is that the lexicon component, by its very nature, resists a uniform and elegant characterization in a formal system of representation. To cite Marconi again, that would only be the representation of one speaker's idiolect.

4 Conclusion

In this paper, I have argued that the treatment of the lexicon component in FDG should rely on different principles than those usually assumed in grammatical theory. It should be noted that the shortcomings detected in the treatment of lexical knowledge in contemporary linguistics are not exclusive to FDG. Quite on the contrary, they are common to most grammatical models, but they probably have more serious methodological consequences for functional models of language. Formal models have avoided most of the problems detected here by putting them aside of linguistics proper through the well-known distinction between competence and performance. Unfortunately, this approach may have been unconsciously inherited by functional theories, which employ similar strategies in the characterization of lexical meaning. I hope to have shown that studying lexical knowledge from the point of view of communicative competence shows quite a different picture with significant implications for the organization of linguistic models.

In particular, I have proposed that decompositional models do not capture lexical competence adequately and they should be replaced by specifications or beliefs which permit a more flexible treatment of lexical knowledge and behaviour. I have also shown that this move does not require the introduction of additional machinery into the theory, but just the assumption of a more intimate relation between the lexicon component and the conceptual component.

Of course, I am well aware that the issues discussed in this paper are of such a serious nature and have such profound implications that my exposition may have been too superficial at times. I do hope, however, that these observations may serve to stimulate a necessary discussion on the role and organization of the lexicon component in FDG.

Acknowlegments

GARCÍA VELASCO, D. Competência lexical e Gramática Discursivo-Funcional. *Alfa,* São Paulo, v.51, n.2, p.165-187, 2007.

- RESUMO: Este artigo discute o papel do componente lexical na Gramática Discursivo-Funcional. Argumenta-se que o tratamento do significado lexical na maioria dos modelos gramaticais é inadequado. Propõe-se uma análise alternativa baseada na noção de competência lexical de Marconi (1997), de acordo com a qual o significado lexical compreende duas dimensões diferentes: conhecimento referencial e inferencial. Argumenta-se a seguir que modelos decomposicionais de significado lexical não captam realmente o conhecimento inferencial do falante, da mesma forma que é questionável a noção de que possuem definições detalhadas e semelhantes para a maioria dos itens lexicais. Os falantes associam crenças e especificações a itens lexicais e a comunicação emerge quando tais crenças convergem dinamicamente em interação verbal. Por fim, as implicações dessa análise para a GDF são examinadas. Sugere-se que definições com significado abstrato não são realmente necessárias para o modelo e que o léxico deveria estar em contato estreito com o componente conceptual.

- PALAVRAS-CHAVE: Gramática Discursivo-Funcional; competência lexical; léxico; componente conceptual.

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