

**METHODOLOGICAL UNDERPINNINGS
FOR THE CONSTRUCTION OF
A FUNCTIONAL LEXICOLOGICAL MODEL¹**

PAMELA FABER

UNIVERSIDAD DE GRANADA

RICARDO MAIRAL USON

**UNIVERSIDAD NACIONAL
DE EDUCACION A DISTANCIA**

0. INTRODUCTION

IN contrast with previous years in which syntax held the dominant role in linguistic theory, the period 1975-1985 can be considered the decade of the lexicon (Nowakowsky 1990: 3). Within linguistic theory, the lexicon is now known to be more than an accessory list, providing auxiliary information in order to make grammatical rules work. It can rather be conceptualized as an intricate network of elements interconnected by cohesive, associative, lexical and encyclopedic functions.

In fact, this resurgence of interest in the lexicon and its organization is evident even in those linguists (e.g. Chomsky 1981a, b; 1986a, b) who had first advocated precisely the opposite. This rediscovery of the lexicon can be attributed to a number of factors, some of which were brought about by improvements in linguistic research and others which were prompted by the recent developments in disciplines such as psychology, philosophy, categorization, etc.²

Following this revival of interest in lexical items, in this paper we explain the theoretical foundations of our Lexicon/Dictionary. This Lexicon/Dictionary is the result of the pioneering work and research of Martín Mingorance (1984; 1985a,b; 1987a,b,c; 1990) in lexicology and lexicography.

The first part of this paper is an analysis of various features relevant to the different proposals of semantic theories for the lexicon. This introductory survey serves as a backdrop for the second part which is an explanation of our functional lexicological model.

1. SETTING THE SCENE

Rather than give a summary of the different proposals of semantic theories for the Lexicon, we believe it will be more enlightening to examine these theories in terms of certain points relevant to them all:

(i) In accordance with this lexical resurgence, linguistic models might now be regarded as "panlexicalist" (Starosta 1988: 1). In other words, the word has become the central unit in language description and thus the lexicon has become the informational domain *par excellence*:

[A] lexicon by itself generates the set of grammatically well-formed sentences in a language: each word is marked with contextual features which can be seen as well-formed conditions on trees, and a well-formed sentence is any configuration of words for which all these well-formedness conditions are satisfied. . . . Consequently *a fully specified lexicon is itself a grammar*, even if it is not associated with a single grammatical rule. (Starosta 1988: 1; our own emphasis).

We also share the view that the lexicon of a language should be seen as a type of grammar, capable of accounting for human lexical abilities (cf. below). Yet, despite the panlexicalist orientation of linguistic theories, the internal make-up of the lexicon component is still too deeply-seated in theory internal qualifications.³ Somehow, the erroneous maxim "let the theory decide" instead of "let the data decide" has served as the guideline for the

construction of the Lexicon Component. This can yield dangerous results. Although we agree that the configuration of a lexicon should be in accordance with the methodological postulates adopted for its description, the Lexicon should also be sensitive to what speakers really know about the words in their language. In this respect, we believe that there is a discrepancy between the frozen notion of the lexicon (as envisaged in most linguistic models) and the speakers' actual lexical knowledge (e.g. metaphorical processes, lexical presuppositions, lexical intensional properties, semantic domains, axiological distinctions, pragmatic features, double-field membership etc.). This discrepancy leads to the concept of the lexicon as a fixed data base, innocent of all dynamic operations. In our opinion, this account of the lexicon is still insufficient since this component should be able to account for all type of active lexical operations noted above.

Within Cognitive Linguistics two relevant approaches which try to formulate active semantic theories for the lexicon are those of Jackendoff (1983, 1987) and Lakoff (1982) and Lakoff and Johnson (1980). These linguists, departing from the formal models of logical semantics (cf. Jackendoff 1983: 23-37; Lakoff and Johnson's (1980: 156-ff) critique of "the myth of objectivism"), agree that categorization is an essential aspect of human cognition and that grasping a meaning is an *event* of understanding, in which human perceptual experience plays a vital role (cf. Johnson 1987: chapter 2). Each approach emphasizes a different aspect of language and cognition: Jackendoff gives prominence to perception and individuation while Lakoff places greater emphasis on experiential aspects of categorization and metaphorical processes. Although both make valid assertions, neither of these approaches can be said to give an adequate account of the speaker's actual lexical knowledge.

Firstly, they fail to recognize strictly lexical issues, and consequently they cannot account for their specificity.⁴ In our opinion, these models lack a theoretical linguistic framework which can systematically account for the nature and origin of prototypical features, types of metaphor, image schemata, semantic interrelationships, etc. In contrast, we will show that the structure of our lexicon/dictionary can bridge the gap between structural semantics and prototype theory, giving proof that a semantic dimension reflects the structure of a conceptual schema (Faber and Mairal, forthcoming).

Secondly, there is no reason to postulate a different treatment for those lexical operations that touch upon the formal aspects of lexical units (namely,

syntactic, morphological and phonological) and those related to their semantic aspects. We have found that both types of operations are diagrammatically motivated, and thus we have formulated a number of iconic principles which have been derived from the semantic architecture of our Lexicon/Dictionary.

Thirdly, in Lakoff's model, there is an excessive tendency to treat any linguistic expression as a type or subtype of metaphor. A better solution would be to determine criteria for literalness and also pin down the nature of these metaphorical expressions within what Givón (1989, 1990) calls the "communicative contract." In doing so we claim that evidence can be obtained of the links and relations between semantic domains from meaning structure itself. That is, we believe that one can arrive at an inventory of conceptual categories and their interrelationships through the structure of language itself, as a reflection of our understanding of reality, or our way of having a world.

Fourthly, what is undeniably true is that generally the examples given to justify prototype theory fall in those areas of vocabulary which appear to be the best examples of that particular theory, e.g. prototype theory tends to use birds and artifacts. Considerably less has been said about those "messy," but very important areas which, because of their abstractness, are more difficult to handle such as "perception," "speech," "mental processes," "change," "existence," "feeling"⁵ etc. In our opinion, any theory of category membership must be prepared to deal with all types of categories, and not only those which are the best examples of the particular theory in question⁶ (cf. Faber 1994).

In essence, it seems that in most linguistic models priority is given to storage and therefore the lexical unit is still "an immobile Saussurean sound-sense type of sign." Other models such as Lakoff's and Jackendoff's present a more promising account though insufficient account of the lexicon. In our model, the lexical item itself is a process and consequently the lexicon is conceived as a dynamic storage of words.

(ii) Cognitive sciences share the view that it is necessary and legitimate to postulate systems of rules and mental and computational representations to explicate human behaviour and the working of a machine. It is assumed that the study of the lexicon is of great interest for two types of cognizers: (1) human beings and (2) computational systems. In this respect, a number of

linguists have tried to partially simulate the working of the mental lexicon on the computer.

This analogy is based on the fact that human mental behaviour can be explained in terms of representations, namely lexical and computational representations (Pylyshyn, in Paprotté 1990: 1). Both lexical and computational representations, conceived as physically immediate cognitive codes, are used as operation triggers yielding linguistic observable acts or internal computational representations. In the same way, some linguists think that the computational lexicon can imitate the mental lexicon. Although both types of lexicon differ in their physical architecture, it is assumed that they show an identity insofar as the characteristics of the operations and procedures they perform, viz. mental processes and capacity for lexical representation.

Even though this explanation is very attractive, the analogy between the mental lexicon and the computer is not exact. Among the most obvious differences is the fact that the computer can quickly sort huge amounts of data, whereas the mind does not have this capacity. In contrast, the sophisticated semantic networks within the mental lexicon which permit the instant disambiguation of lexical items in context have until now escaped computational representation.

(iii) The lexical component within contemporary linguistic theories has been furnished with a number of operations primarily designed to reduce or minimise redundant information in the lexicon. Since Jackendoff's (1975) hypothesis of "full entry," the concept of a lexicon as a set of "fully specified word types" has gained currency. The lexicon should achieve an equilibrium between idiosyncratic information and generalized or predictable information. In order to avoid redundancy and reduce storage requirements, the lexicon of a language should contain a huge amount of generalized information and a minimal amount of idiosyncratic information.

These lexical operations have received different names depending on the model: "Lexical Templates" and "Lexical Redundancy Rules" (LFG); "Simple inheritance" and "Default Inheritance" (HPSG). The purpose of these mechanisms is to simplify the vast amount of information that lexical entries carry, thus making the theory more explanatory.

It is important to note that lexical redundancy rules were not meant to account for active processes but rather to show lexical-internal relations or quasitransformations. In fact, these mechanisms embody some processes that

in earlier models were conceived as syntactic. Although the formulation of these rules is basically correct, some of them are problematic to the extent that they remain essentially intuitive notions whose precise description has to be formulated (e.g. the rule that postulates that cognitive and assertive predicates take declarative complements).

As a solution to this problem, we postulate a different version of redundancy rules. In line with Dik's (1989) Functional Grammar, we use the notion of expression rules in such a way that each field, and more particularly each dimension, contains a number of these expression rules, which ultimately form the body of the grammar of each field. This is an immensely attractive idea since these rules are based on a precise lexical analysis of the items that are subsumed under a given dimension and in turn within a given field. Again, our insights come from the structure of the language itself.

(iv) It can be observed that most linguistic theories have eschewed the treatment and codification of emotive, axiological, or as some people prefer to call them, subjective factors. In this light, Krzeszowski claims:

The Saussurean and Chomskyan traditions of linguistics are usually silent about other aspects, which may also be relevant in semantics of natural languages, such as various axiological distinctions between "good" and "bad" or "ugly" and "beautiful." (1990: 135)

In other words, semantic theories have focused their attention on the description and research of "descriptive or cognitive meaning" to the detriment of "emotive meaning." Yet, most lexemes have both a descriptive and an emotive meaning (cf. Lyons 1981: 54-55). Why have emotive aspects of meaning been ignored? This state of affairs might be due to the fact that linguists have hitherto concentrated their attention only on the ideational function of language (cf. Halliday 1985).

Evidence supporting this hypothesis can also be observed in dictionaries. Lexicographers have similarly concentrated their attention on what one might call "descriptive or referential lexemes." In this light, Snell-Hornby (1990: 210) distinguishes the following five prototypes:

1. Terminology and Nomenclature
2. Internationally Known items and sets
3. Concrete objects, basic activities, stative adjectives

4. Words expressing perception and evaluation, often linked to sociocultural norms.⁷
5. Culture-bound elements.

Interestingly enough, she observes that bilingual lexicography restricts itself to groups 1, 2, and 3. However, groups 4 and 5, conditioned by "dynamic factors"⁸ of sociocultural norm, perception and evaluation, with varying stages of gradation in between, are poorly treated.

In much the same way, Tomaszczyk notes that bilingual dictionaries present many inconsistencies for the translator since

lexicographers have not paid sufficient attention to the socio-cultural layer of word meaning. As a result, the English equivalents of the culture bound items in Polish-English dictionaries are of little use to Polish-English speakers, writers and translators. (1984: 289)

Thus, the major goal of the lexicographer today is to codify these meanings, or put it differently, to compile a dictionary of the Natural Language User. To summarize, the lexicon as well as dictionaries have concentrated on issues that would pertain to Halliday's ideational or textual metafunctions, largely ignoring those that pertain to the interpersonal metafunction. In other words, lexicographers and semanticists have described and analyzed how speakers of a language describe people, things, events and actions that are going on in the world, and have paid no attention to how speakers control, modify, evaluate, perceive those people, things, events or actions. Therefore it is the task of the lexicographer to explore new ways, new concepts, and new methods of description and presentation.

(v) There has been a clear-cut tendency to identify the lexicon as a subcomponent of a linguistic theory with the dictionary as a lexicographical artifact. This set of beliefs and assumptions that validate this analogy are what Nowakowski (1990: 10) calls "the metaphysics of the dictionary."

However, we must ask ourselves if it is possible to identify the type of lexical component as envisaged in most linguistic theories with the dictionary, and if this widely accepted analogy is valid. As has been previously mentioned in (i), we believe that this analogy will be valid if and only if we succeed in compiling a dynamic type of lexicon that can account for all types of lexical human abilities.⁹

2. FUNCTIONAL LEXICOLOGY

Within Functional Lexicology, however, the lexicon is conceived as much more than a mere storage place for words. When we speak of the lexicon, we mean a dynamic, textually-oriented repository of information about words and their contexts. The lexicon manifests itself as (i) the mental lexicon of a speaker; (ii) as a component of a language model; (iii) as a module of systems for the processing of natural languages and (iv) as a dictionary. Although our proposal is sensitive to the four manifestations, just (ii) and (iv) will be covered in depth.

Given the fact that the lexicon is also regarded as a dictionary, the proposal of a functional model impinges both on the internal make-up of the lexicon component as envisaged in Functional Grammar as well as on the construction of a dictionary of the Natural Language User.

The following hypotheses form the basis of Functional Lexicology. Firstly, it might be noted that lexicological studies were an anachronism for many years. It has been postulated that this incongruent state of affairs was due to the lack in adequacy between lexicography and advances made in certain other branches of linguistics (cf. Martín Mingorance 1990: 227). For many years, lexicographers went about their work with little recourse to any theoretical framework. The result has been the organization of dictionaries in accordance with the principles of system and norm to the detriment of pragmatically and textually oriented dictionaries.

Secondly, linguists took the view that lexical entries could be established and formalized without making any appeal to pragmatics, glossed by Morris (1971: 6) as "the study of the relation of signs to interpreters." This type of information, stigmatised as "extralinguistic," has been the weak point in linguistics, and more particularly in lexical semantics. Therefore, linguistic theory of the time conceived the lexicon/dictionary as a set of formal rules, and surprisingly enough, the relation of a linguistic sign to the use that the speaker and hearer make of it in a given communicative context was deliberately overlooked.

Aware of the lack of theoretical basis, on the one hand, and of this neglect in the functional dimension of language, on the other, we wish to underline the validity of Martín Mingorance's (1990) concept of the lexicon

as "lying at the interface of linguistic and extralinguistic worlds, at the crossroads of phonology, morphology, syntax, semantics, stylistics, pragmatics etc." In this respect, the "functional-lexematic model" (Martín Mingorance 1984, 1985a, 1985b, 1987a, 1987b, 1987c, 1990)) entails the integration of Dik's Functional Grammar, Coseriu's Lexematics and more peripherally some basic assumptions of cognitive grammar. This is an instantiation of a more theoretical model termed Functional Lexicology.

3. METHODOLOGICAL UNDERPINNINGS OF A FUNCTIONAL LEXICOLOGICAL MODEL

Functional Lexicology, and in turn the functional-lexematic approach, is characterized by the following features:

(i) The functional-lexematic approach postulates a fully-specified lexicon / dictionary which is in itself a grammar. The word, being the central unit of our description, will be furnished with all the syntactic, morphological, semantic and pragmatic properties that it embodies. Martín Mingorance states the aims of this model:

- (a) criteria of vocabulary delimitation and selection.
- (b) types of meaning which can be considered necessary for the complete description of lexical units.
- (c) organization of the different types of meaning in a hierarchically-structured manner.
- (d) criteria to achieve the maximum degree of information with the maximum degree of economy in definitions. (1990: 228)

(ii) The term functional suggests that the lexicon should be viewed as a repository of information for the speaker and hearer during the act of communication. In this light, it does not suffice to postulate a lexicon filled with a set of formal rules that fail to explain the ultimate goal of language, communication. Alternatively, the new structure advanced by us in this paper is rooted in a pragmatic theory of verbal interaction. Consequently, pragmatics will play an all-powerful role. This means that syntax and semantics will no longer be regarded as an end in themselves, but as

instruments that maintain a diagrammatic and iconic relationship with pragmatics.

(iii) The structure of the lexicon/dictionary which we are in the process of elaborating consists of two axes, viz. the paradigmatic and the syntagmatic axis. In the paradigmatic axis lexemes are arranged onomasiologically within semantic fields following the dictates of Coseriu's Lexematics. The structuring of these semantic fields entails three important types of analysis: (1) analysis of dimensions; (2) semic analysis and (3) classemic analysis.

The problem with semantic fields in contemporary linguistic theory seems to be that though there is a general consensus of opinion that they do exist, there is somewhat less agreement as to:

- (1) their internal configuration
- (2) the basis for determining the field/domain membership of a lexical item.

We believe that these two problems can be resolved by deriving the criteria for membership within a given lexical field from the definitional structure of lexemes themselves. Using dictionaries as texts that embody our general shared knowledge about words, we have extracted the meaning of components from the definitions of the words analyzed, and used them to elaborate hierarchies of meaning within lexical fields.

According to S. C. Dik's method of *Stepwise Lexical Decomposition* (1978b), each hierarchy has one archilexeme in terms of which all the members of the field are defined. To justify the inclusion of a verb in the field in question, it is lexically decomposed, so that its definition consists of a nuclear word (or a previously defined non-nuclear one) and one or more features which differentiate it from the preceding members of the hierarchy. The nuclear word is the *definiens* which labels the lexical dimension, and this word in turn contains a *definiens* which labels the lexical field in question.

Lexical dimensions in each field are established in terms of oppositions formulated from the definitional structure of the lexical units. These oppositions characterize both the internal structure of the domain in question as well as the lexical structure of the items it contains. Lexical dimensions are thus directly derived from the definitional structure of lexical units (cf. Coseriu 1977). In this way we have obtained the criteria to assign units to a specific domain, as well as determine and classify their relevant interrelationships both on a micro- and macro-structural level.

Examples of this can be seen below in the following.

Example 1: *Lexical dimensions established for the semantic field of "feeling"*

Feeling (to become aware of sth other than sight, having a sensation)

- 1.1. To feel sth bad / cause
- 1.2. To feel sth good / cause
- 1.3. To feel sadness / cause
- 1.4. To feel happiness / cause
- 1.5. To feel aversion / cause producing:
 - 1.5.1. disgust
 - 1.5.2. anger
- 1.6. To feel attraction / cause
 - 1.6.1. To feel a loss of attraction / cause
- 1.7. To feel sth bad in your body / cause
 - 1.7.1. To cause sb to feel less physical / mental suffering / pain
- 1.8. To feel fear / anxiety (fear about bad things happening in the future) / cause
 - 1.8.1. To feel less fear / worry / anger / cause
- 1.9. To feel surprise / cause
- 1.10. To feel shame / cause
- 1.11. To feel a need to do sth or to have / get sth
- 1.12. To cause sb to feel hope / courage
- 1.13. To cause sb to lose (not to feel) hope / courage / confidence

Example 2: *Lexical structure within the subdimension of the field of "sound," "to make a sound indicating an emotion"*

"To make a sound indicating happiness"

1. **laugh:** to make *the* sound expressing happiness, amusement.
 - 1.1. **chuckle:** to laugh quietly (usu. to oneself)
 - 1.2. **giggle:** to make quiet, repeated laughing noises
 - 1.2.1. **titter:** to giggle nervously (+embarrassment)
 - 1.3. **snigger:** to laugh quietly in a secret way (+disrespectful)
 - 1.3.1. **snicker:** to snigger (higher-pitched)

- 1.4. **cackle**: to laugh loudly, unpleasantly
- 1.5. **guffaw**: to laugh loudly, heartily
- 1.6. **howl**: to laugh loudly (+ duration)
- 1.7. **roar**: to laugh loudly, noisily

In the elaboration of the syntagmatic axis we specify the complementation patterns of a given predicate. In doing so, we have advanced what we have provisionally termed "Functional Lexical Syntax."¹⁰ This is concerned with the form and meaning of the different complementation patterns of each predicate (cf. Mairal 1994). The following examples illustrate the construction of this axis:

Example 3: *Semantic field of CHANGE*

Dimension: "To become different by increasing"

deepen: to become deeper (greater in measurement from surface to bottom)

SV (Unaccusative / ergative verb)

(a) S = prototyp. a river, sea, well, etc. (Proc)

e.g. The sea deepens gradually (C.C.)

SV

(a) S = prototyp. -concrete □ negative situation (usu. negatively axiologically loaded) (Proc)

e.g. The crisis deepened (LDCE)

SV

(a) S = -concrete □ feeling (Proc)

e.g. His love for her deepened over the years (PF)

SV

(a) S = prototyp. knowledge (Proc)

e.g. Man's understanding of the universe has deepened in the last few years

SV Adjunct (PO, *into* /*to*)

(a) S = prototyp. light (Proc)

e.g. The dusk deepened into the night (C.C.)

SV

(a) S = prototyp. sound (Proc)

e.g. The engine sound deepened from a steady whine to a thunderous roar
(C.C.)

We claim that there exists an iconic diagrammatic relationship between the two axes, and it is precisely this relationship which gives rise to the derivation of cognitive conceptual schemas within the lexicon (cf. Faber and Mairal, forthcoming).

(iv) If we assume the validity of the lexicon/dictionary as a grammar, this grammar will be subjected to a number of standards of adequacy: typological, psychological and textual adequacy.

Regarding typological adequacy, the question of universals has been hotly debated from different theoretical angles in the last three decades. Some linguists have rejected¹¹ the possible universality of particular linguistic phenomena whereas others have favoured such a view.

Today, there seems to be a general tendency to furnish a linguistic theory with several standards of adequacy (cf. Chomsky 1965; Dik 1989). Among these standards, linguists include what has come to be called "typological adequacy." By "typological adequacy," Dik means that any theory of language

should be typologically adequate, i.e. that it should be capable of providing grammars for languages of any type, while at the same time accounting in a systematic way for the similarities and differences among languages. (1989: 14)

We believe that from our lexicon it will be interesting to investigate the universal potentiality of a set of lexical rules and principles, as well as the isosemic and anisosemic features between various languages. Following this spirit, Kittay and Lehrer write:

The concept of an organized lexicon provides a way of looking at the possibility of lexical universals by grouping together conceptually related words that may not have an exact translation (or at least an exact lexicalized counterpart) in another language. Whereas word-for-word translations may not be available, cross-

linguistic comparisons can be made given a common conceptual space. (1992: 14)

Thus, if we assume that both axes form a cognitive conceptual schema, we can ask ourselves if the rules and principles stipulated in our lexical underlying predications have potential cross-linguistic applicability, and also if the underlying lexical predications can be regarded as universal. The question also arises as to whether *semes* and *classemes* have universal potentiality, and if cognitive conceptual schemas have intralinguistic connections.

In our opinion, it is possible to undertake the study of lexical universals if and only if the semantic principles and features stem from the definitional structure of lexemes. More specifically, these are conceptualized as "aquellas propiedades ('sustantivas' o relacionales) de las 'cosas' designadas que corresponden, en lo mental, a rasgos funcionales (distintivos) en la lengua, es decir, *a rasgos constitutivos de un significado de lengua*" (Coseriu 1990: 14; our own emphasis).¹²

Secondly, our lexicon/dictionary should aim at psychological adequacy. Accordingly, the lexicon of a language should serve as the basis for both productive and interpretive processes. In other words, the speaker will be able to construct messages from the information stored in the lexicon and the hearer will be able to decode these messages from the lexicon too. Thus, our lexicon/dictionary will have a bottom-up orientation and a top-down perspective. This type of structure enables the lexicon/dictionary to carry information relevant not only to the structure of the clause but also to discursive scenarios.

Finally, we should like our lexicon/dictionary to have a macrotextual orientation. Departing from the view of a lexicon as a set of abstract entries, our model presents lexical units within a coherent structure. This means that the lexicon is conceptualized as an intricate network of elements interconnected by cohesive, associative, lexical and encyclopedic functions. The existence of such semantic connections has been confirmed by experiments in cognitive psychology and psycholinguistics which show that they are the reason for our ability to rapidly access different lexical items mentally (Aitchison 1987). This in itself justifies the incorporation of more extensive information regarding semantic links. According to Emmorey and Fromkin (1988), semantic relations between words must be accounted for in a viable model of the lexicon. These could most clearly be represented by

links between words in a network of cross-references within a relational mode of the lexicon.

In our lexicon/dictionary we show that it is possible to obtain criteria through which one can assign units to a specific domain, as well as determine and classify their relevant interrelationships both on a micro- and macro-structural level (Martín Mingorance 1984, 1987, 1990). It cannot be overstressed that our inventory of conceptual categories and their interrelationships have been elaborated through the analysis of language structure itself,¹³ as a reflection of our understanding of reality (cf. knowledge representation, below). By working upwards from the definitional structure of primary lexemes to structure semantic space, we have found certain basic domains such as Perception, Speech, Movement, Change, Existence, Possession, Position and Feeling which are in turn structured in terms of dimensions established through the formulation of immediate oppositions of the lexical items belonging to the domain in question. These oppositions thus characterize both the domain as well as the internal semantic structure of the lexical items it contains.

The results obtained in the paradigmatic axis are validated in the syntagmatic axis since we sustain the claim that together both form a cognitive conceptual schema. The interrelationships and connections of a given cognitive-conceptual schema with other schemas or domains are also analyzed, and finally we formalize these connections in terms of a semantic macronet.

The example below reflects how the field of cognition extends to other semantic domains:

Example 4: *SEMANTIC NET: FIELD OF COGNITION. Interrelations with other domains*

<i>Related Field</i>	<i>Examples of verbs of COGNITION with semantic connections to other fields</i>
EXISTENCE	foresee: to know sth will happen
VISUAL PERCEPTION	view: to believe that sb/sth is a certain way (looking at them in your mind)

LIGHT	enlighten: to cause sb to understand better
ACTION	plan: to think out sth (esp. a method or a way of doing sth carefully and deliberately)
FEELING	perplex: to confuse sb making them feel slightly worried because they do not understand
SPEECH	reason: to think about all the facts in a logical manner and then arrive at a final opinion or judgement
POSSESSION	swindle: to deceive sb in order to obtain sth valuable from them

(v) The lexicon is conceived as a base for knowledge representation. The central point we pursue in this section is how language users relate the content of linguistic expressions to their non-linguistic knowledge (Dik 1989: xiv). For this purpose, we claim that cognitive conceptual schemas as specified in our lexicon/dictionary seem to be good candidates for the representation of the non-perceptual part of this non-linguistic knowledge.

This feature revolves around the shaky issue of knowledge representation. Dik writes the following:

Any system which is to be able to process natural language data in a communicatively adequate way will need a vast data base containing sources of different types of knowledge. (1986: 1)

We believe that some of these sources are "linguistically motivated" (Dik 1986: 2). In his search for knowledge representation, Dik poses three questions that involve the following three areas:

1. Knowledge typology
2. Knowledge representation
3. Knowledge utilization

To these three, we should like to add a fourth, provisionally termed "knowledge establishment / residence."

We think that the physical *locus* for knowledge representation should be the lexicon. For us, the lexicon should be conceived as a repository of knowledge, or as a knowledge component, since information sources of different kinds (syntactic, semantic, pragmatic, stylistic, cultural, sociological, etc) converge in the lexicon. It is thus the complete dictionary of a language that constitutes the *Weltanschauung* of the cultural community which has created it (cf Martin Mingorance 1990: 227-228). Accordingly, in the lexicon, we will agglutinate both the linguistic and extralinguistic knowledge or, according to Dik (1986: 14-17), the "short-term" and the "long-term" knowledge.

With regard to knowledge representation, we believe that if we use language as a kind of map in order to ascertain how concepts are categorized in our brain, much of value can be learned, since semantic structure (as codified in the lexicon) can be said to reflect conceptual structure. In fact, according to Langacker (1987: 98) lexical structure is conceptual structure shaped for symbolic purposes according to the dictates of linguistic convention.

Thus, the establishment of a semantic macronet will not only reflect the internal structure of our lexicon/dictionary, but will also tell us a great deal about ourselves and the way we interact with the world. For example, as indicated in Faber (1992), the negative/negatively-valued dimensions in the lexicon are considerably more complex than those with a positive axiological value. We believe that it would be a mistake, however, to interpret this as general tendency on the part of men to dwell on what is painful, ugly, sad, or otherwise unpleasant. On the contrary, this disposition to highly lexicalize what is negative is direct confirmation of the fact that man views himself as being basically good, and expects the same of the world surrounding him. When his expectations are not confirmed, this creates a strong impact on his perceptual horizon. Then the complexity of each domain (in other words, the degree to which it is lexicalized) can be said to be directly propositional to its psychological saliency in human perception.

(vi) Priority will be given to processes rather than storage. That is, in each lexical entry we will have to account for all those active lexical operations that particular lexical items are sensitive to. Among the most important ones, one could include the following: metaphorical processes,

lexical presuppositions and cancellations of these presuppositions, lexical intensional properties, lexical iconicity, lexical logical properties and categorial error.

(vii) In the delineation of complement meanings, we have resorted to values that would fall within the province of "Logical Semantics." In this light, we would briefly like to state the weight logical values acquire in this type of Lexicon/Dictionary.

As is well-known, there has been a mistaken tendency to associate complement meanings with logic. Semantics was deeply-seated in logic and therefore meanings were described in relation to objective reality in the world at large¹⁴ through a set of sufficient and necessary conditions (e.g. *the grass is yellow* is true in the case that *the grass is yellow*). This state of affairs led to the overuse of notions such as "logical entailments," based on systems of truth-falsehood. This myopic view did not capture emotive or connotative meanings (see. Krzeszowski 1990), degrees of necessity and probability, metaphor, speech acts etc., which obviously could not enter the hermetically-sealed vacuum of Logical Semantics.

Thus, in order to account for these factors, we resorted to the more flexible character of fuzzy logic. However, in answer to the question as to how these values are to be interpreted, we think that logic should be strongly tied to natural language. More precisely, we need a type of logic that can account for the structure and principles of human reasoning. Consequently, all those logical values are supposed to be understood as human inferences on a given norm. This norm will vary from one type of evaluation to another.

In order to illustrate this point, it is useful to resort to Grice's maxims and study the implications of presenting a predication as "certain," and not "probable." To put it differently, logical values will be ordered on a scale that will simulate the degrees of inferences in human reasoning. Compare the intensional operators "certain" and "probable":

Example 5:

"Cert X_1 " blocks the occurrence of:

- * though in fact it is not the case that X
- * but it is not possible / the case that X
- * but it is not expected that X
- * but it may not be the case / * or not.

Example 6:

"Prob X_1 " blocks and allows the occurrence of:

- though in fact it is not the case that X
- * but it is not possible / the case that X
- * but it is not expected that X
- but it may not be the case / * or not.

Note that the codification of these operators should have to be compatible with all the members of a given semantic dimension as well as with the conceptual notion defining the semantic dimension.

In sum, this type of logic that simulates human reasoning is called "Functional Logic." This notion is still in a primitive state and much research in this area still needs to be done.

(viii) We claim that syntax is not semantically arbitrary. In other words, our lexicon component is furnished with a number of iconic and diagrammatic principles. As a result, we propose to show that there is a non-arbitrary correlation between function and form.

Given this state of affairs, we should like to introduce what we have provisionally termed as "Lexical Iconicity." In our model, the grammatical meaning of lexical items will be said to have an isomorphic relationship with its semantic weight.¹⁵

Lexical Iconicity will enable us to account for the fact that language is not randomly organized and that speakers of a given language make a consistent and specific use of words. Although the users of a language are perhaps not aware of the distinctions that underlie the different words they use, we sustain the claim there are motivating factors that prompt the selection of one word over another. In this respect, Bolinger states the following:

There are situations where the speaker is constrained by a grammatical rule, and there are situations where he chooses according to his meaning . . . ; but there are no situations in the system where 'it makes no difference' which way you go. . . . This is just another way of saying that every contrast a language permits to survive is relevant, some time or other. (1972: 71)

Lexical Iconicity subsumes a number of iconic principles within our lexicon/dictionary. By way of example, in each dimension we observe that the archilexeme (prototype) tends to take a greater number of complementation patterns than the rest of the members. In fact, one could claim that as long as we move down the scale (that is, from the most general to the more specific term, semantically speaking), the number of syntactic patterns decreases. We have formulated this idea in terms of the following iconic principle:

The greater the semantic coverage of a lexeme, the greater its syntactic variations.

This can also be rephrased in the following way:

The more prototypical a term is, the more prototypical effects it will show.

(ix) In structuring a semantic domain we observe that there is a nuclear meaning common to all words and there are different non-nuclear parameters of semantic differentiation such as Manner, Duration, Scope, Result, Number, Agent, Time, Length, Space, Emotional Evaluation etc. which can be said to mark the distance of the hyponym from the more general prototypical action. This structure has led us to implement pragmatic functions in the Lexicon, because in our opinion, the nuclear meaning in a dimension performs the function of *Topic* in that this presents the entity about which the predication predicates something in a given setting (cf. Dik 1978a: 130-ff).

Moreover, those parameters of semantic differentiation are meant to bring into the foreground a number of meaning components. More precisely, these parameters *focalize* the most important or salient information which is maximally significant since this is the means through which lexemes in the same field are differentiated from each other. Accordingly, these parameters perform a function close to the pragmatic function of *Focus*.¹⁶

Furthermore, Topic and Focus functions in the paradigmatic axis have an immediate correlate in the syntagmatic axis. This is in consonance with our idea that both axes form a cognitive-conceptual schema (cf. Faber and Mairal, forthcoming).

(x) Finally, we claim that our lexicon should be sensitive to the three metafunctions as proposed by Halliday (1985), namely the ideational, the interpersonal and the textual. We believe that so far the internal make-up of

the Lexicon component and also dictionaries have concentrated on issues that would pertain to Halliday's ideational metafunction (cf. above), neglecting those that pertain to the interpersonal metafunction.

It has been increasingly evident, however, that affective meaning permeated with axiological values is much more important and vital to definitional structure than has hitherto been supposed. Following this spirit Krzeszowski (1990) has pointed out the dominant function that "values" perform in the structure of concepts, and underlies that emotions are among the major factors determining information processing rather than merely modifying it. In fact he has gone so far as to affirm that *all* lexical items are assessable on an axiological scale. Although such a broad generalization may be difficult to prove, it is certainly true that many lexical items carry heavy axiological weight, and that that weight is semantically relevant.

As a way of example, we have observed in our research on the lexical semantic structure of English verbs that the opposition *good* and *bad* appears as structuring device within the semantic domains studied (cf. Faber 1992).¹⁷

Therefore, we have proposed a type of lexicon that can explain not only how speakers describe what is going on in the world, but also how speakers transmit their feelings, emotions, etc. For this reason, we suggest that the notion of predicate frame should be expanded in such a way that interpersonal factors have a place in the lexicon/dictionary of a language.

3. CONCLUSION

Although the lexicon is a central component of many linguistic theories, its present description is insufficient to account for speakers' actual lexical knowledge. Even Cognitive Linguistics has failed to come up with an adequate descriptive model.

We believe that the answer to this problem lies in a functional lexicological approach which conceives the lexicon as a dynamic, textually-oriented repository of information about words and their contexts. The lexicon is thus a grammar in itself in which pragmatics plays an important role, given that syntax and semantics are viewed as instruments that maintain a diagrammatic and iconic relationship with pragmatics.

Along the paradigmatic axis of the lexicon, lexical items are arranged onomasiologically in semantic fields, while the syntagmatic axis specifies all

the complementation patterns of a given predicate. There is a definite correlation between paradigmatic and syntagmatic structure (function and form) as can be seen in the formulation of the Lexical Iconicity Principle.

The relationship between the paradigmatic and syntagmatic axes gives rise to a series of cognitive conceptual schemas, which come together to form a semantic macronet. The lexicon is thus a base for knowledge representation, the exploration of which will undoubtedly reveal the answers to many of our questions about ourselves and how we perceive the world around us. a

NOTES

1. This paper is part of the research carried out in the project "Una base de datos léxica multifuncional y reutilizable inglés, alemán y español" directed by Professor Leocadio Martín Mingorance and funded by DGICYT, code number PB 90/0222.

2. Cf. Nowakowsky (1990: 3-4) for those factors that justify this lexical revival.

3. Generative Grammar, in its version of principles and parameters, is a good exponent of this assumption.

4. This is one of the reasons why we still believe that lexematics provides a sound basis for the delimitation and delineation of lexical issues. One of the problems in cognitive semantics is that "los prototipos no son prototipos de significados . . . ; son prototipos de "cosas," que corresponden a ámbitos culturales y de experiencia extralingüística" (Coseriu 1990: 39). As will be expounded below, lexematics is one of the building theoretical blocks in our model.

5. In this regard Coseriu affirms that "al léxico estructurado se ha aplicado [la teoría de los prototipos, PF,RM] sólo saltuariamente, como en incursiones de ensayo, y con un éxito más que dudoso . . . y desde luego no se ha aplicado a las estructuras semánticas consideradas por la semántica estructural" (1990: 28).

6. Langacker (1987, 1991) has posited the existence of certain basic domains as well, which he defines as "cognitively irreducible representational spaces or fields of conceptual potential" (Langacker 1991: 4). As specific examples of these domains, he mentions TIME, COLOR, and MOTION, but is rather vague as to how a more complete inventory can be arrived at. In contrast, our model provides a sound theoretical basis for the elaboration of such domains,

and as a result, we believe that we have managed to arrive at a more complete inventory of semantic space.

7. Felices (1991) and Krzeszowski (1990) explore how this prototype four is codified in the English language, presenting abundant exemplification.

8. Remember that one of our goals is to codify this dynamic load of meaning. In this line, we hypothesize that priority will be given to processes and not to storage (cf. above).

9. For an opposite view, see. Nowakowski (1990: 10-ff). This linguist believes that the inclusion of dynamics in the lexicon means the fall of the lexicon-dictionary analogy. This is fairly debatable, since we are convinced that we can furnish a grammatical theory (in this case FG) with a dynamic lexicon that will also prove useful for lexicographic research.

10. It is important to note that Functional Lexical Syntax implies the extension of the notion of predicate frame in such a way that the argument structure of a predicate is sensitive to the "layers" advanced within the framework of the "Layered Hypothesis" (cf. Dik 1989).

11. In this respect, L. Bloomfield (1933) and the Sapir-Whorf Hypothesis are the best exponents of this view. These linguists, deeply rooted in a radical empiricism, excluded the study of universals as methodologically untenable. Bloomfield (1933: 20) claimed that the relationship between corpus and theoretical postulates had to be direct, and thus the only possible generalizations about language are inductive. Remember that structuralists even refuted those pioneering analysis of the Prague School on distinctive features.

12. This view differs radically from the idea advanced within the framework of Generative Semantics. Remember that features ("markers," distinguishers" and "selection restrictions") were said to constitute an independent abstract metalanguage.

13. Remember that this was one of the problems that we found within the realms of cognitive semantics.

14. In connection with this, see. Lakoff and Johnson (1980: 195-220) and Lakoff (1982: 4-40) and their critique of the "myth of objectivism." In much the same vein, Jackendoff (1983: 23-27) claims that it is erroneous to propose a theory of language based on necessary and sufficient conditions since for this linguist this view is grounded in the mistaken assumption that "the information language conveys is about the real world."

15. This isomorphic position contrasts with the Chomskian version of the interface syntax/semantics. Remember that Chomsky proclaims the "autonomy of syntax." In the same light, Montague Grammar postulates the isomorphic nature of syntax and semantics. However, the major difference lies in the fact that for Montague this relationship stems from the pure formalism imposed on the theory. Conversely, we believe that isomorphism should reflect somehow the underlying iconic motivating factors that comprise the communicative contract.

16. We are planning to write an extensive article on the codification of pragmatic functions in the lexicon providing enough justificatory evidence to support our thesis.

17. In this connection, see, Felices's (1991) outstanding research of the claseme "evaluation" in the English language.

WORKS CITED

- AITCHISON, J. 1987. *Words in the Mind: An Introduction to the Mental Lexicon*. Oxford: Blackwell.
- BLOOMFIELD, L. 1933. *Language*. New York: Holt.
- BOLINGER, D. 1972. *That's That*. The Hague: Mouton.
- CHOMSKY, N. 1965. *Aspects of the theory of syntax*. Cambridge: Mass.: MIT Press.
- CHOMSKY, N. 1981a. "On the Representation of Form and Function." *Linguistic Review* 3-40.
- . 1981b. *Lectures on Government and Binding*. Dordrecht: Foris.
- . 1986a. *Knowledge of Language: Its Nature, Origin and Use*. New York: Praeger.
- . 1986b. *Barriers*. Cambridge (MA): MIT Press.
- COSERIU, E. 1977. *Principios de semántica estructural*. Madrid: Gredos.
- . 1990. "Semántica estructural y semántica "cognitiva"." In *Profesor Francisco Marsá / Jornadas de Filología*. Barcelona: Universitat de Barcelona. 1-43.
- DIK, S. C. 1978a. *Functional Grammar*. Dordrecht: Foris.
- . 1978b. *Stepwise Lexical Decomposition*. Lisse: de Ridder.
- . 1986. "Linguistically motivated knowledge representation." *Working Papers in Functional Grammar* 9. U of Amsterdam.
- . 1989. *The Theory of Functional Grammar. Part I: The Structure of the Clause*. Dordrecht: Foris.
- EMMOREY, K. and V. FROMKIN. 1988. "The mental lexicon." *Linguistics: The Cambridge Survey. Vol. III*. Ed. F. Newmeyer. Cambridge: Cambridge UP.
- FABER, P. 1991. "The Relational Structure of the Lexicon: Its application to the field of sound verbs." *Actas del XV Congreso de AEDEAN*. Logroño. 351-361.
- . 1992. "The Salience of Negativity in Semantic Domains." Paper read at the XVI Congreso de AEDEAN. Valladolid.
- . 1994. "The Semantic Architecture of the Lexicon." *Lexicographica. Series Maior* 57. Tübingen: Niemeyer.
- FABER, P. and R. MAIRAL. (forthcoming). "Semantic frames and dimensions. Towards a unified approach."
- FELICES, A. 1991. *El componente axiológico en el lenguaje: Su configuración en los adjetivos que expresan emociones y conducta en la lengua inglesa*. Servicio de Publicaciones de la Universidad de Granada.

- GIVON, T. 1989. *Mind, Code and Context: Essays in Pragmatics*. London: Erlbaum Associates.
- - -. 1990. *Syntax: A Functional-Typological Introduction. Volume II*. Amsterdam/Philadelphia: John Benjamins.
- HALLIDAY, M. A. K. 1985. *An Introduction to Functional Grammar*. London: E. Arnold.
- HARTMANN, R. R. K., ed. 1984. *LEX'eter '83 Proceedings: Papers from the International Conference on Lexicography at Exeter*. 9-12 September, 1983. Tübingen: Max Niemeyer.
- KITTAY, E. and A. LEHRER, eds. 1992. *Frames, Fields, and Contrasts: New Essays in Semantic and Lexical Organization*. Hillsdale (NJ): Erlbaum.
- JACKENDOFF, R. 1975. "Morphological and semantic regularities in the lexicon." *Language* 51: 639-671.
- - -. 1983. *Semantics and Cognition*. Cambridge (MA): MIT Press.
- - -. 1987. "The status of thematic relations in linguistic theory." *Linguistic Inquiry* 18: 369-411.
- JOHNSON, M. 1987. *The Body in the Mind*. Chicago: U of Chicago P.
- KRESZOWSKI, T. P. 1990. "The axiological aspect of idealized cognitive models." In Tomaszczyk and Lewandowska-Tomaszczyk 1990: 135-161.
- LAKOFF, G. 1982. *Categories: An Essay in Cognitive Linguistics*. Trier: LAUT.
- LAKOFF G. and M. JOHNSON. 1980. *Metaphors We Live By*. Chicago: U of Chicago P.
- LANGACKER, R. W. 1987 *Foundations of Cognitive Grammar*. Stanford: Stanford UP.
- - -. 1991 *Concept, Image and Symbol: The Cognitive Basis of Grammar*. Berlin: Mouton.
- LYONS, J. 1981. *Language, Meaning and Context*. Bungay, Suffolk: Fontana Paperbacks.
- MAIRAL, R. (Forthcoming). "Parámetros para la organización de una Sintaxis Léxica Funcional." Zaragoza, febrero 1994.
- MARTIN MINGORANCE, L. 1984. "Lexical Fields and Stepwise Lexical Decomposition in a Contrastive English-Spanish Verb Valency Dictionary." In Hartmann 1984: 226-236.
- - -. 1985a. "La semántica sintagmática del adjetivo. Parámetros para la organización de un lexicón inglés/español de valencias adjetivales." *Actas del II Congreso Nacional de la Asociación Española de Lingüística Aplicada*. Madrid: Sociedad General Española de Librería. 329-340.
- - -. 1985b. "Bases metodológicas para un estudio contrastivo del léxico derivado." *Revista Española de Lingüística Aplicada*. 1: 37-54.
- - -. 1987a. "Clasemantics in a Functional-Lexematic Grammar of English." *Actas del X Congreso de la Asociación Española de Estudios Anglo-Norteamericanos*. Zaragoza: Publicaciones de la Universidad. 377-382.

- - -. 1987b. "Semes, Semantic Classes, and Dimensions: The Lexicological and Lexicographic Perspectives." Paper read at the XIVth International Congress of Linguists. Berlin, 10-15 August 1987.
 - - -. 1987c. "Pragmatic Features in the Lexicon of a Functional Grammar." Paper read at the International Pragmatics Conference. Antwerp, 17-22 August 1987.
 - - -. 1990. "Functional Grammar and Lexematics." In Tomaszczyk and Lewandowska-Tomaszczyk 1990: 227-253.
- MORRIS, C. W. 1971. "Foundations of the Theory of Signs." 1938. In Morris, *Writings on the General Theory of Signs*. The Hague: Mouton.
- NOWANOWSKI, M. 1990. "Metaphysics of the dictionary *versus* the lexicon." In Tomaszczyk and Lewandowska-Tomaszczyk 1990: 5-19.
- PAPROTTE, W. 1990. "An Informal Introduction to Head Driven Phrase Structure Grammar (HPSG)." Unpublished paper.
- STAROSTA, S. 1988. *The Case for Lexicase. An Outline of Lexicase Grammatical Theory*. London: Pinter.
- TOMASZCZYK, J. 1984. "The Culture Bound Element in Bilingual Dictionaries." In Hartmann 1984: 289-297.
- TOMASZCZYK, J., and B. LEWANDOWSKA-TOMASZCZYK, eds. 1990. *Meaning and Lexicography*. Amsterdam: Benjamins.