

# Enhancing *FunGramKB*: Further Verbs of FEELING in English

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## ABSTRACT

The present dissertation aims at analyzing some linguistic aspects related to the lexical, semantic and syntactic behaviour of a number of verbs of FEELING in English whose lexical, grammatical and idiosyncratic properties have been entered into the FunGramKB Editor in application of study of the theoretical assumptions propounded by the Lexical-Constructional Model.

Analysis and subsequent input of data have been assessed against the background of some of the 20th-century trends in linguistics which find their expression in the first decade of this century, and the role of semantics in a world in which increasing priority is given to probabilistic, machine-learned output in lexicographic work. From this stance, the generic features contained in the FunGramKB meaning postulates and thematic frames as outlined in the Lexical-Constructional Model bring hope for a more faithful rendering of the semantic relationships established within human expression, while making provisions for a semanticist's contribution to refinement and storage of both thorough and extensive knowledge.

## Table of Contents

List of abbreviations.....	5
1. INTRODUCTION.....	6
1.1. Some Preliminary Assumptions about Linguistics and Related Disciplines.....	8
1.2. Corpus Linguistics.....	12
1.3. The naturalness of Natural Language Processing.....	13
1.4. Linguistics and Lexicography.....	16
1.5. Lexical Semantics.....	22
1.5.1. The Natural Semantic Metalanguage, an Empirical Approach to Semantic Analysis.....	23
2. CONTEXTUALIZATION OF THE PROJECT.....	28
2.1. An Overview of Role and Reference Grammar.....	28
2.2. The internal structure of the RRG lexicon component.....	29
2.3. Logical Structures.....	31
2.4. Thematic roles and Macroroles.....	32
2.5. Constraints in syntactic representation.....	35
2.6. An Overview of the Lexical-Constructional Model.....	35
2.6.1. The Architecture of the LCM.....	36
2.6.2. The LCM, an on-going research project. The Lexical Grammar Model and the creation of an Ontology.....	39
3. THE FUNCTIONAL GRAMMAR KNOWLEDGE BASE.....	42
3.1. The Architecture of FunGramKB.....	42
3.2. FunGramKB Modules.....	44
3.2.1. Conceptual information.....	44
3.2.2. Morpho-syntax.....	46
3.2.3. LCM Core Grammar.....	46
3.2.4. Miscellanea.....	48
3.2.5. Features in FunGramKB lexical entries.....	48
3.3. Conflicting viewpoints and methodological aspects.....	49
3.3.1. Terminology used in the analysis of the verbs of FEELING in English.....	49
3.3.2. The FunGramKB <i>Protocol</i> .....	55
3.4. Methodology.....	57
3.4.1. Materials.....	58
4. VERBS OF FEELING IN THE FunGramKB ONTOLOGY: Domains and subdomains under +FEEL_00.....	60
4.1. Previous work on verbs of FEELING in English (I): Faber and Mairal Usón.....	63
4.2. Previous work on verbs of FEELING in English (II): Jiménez-Briones.....	63
4.2.1. <i>The Semantics-Syntax Interface</i> .....	63
4.2.2. The lexical domain of verbs of FEELING in English.....	64
4.2.3. Organization of the lexical domain of Verbs of FEELING in English (Jiménez-Briones 2004a).....	67
4.3. Problems with the descriptions offered in the FunGramKB Editor.....	67
5. DATA INPUT: Further Verbs of FEELING in English for Lexicon Enhancement.....	70
5.1. Group 1: <b>Feeling verbs</b> analyzed in Jiménez-Briones (2004a).....	70
5.1.1. FEEL as a semantic prime.....	70
5.2. Group 2: <b>To cause somebody to feel emotional aversion</b> .....	78
5.3. Group 3: <b>To feel aversion</b> (+DISLIKE_00→+HATE_00).....	81

5.3.1.	HATE, DETEST, ABHOR, ABOMINATE, EXECRATE, and LOATHE.....	82
5.4.	Group 4: <b>To feel fear</b> and <b>To cause somebody to feel fear</b> .....	85
5.4.1.	<b>To feel fear</b> .....	85
5.4.2.	<b>To cause somebody to feel fear</b> .....	86
5.4.3.	HORRIFY, MAKE YOUR BLOOD RUN COLD, MAKE YOUR FLESH CREEP, and MAKE YOUR HAIR STAND ON END.....	88
5.5.	Group 5: <b>Judgement verbs</b> : FORGIVE and PARDON.....	89
5.6.	Group 6: <b>To feel something good</b> , <b>To feel happiness/attraction</b> , <b>To cause somebody to feel happiness/attraction</b> .....	90
5.6.1.	EXCITE and PLEASE.....	92
5.6.2.	SURPRISE.....	93
5.7.	Group 7: <b>To cause somebody to feel attraction</b> : ATTRACT and APPEAL TO.....	93
5.8.	Group 8: <b>To feel something bad</b> .....	94
5.9.	Group 9: <b>To cause somebody to feel anxiety/worry</b> .....	95
6.	CONCLUSIONS AND FUTURE WORK.....	96
7.	BIBLIOGRAPHY.....	99
8.	RESOURCES.....	104
9.	Appendix.....	106

#### LIST OF ABBREVIATIONS

AP = Adjectival Phrase

AdvP = Adverbial Phrase

C = Complement

Constr. = Construction

DG = Duma Giuglea, Eugenia (as author of examples and tentative definitions)

~ = Exchanges in dialogues (instead of quotes)

Intr. = Intransitive

LT = Lexical Template

NP = Noun Phrase

PC = Predicative Complement

PP = Prepositional Phrase

SC = Sentential complement

Trans. = Transitive

V = Verb

## Enhancing FunGramKB: Further Verbs of FEELING in English

*The limits of my language mean the limits of my world.*  
Ludwig Wittgenstein, *Tractatus Logico-Philosophicus*, 1921, 5.6

### 1. INTRODUCTION

In the last few decades, the twentieth-century widely held view that human knowledge was to be approached through the prism of the philosophy of language has undergone fundamental changes, which intensified the long-standing dispute between two lines of study: philosophy of language for its own sake versus the scientific study of ordinary talk (Barber and Stainton 2006 p. xvii). A new attitude with respect to the potential relevance of empirical findings to philosophy of language has gradually led to ‘a quiet revolution’, whose result is a relative tendency among twenty-first century scholars to stop seeing scientific methodology and actual usage as standing in opposition to one another, and, in consequence, to study language *as it is*<sup>1</sup> (*emphasis in original text*).

It is commonly held that both the ability to construct the proper meaning of words on the basis of linguistic and non-linguistic context and the life-long venture of matching symbols with the concepts they stand for are aspects derived from the faculty of language as one of the inherent (cognitive and perceptual) powers of the human

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<sup>1</sup> Id., p. xviii.

mind. Yet, a closer consideration of the overall concept that the previous statement conveys would require a leap in time to the Aristotelian ontological distinction between potentiality and actuality as facets of *dunamis* (Witt 2003 p. 9), while taking for granted all the advances made in science and humanistic studies in almost two millennia and a half, and only then beg the question of the scope of pairing symbols (i.e., words) and concepts. Indeed, the life-long venture still begins with words and their meanings, for in both philosophical and non-philosophical contexts in ordinary Greek the term *dunamis* “means ‘strength’ or ‘power’ and also ‘ability’ or ‘faculty’”<sup>2</sup>: proof that, at any one moment, enhancing one’s mental lexicon by associating ‘a chunk of phonology and a chunk of conceptual structure’ (Pinker and Jackendoff 2005 p. 212) – albeit on the basis of arbitrary association – presents the risk of missing the core meaning of a concept, or – as is usually the case – of storing only a connotation of that concept, which will add to the amount of encyclopaedic knowledge each person possesses of a given word (Schmitt 2000 p. 27).

No doubt we live in an ever-changing world in permanent need of a coherent system of knowledge (Davidson 1989 p. 307), in which it is not unimportant whether the bewilderingly complex issues shaping people’s existence are debated or abandoned. Even if some of the queries formulated since ancient times are as of today still valid, so also is Aristotle’s statement, opening *Metaphysics* (350 B.C.E. Book I, Part D): ‘All men by nature desire to know’.

Whether modern times may be said to have registered or not the expected progress in terms of *dunamis* is far beyond the scope of this paper; what is of interest, as far as the relationship ‘between words and the world, between language and reality’ (Harris 1998 p. 8) is concerned, is that, whatever mankind has been able to debate upon to date means *thoughts*: thoughts carved in stone, preserved on papyri, in books or – relatively recently – in electronic format.

A more adequate understanding of the present world and of the identity of humans living in it has increased through the work of science, which has opened new spaces of awareness anchored in verifiable human experience. Work during the twentieth century in diverse disciplines – both scientific and humanistic – converged on those very questions which, while assuming immediate relevance to life, remain open to further insight and amendment by observation (Piel 2001 p. xi).

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<sup>2</sup> Ibid.

### 1.1. Some Preliminary Assumptions about Linguistics and Related Disciplines

The profound transformations effected in Linguistics in the mid-1970s provided the linguistic community with an impressive array of themes and challenges, in themselves sources of encouragement for other disciplines as related fields of research (Jackendoff 2007 p. 254). At the core of linguistic concern, the view of language as a human cognitive capacity went hand in hand with enquiry into the biological nature and potential of the human brain, and its capacity for acquisition and storage of language and other systems of communication, thus leading to a better understanding of mental processes and a broadening of the field of vision towards further research and discovery.

By bringing together the conjoined outcomes of behaviourism, linguistics and computing, Noam Chomsky's early Generativist theory not only led to the reconceptualization of language and of the goals of Linguistics but also transformed Linguistics irreversibly into a science while redefining its relationships with all the humanistic sciences<sup>3</sup>. Yet, at the same time, it triggered inevitable polarization between viewpoints which materialized, to a greater or lesser degree, into new ways of analyzing morpho-syntax and semantics, and leading to the development of innumerable frameworks – more often than not at odds with the proposed combination of mentalism and generativism. Some of the alternative frameworks<sup>4</sup> that questioned mainstream generative grammar over the past decades have become potential candidates for the achievement of scientific goals in linguistics most likely because of their earnest attempts to break away from the initial conceptual mould<sup>5</sup>.

Helped forward by already existing work in Logic and Mathematics, and almost concomitantly with the introduction of information theory and of statistical analyses of behaviourism, Chomsky's early Generativist approach represented the primary source of inspiration for incipient Natural Language Research programmes, which hailed Distributional Linguistics as the solution to attempts at developing computational methods for natural language understanding (Brill & Mooney 1997; Jackendoff 2007).

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<sup>3</sup> Ibid.

<sup>4</sup> Among the moderate functionalist frameworks, Role and Reference Grammar (henceforth RRG) represents one of the starting points of the Lexical-Constructional Model. A brief overview of the theoretical premises of RRG will be presented in the section *Contextualization of the Project* together with considerations on some of the most relevant similarities and differences displayed by the two theoretical approaches.

<sup>5</sup> An account of Jackendoff's model and related issues is detailed on pp. 255-262 of the article cited.



On a par with the need for ‘a more adequate theory of meaning’, challenges that present-day linguistic research is called upon to meet include integration of *linguistics* with *psycholinguistics*. Indeed, assisted by the great transformations that took place in linguistic theory, psycholinguistics experienced development at a rapid pace for almost a decade, in which psychological research proved supportive of the Transformational Generative theory (Gleason and Ratner 1993 p. 34). Several theories have been devised in an attempt to capture the underlying complex relationships existing in the human mind between meaning and the way it is mapped onto linguistic form. Focus on both the lexical unit as an isolated entity and on sentence processing using *features* as their building blocks yielded what are today classical models like the classical view, prototype view and the exemplar view, which gave rise to working concepts like ‘our built-in thesaurus’ (Hirsh-Pasek, Reeves & Golinkoff 1993 p. 187). Other, more recent models (knowledge-based views such as *psychological essentialism* and *psychological contextualism – emphasis in original text*) reveal that ‘the mapping between words and meanings, and more generally between language and thoughts, while inexorably linked, is non-obvious’<sup>6</sup>. The line of argument proves that words and meanings are related but separate entities, and three phenomena are mentioned which are said to become apparent both at intra- and inter-lingual level: *imperfect mapping* (there can be many meanings for a specific word and many different words for a given meaning), *elasticity* (a word meaning can change when it is found in different contexts), and *translation*.

Research into the learning of object names demonstrated that word-meaning mappings are constrained by the actual use of words and language. This led to prominent assumptions in respect of certain meanings or mappings which, once a word is used, become more probable than others (Clark 1983; 1987 cited in Hirsh-Pasek, Reeves & Golinkoff 1993 p. 188). In turn, research into the correlations between meaning and words and meaning and syntax emphasizes that, much in the same way as language directs thought, properties of thought direct the composition of language (Fischer, Gleitman and Gleitman, in press; Grimshaw 1985; Pinker 1989 cited in Hirsh-Pasek, Reeves & Golinkoff 1993 p. 189). Finally, according to research into the type of analysis taking place in comprehension and speech production, it is probable that ‘we decompose words into morphemes in understanding and formulating language’;

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<sup>6</sup> Ibid.

likewise, we also appear to ‘represent the meaning of a concept by considering features either necessary or typical of category members’<sup>7</sup>.

The complexity of sentence processing is evinced in actual human communication, namely when striving to grasp the meaning of rapidly arriving words: by *regenerating* the original words from conceptual representation, namely, by piecing together in memory the sentence meaning and the fading traces of actual words and surface form, the propositional representation of an utterance is accomplished (Wingfield 1993 pp. 209-212). In like manner, it is worth adding that psychological research has validated the presence of memory structures which come into play for temporary storage and recall of word lists and for syntactic parsing and propositional analysis, respectively. One of the processing models proposed for sentence comprehension (Kintsch 1988; van Dijk and Kintsch 1983 cited in Wingfield 1993 p. 230) advances that linguistic input is processed in cycles on a segment-by-segment basis, namely, that in active speech perception/reading, the incoming phonological/orthographic stream is recoded into propositions, or idea units, consisting of a relational term – the predicate – plus a set of concepts to be related – the predicate’s arguments.

Since the mid-1980s, when the first corpus-based learner’s dictionary was published (Sinclair et al. 1987 cited in Hunston 2006 p. 245), vocabulary and grammar stopped being treated as separate entities and were re-conceptualized as *lexicogrammar* – a concept which showed its immediate impact on language teaching/learning (Schmitt 2000 pp. 10-14).

Systematic psychological enquiry concerning the way words connect to one another in the mind stimulated linguistic research into the organization of the mental lexicon<sup>8</sup> as the repository of words and their corresponding semantic representations. Research carried out thus far has offered sufficient evidence to support the assumption that words in the human mind do not exist in complete isolation but are endowed with some type of organization<sup>9</sup>. Consequently, knowledge of any one lexeme will trigger a process of establishing relationships between similar, sense-related words, or, likewise, between lexemes regarded as ‘the building blocks of language’ (Bird, Klein and Loper

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<sup>7</sup> Id., p. 90.

<sup>8</sup> Id., p. 38.

<sup>9</sup> Ibid.

2009 p. IX) within their particular word family – a phenomenon known and put into practice as *word associations*.

The examples above are but some of the outcomes of the fervent activity carried out in the field of psycholinguistics in the 1960s, and presumably validate the surprising similarity of Natural Language Processing (henceforth NLP) models with the actual processes taking place in the human brain. Nevertheless, by the early 1970s the ‘brief, close working relationship’ between linguistic theorists and psychologists evinced marked divergences in the pursuit of their respective goals (Gleason and Ratner 1993 p. 34) which led to re-orientation during the 1970s of psychologists towards the study of interactions between levels of linguistic analysis and situational context in language processing. The shift towards mental organization of the lexicon finally linked psycholinguistic research to a new line of evolution – neuroscience – for which linguistic theory did not offer adequate descriptions (Garnes and Bond 1976; Bransford and Franks 1972 cited in Gleason and Ratner 1993 p. 35).

On the part of research in Artificial Intelligence (henceforward AI), the rationalist approach adopted around 1960 soon proved insufficient for overcoming the linguistic knowledge-acquisition problem (Brill & Mooney 1997 pp. 13-15) and, in many ways, incompatible with the method of representing grammar and knowledge as a rule-based, hand-coded system for deducing the structure of a language. As a result, the early 1970s marked a shift in focus from traditional rationalist approaches to empirical methods, without discarding the former (Klavans and Resnik 1996 in op.cit., p. 18). Instead, corpus-based language learning has been resumed with emphasis on symbolic and statistical, data-driven methods, which enable the computer to ‘teach itself’ from online text sources on a probabilistic basis. Likewise, the concept of neural networks introduced from work in neuroscience was combined in the early 1980s with automatic induction of lexical and syntactic information from text based on corpora, making NLP a rapidly-evolving field of interest thanks to the possibilities of ‘integrating the important linguistic insights and rich representations of rationalistic approaches with the advantages of empirical methods’<sup>10</sup>.

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<sup>10</sup> Id., pp. 19-22.

## 1.2. Corpus Linguistics

The very notion of ‘natural language processing’ would not have come into being had it not been for the possibility to store electronically large collections of samples of naturally occurring language. Most modern corpora consist of complete texts, or else of large extracts from long texts, selected to represent a variety of language or a type of communication. Over the past twenty years or so it has been tested in search of answers to questions that are all too well known to linguists, among them faithfulness of the results of linguistic studies, relative frequencies of target items, or instances of the target item to be used for further investigation.

Although corpus methodologies reflect primarily their quantitative utility, corpora reveal potential for linguistics in that they enable expansion of the explanatory power of an approach (Meyer 2002 pp. 2-5; Hunston 2006 p. 234).

In addition to the texts as such, corpora contain information *about* the texts, part-of-speech tags for each word, and parsing information. Corpus software that calculates frequency of collocates before and after a node word helps reinforce observations in respect of priority of certain collocates in a given context, or where in relation to the node each collocate appears normally or with a higher frequency. Indeed, several types of comparison have hitherto been made between such aspects as languages in parallel corpora for translations of texts; register (where register is defined according to systemic theory, cf. Matthiessen 2005 cited in Hunston 2006 p. 237); speech and writing; multidimensional variation and Hallidayan probability<sup>11</sup>.

But perhaps the most profitable dimension of corpora for linguistics is *observing patterned behaviour (emphasis added)* of words in concordance lines<sup>12</sup>. Establishing a comparison between, say, *in fact* (as an example of fixed phrase) and *the fact that* can help the investigation of phrases – a topic that was resumed in lexicography with the introduction of corpus techniques (Cowie 1998 cited in Hunston 2006 p. 231). Also, specific phraseology has been shown to be closely connected to meaning in that ‘the meaning is identifiable from the immediately surrounding phraseology and often there is a correlation with a grammatical pattern (Cowie 2000 n.p.).

Even if corpus linguistics is mainly a set of methodologies rather than a theoretical approach to language, there are challenges to linguistic description worth

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<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

considering, which demonstrate not only ‘integration between linguistic theory and corpus linguistics’ (Halliday 1978; Matthiessen 2005; Tognini-Bonelli 2001; Sinclair 1991; 2003; 2004 cited in Hunston 2006 pp. 240-244) but also the importance of the notion of ‘corpus-driven’ approaches:

- (i) ‘lexis and grammar are not distinct, and grammar is not an abstract system underlying language;
- (ii) choice of any kind is heavily restricted by choice of lexis;
- (iii) meaning is not atomistic, residing in words, but prosodic, belonging to variable units of meaning and always located in texts’ (Hunston 2006 p. 243).

Whether Applied Linguistics has benefitted accordingly from the large amounts of naturally occurring language in order to solve ‘real-world problems’ is as yet less obvious than the use language teaching, translation, and lexicography have made of its potential<sup>13</sup>.

### 1.3. The naturalness of Natural Language Processing

The field of Computational Linguistics (from here CL) and its implementing domain of NLP have developed over the past three decades under the spell of robust machine-learning techniques and processing systems applied to large corpora, rapidly evolving from the status of ‘adjunct of both AI and formal linguistics into a thriving scientific discipline’ (Clark, Fox & Lappin 2010 p. 1).

Any reference book describing NLP will obviously mention the meaning assigned to ‘natural’ as well as ‘processing’ contained in the name of the concept, thus bridging the gap between language, its nature, form, use and meaning. The term ‘natural’ will then refer to *real languages* like English, Spanish, or Chinese as used by humans in communication which – unlike *artificial, programming languages* – constantly evolve through use and under the influence of complex political, social, economic and cultural trends. Doubtless, the latter undergoes a similar – albeit reversed, or, rather, mediated – evolution: supported by rules based on mathematical annotations, and through continued improvement of specialized technologies for programming languages, they aim at capturing the essence of processes of reception and production through artificial simulation of how the human mind works.

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<sup>13</sup> Id., p. 244.

Likewise, ‘semantic’ and ‘computational’ will refer to formal analysis of meaning, and approaches supporting effective implementation of natural language interpretation, respectively (Blackburn & Bos 2005 cited in Fox 2010 p. 394). Yet the vast range of semantic phenomena and the number of computationally feasible frameworks related to computational semantics are based on other philosophical and methodological premises than the ones used in linguistic semantics. The semantics of programming languages does not rely on model-theoretic interpretation; rather, it aims at implementing semantic representation capable of validating inferences through empirical (statistical and probabilistic) operations and corpus-based machine-learning techniques such as word-sense disambiguation, and identification of entailments and semantic roles<sup>14</sup>. On applying the principle of compositionality, natural language expressions are translated into a formal language described by means of a precise algorithm<sup>15</sup> in which each word is associated with some semantic representation, and each rule with a piece of information used to derive a representation for each possible category. In this way, the compositional approach ensures that the meaning of a sentence then depends upon the meanings of its parts, as analyzed by the computational grammar. But as the meaning of language is more than the ability to compose representations based on the form of sentences, ‘the pragmatics of how language is used’, and ‘the meanings of words themselves’ (Pustejovsky 1995 cited in Fox 2010 pp. 402-403) are as yet unsolved issues.

It has thus far been admitted that there are other aspects related to semantics that cannot be formalized within any computable theory such as the notions of *truth* and *answerhood* conditions. This inevitably leads to an alternative characterization of computational semantics, namely, as *a constraint* on appropriate formalizations and models (Turner 2007 cited in Fox 2010 pp. 420-422, *emphasis added*). One such constraint is applied, for example, in extraction of semantic roles for determining subcategorization and selection preferences within corpus-based and machine-learning methods. By way of example, we have selected a few instances from the hits returned by the British National Corpus<sup>16</sup> for the query {delight/V}:

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<sup>14</sup> Id., p. 395.

<sup>15</sup> Id., p. 397.

<sup>16</sup> The British National Corpus consulted for this work is BNC *web* (CQP-Edition), see Ch. 8 (Resources).

(1)	‘The Oxford dictionary is cautious in its definition: ‘to hold dear’; ‘to be fond of’; ‘to	<b>delight</b>	in’. (BNC BNF 489)
(2)	The Saatchi Gallery: Five Young British Artists Disturbs and	<b>delights</b>	in equal measure. (BNC AJV 183)
(3)	To our surprise and	<b>delight</b>	it mimicked the effect of the signalling region. (BNC ASL 881)
(4)	The coastal resort of Skegness and Mablethorpe have long been famous for the seaside	<b>delights</b>	they offer and for many, who do not know East Lindsey well, these may be the only places here that they have heard of. (BNC ECR 37)

Examples (1) to (4) above belong to a random BNC query, which returned a sum total of 544 hits for *delight* used as a verb. If we were to calculate the relative frequency of the target item without reading through the examples stored in the corpus, we could only rely on the faithfulness of (1). Example (2) is unclear as to what “delights” refers to due to misuse of punctuation signs: a possible interpretation might be “‘Five Young British Artists’ (i.e., the name of the collection exhibited) disturbs and delights”, in which case the pattern would correspond to Levin’s (1993 pp. 37-38) PRO-*arb* Object Alternation, an intransitive variant that could be paraphrased with the transitive form of the verb taking ‘one’ or ‘us’ or ‘people’ as object. In like manner, if we were to calculate the number of hits for the pattern *delight in (doing) something*, we should abstain from counting this instance in. As a member of the class of *Marvel Verbs* (Levin 1993 p. 192), *delight* expresses the stimulus object in a prepositional phrase headed by the preposition *in*. The machine is not ready to interpret *in equal measure* as an adverb phrase, the true syntactic function of the stretch of language present after the node word in the concordance.

Examples (3) and (4) do not contain the Part of Speech requested, but nouns – which have been wrongly interpreted as verbs by the machine while performing Part-of-Speech tagging – proof that it is by no means easy to predict the correspondence between syntactic categories and semantic roles without the cognitive participation of a human mind, in this case, a linguist in search of faithful linguistic data. Natural interpretation of semantic relationships within computational semantics is then still a function of considering computability itself as ‘a constraint on the theories of meaning and semantic analysis’ rather than thinking of computational semantics as ‘theories of semantics that lend themselves to implementation’ (Fox 2010 pp. 424-427).

Analogies like the ones made within the broader Computational Theory of Mind (Pinker 1997 pp. 59-148) between mental life and information-processing, or between thinking and computation invite us to regard – even, to take for granted – that a valid

definition of intelligence finds its expression through the representations devised within computer frameworks. How much Man's intervention represents in this vision which bridges 'the world of mind and matter' (Pinker and Jackendoff 2005 p. 2), we are left wondering; tellingly, what is there to secure Man's first place in his interaction with the physical world? Is his capacity to outrank AI constructs in creating possible worlds still legitimate?

#### 1.4. Linguistics and Lexicography

As the twenty-first century progresses into its second decade, it doesn't seem altogether unjustified to probe the on-going validity of a query formulated a decade ago by John A. Simpson in his *Special Memorial Lecture* at the 13<sup>th</sup> DSNM Meeting (Ann Arbor, Michigan, 2001) insofar as English lexicography is concerned. While acknowledging nineteenth- and twentieth-century achievements in dictionary-making and dictionary research, he could not but express hope that what might be seen as a linear evolution in the span of almost two centuries and a half since Samuel Johnson's first tome<sup>17</sup> is now ready to witness "a quantum leap into a new lexical world" (Simpson 2002 p. 150) and so mark a revolution in present-day development of the wider sphere of metalexicography. At the time, his line of enquiry concentrated on whether current lexicography bears a conceptual and procedural affinity with previous projects, which had materialized in the latter half of the twentieth century in comprehensive, multi-volume print editions or – contrariwise – the scenario was modified by changes that took place not only in the public demand but also in both information storage and processing and linguistics as a discipline. Indeed, the advances brought about by computational lexicography and corpus linguistics, the emergence of metalexicography as an academic discipline, and analysis of large collections of text added synergistically to the use of grammatical and syntactic codes in learner's dictionaries, readily substantiating a general tendency to re-direct dictionary making towards modern language usage – in this particular case modern English usage (Simpson 2002 p. 155; Kirkness 2006 p. 55).

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<sup>17</sup> In 1994 Raymond G. Siemens (Department of English, University of British Columbia) edited Robert Cawdrey's (1604) *Table Alphabeticall of Hard Usual English Words* and, in so doing, regained what may be considered 'the first fully developed representative of the monolingual dictionary in English', which reveals 'the roots of our language in all its eccentric glory.' (See also Cowie 1999 p. 5).



It is by no means difficult to extrapolate J. A. Simpson's reference to the evolution (and revolution) of *OED* as an outstanding, truly valuable lexicographic tool to the creative endeavour of innumerable scholars engaged in long-term projects of editing works which may not only fulfil a legitimate desire to attain excellence but also satisfy the public at large.

Acknowledging the importance of the post-World War II background against which English acquired the status of a dominant world language (Cowie 1999 cited in Tarp 2008 p. 5) is far from inviting an ethnocentric interpretation of the priority given to English as one of a small number of languages currently considered as *global*. Still, facts and figures within the larger context of its geographic spread and number of users worldwide can hardly be overlooked: storage in English of almost 80 percent of Internet information and location of 90 percent of the world's computer terminals in English-speaking countries (Romaine 2009 p. 592) are in consistence with a commercially lucrative side derived from 'exporting the English language, related products, and professional expertise'<sup>18</sup> which, in turn, acts as an incentive for maintaining existing standards and attitudes. Yet, much in the same way as all living languages change, the public demand may register future fluctuations in a world of 'instantaneous communication'<sup>19</sup>, in which the concept of globalization manifests as an on-going, irreconcilable antagonism between increasing homogeneity versus cultural and linguistic diversity.

Outstanding among the different types of dictionaries coming in a variety of languages and vocabularies, of sizes and formats for a host of uses and users, the presence of a seemingly inexhaustible range of English dictionaries – perhaps even more so the Monolingual Learner's Dictionary (from here the MLD) – reflects not only the current worldwide dominance of English as an additional language (Herbst and Popp 1999 p.ix; Cowie 1999 pp. 6-7; Cowie 2000 n.p.) and its use, at all levels of education, in first and second/foreign language teaching and learning but also the special place lexicography occupies as a mediator between linguistic research and the community at large (Kirkness 2004 p. 55, p. 61).

Initially the outcome of conjoined factors like The Vocabulary Control Movement (Schmitt 2000 pp. 15-17), extensive linguistic research, and the overseas experience on behalf of its 'founding fathers' Palmer, West, and Hornby (Cowie 2009 p. 386), the

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<sup>18</sup> Id., p. 596.

<sup>19</sup> Id., p. 606.

MLD in its *learner-friendly* presentation of data is meant to give an account of the lexicographers' constant consideration for the results of the latest research into the use learners make of dictionaries and, at the same time, provide authentic examples of the 'real' language entered from computer-stored corpora like The British National Corpus and the Bank of English.

On attempting to give a satisfactory definition of the loose concept of *dictionary user*, we readily become aware of the complex tasks lexicographers are confronted with in their manifest intentionality to satisfy the public's demands. In a broader sense, the lexicographic literature defines the term *learner's dictionary* as one compiled 'with the genuine purpose of assisting users engaged in an on-going learning process' (Tarp 2010 p. 40) – be they learners of their mother tongue, or else of a second, or a foreign language – which, in turn, influences the lexicographers' decisions with regard to the functions the product is meant to fulfil, benchmarked against potential user groups. After more than a century of contending theoretical approaches in respect of the treatment to be granted to dictionaries<sup>20</sup> and their fundamental nature and characteristics, the concept of user-orientation, or user-friendliness, has gathered momentum, finally leading to the consideration of the essence of lexicography as *a means to an end*, and of dictionaries as utility tools to be consulted – designed to satisfy punctual information needs of specific types of learners and providing 'quick and easy access to data from which the required information may be retrieved' (Bergenholtz/Gouws 2007; Nielsen 2007; Tarp 2007; Tarp, cited in Tarp 2010 p. 41).

A direct corollary of the above considerations is reflected in the sometimes unclear and ambiguous relationship between social needs and dictionaries as to the priority granted to some projects with respect to others (Tarp 2008 p. 5), and between the increasing numbers and types of dictionaries issued and their quality, respectively (Gouws 1993; 1996; 2000; Gouws /Tarp 2004; Tarp 2008, loc.cit.). By way of example, here is an illustration of how information is presented in the case of two monolingual dictionaries<sup>21</sup> edited at an interval of almost a century:

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<sup>20</sup> Ibid.

<sup>21</sup> In need of a unifying criterion, I chose a morpho-syntactic grid, and I underlined the relevant information in each column for the sake of keeping bold type and italics like in the original, so that it may be easily followed for comparison.

**Cambridge Advanced Learner's Dictionary (2011)** (from now on CIDE)

Feel  
*verb* (EXPERIENCE)

**Webster's Revised Unabridged Dictionary (1913 + 1828)** (after this ARTFL>Webster's Dictionary)

Feel (?), v. t. [imp. & p. p. Felt (?); p. pr. & vb. n. Feeling.] [AS. *flan*; akin to OS. *giflian* to perceive, D. *voelen* to feel, OHG. *fuolen*, G. *föhlen*, Icel. *fálma* to grope, and prob. to AS. *folm* palm of the hand, L. *palma*. Cf. Fumble, Palm.]

**1.** [L or T] to experience something physical or emotional  
"How are you feeling?" "Not too bad, but I've still got a slight headache."  
How would you feel about moving to a different city?  
He's still feeling a bit weak after his operation.  
→My eyes feel really sore.  
I never feel safe when I'm being driven by Richard.  
Never in her life had she felt so happy.  
→My suitcase began to feel really heavy after a while.  
I felt (= thought that I was) a complete idiot/such a fool.  
She felt his hot breath on her neck.  
[+ object + -ing verb] I could feel the sweat trickling down my back.  
By midday, we were really feeling (=suffering from) the heat.

Feel (?), v. i.  
**5.** To appear to the touch; to give a perception; to produce an impression by the nerves of sensation; -- followed by an adjective describing the kind of sensation.  
→Blind men say black **feels rough**, and white **feels smooth**. *Dryden*<sup>22</sup>.

The senses attested in CIDE are divided into (i) feel *verb* (EXPERIENCE), (ii) feel *verb* (OPINION) and (iii) feel *verb* (TOUCH); the entry for the first sense is followed by **feel like sth**, **feel the cold**, and **not feel a thing** INFORMAL, respectively. The definition selected from ARTFL is the last of five listed under **v.i.**<sup>23</sup>.

A quick look at the rendering of the CAMBRIDGE lexicographic data reveals (a) the random distribution of the examples of the use of *feel* to refer to inanimate entities (reinforced by the ubiquitous adverb *really*), intermingled with various examples of other uses – both ‘L(ink)’ and ‘T(ransitive)’; and (b) the impossibility on behalf of a learner to diagnose the meaning of the term by substitution ‘within mutually exclusive syntactic frames’ – one mechanical test on meaning with which lexicographers unreservedly agree<sup>24</sup>, and so aim at vocabulary enhancement. The resulting sentences are, by any standards, far from modern English usage (**5b**) or well-formedness (**6b**):

- (5) a. My eyes **feel really sore**.  
b. ? My eyes **experience real soreness**.

<sup>22</sup> The Works of John Dryden, Volume XV: 1976. E Earl Miner, G R Guffey (eds.), University of California Press, p. 90 – *my note*.

<sup>23</sup> Yet again, not all the five senses attested as *intransitive* in ARTFL are intransitive. Sense 4 renders cognizance: (4). To know with feeling; to be conscious; hence, to know certainly or without misgiving. Garlands...which I **feel** I am not worthy yet to wear. *Shak[espeare]*.

<sup>24</sup> Cf. Weinreich (1966) cited in Goddard and Wierzbicka 1994 p. 32.

i.e., [real] soreness is something physical or emotional happening to my eyes (viz., to *me* – through mereological substitution);

- (6) a. My suitcase began to **feel** really heavy after a while.  
b. \*My suitcase began to **experience** real heaviness after a while.

In contrast, the ARTFL entry in the right-hand column makes recourse to the user's *knowledge* of the grammatical notion of 'adjective' following the verb and 'describing the kind of sensation', and then continues with the example taken from John Dryden:

- (7) a. Blind men say black **feels** rough, and white **feels** smooth.  
b. Blind men say black **appears** rough to the touch, and white **appears** smooth to the touch.

Tellingly, the example above has been just a simple mental exercise devised out of empathy for the 'average' end user of lexicographic work; yet some questions arise as to (a) why it may have been *sufficient* for someone living in 1913 to look up the word in ARTFL and extract the essence of the verb sense by substitution and inference from a definition written in what can be called *natural language*, and (b) why it is, in this particular case, *necessary* for a contemporary user to deduce the meaning(s) illustrated in examples for which not even a systematic *grammatical and syntactic coding* (Simpson 2002 p. 155) is provided – listed, as it were, in the guise of an invitation for the dictionary user to follow suit, perhaps to memorize them, surely to apply guesswork (Kirkness 2006 p. 68).

As far as general-purpose MLDs for advanced learners are concerned, the answer is likely to be found in the radical changes introduced since the 1980s into mainstream of Modern British pedagogical lexicography<sup>25</sup>. Dictionary making parted with traditional defining practices in native-speaker dictionaries in a number of aspects, not least with 'the extent to which one can assume some degree of inference on the part of the user' (Cowie 1999 p. 9); the (advanced) learner's display of 'a relatively firm footing in the semantic structure of the L2' (Cowie, 2000 n.p.), or the introduction of only slightly modified corpus-based examples with a view to offering the intended target user "real English" samples.

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<sup>25</sup> Id., p. 69.

Apparently, a presentation like the one in the CIDE example – in turn multiplied in the guise of several online dictionaries<sup>26</sup> – puts into practice yet another innovation, namely, explanations in full sentences which would add the final touch of the concept of “user-friendliness” to what is regarded as “teacher talk”. Surely, a teacher would never explain a verb by saying *an example of feel is when you X*, where *X* is a supposed hyponym of *feel* in the context under consideration.

Alongside J.A. Simpson’s (2002), or Cowie’s (2000) hopes for the future of (English) lexicography stand opinions like R R K Hartmann’s (1992), S Tarp’s (1999; 2010), or A Kirkness’s (2006)<sup>27</sup> for, whether most of the printed dictionaries of today are published as abridged single volumes abiding by the rules of educational, or self-improvement market demands actually seems to be secondary to the emergence of an ever-growing network of tools available online, of whose power scholars are only gradually becoming aware – situation which makes collaboration between linguists, lexicographers, and metalexicographers desirable indeed (Simpson 2004 p. 191; Herbst & Popp 1999 p. ix).

The lexicographical material available for free or by subscription on the Internet, the impact that the present transition to electronic publishing will have on dictionary typology, and the ‘growing need for quick and easy access to information’ point to an identity crisis for lexicography (Tarp 2009 p. 17) whose evolution can hardly be glimpsed as of today. Be that as it may, it is hoped that the dictionary will still offer assistance to literate communities in search of answers to questions related to the form, meaning, and/or use of words in their own or in another language and, in so doing, emphasise ‘the high degree of human knowledge, insight, judgement and skill required to produce the text of a successful reference work designed to be of practical use and benefit in real-life situations’ (Kirkness 2006 pp. 55-56) – an aspect in which

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<sup>26</sup> Out of the 42 general-purpose online dictionaries included in OneLook Dictionary, four contain the same information loaded/dumped from the Cambridge Advanced Learner’s Dictionary: the Cambridge International Dictionary of Idioms, the Cambridge International Dictionary of Phrasal Verbs, and the Cambridge Academic Content Dictionary. Slight variations appear in other two such offers – again under Cambridge Dictionaries Online. In the case of Webster’s New World College Dictionary, 4th Ed., YOUR DICTIONARY. THE DICTIONARY YOU CAN UNDERSTAND, an all-comprising definition offers the four senses in the same (complex) sentence under an umbrella definition [“To feel is to be aware of someone or something touching you, to explore something by touch, using your sense of touch to guide you or experiencing emotions. (verb)], and lists the presumably teacher talk-like discourse in sentences beginning, ‘An example of *feel* is when you...(plus verb)’ Finally, in the case of the Cambridge Dictionary of American English, no definitions or examples are given for the copulative use of *feel* with an inanimate subject.

<sup>27</sup> We refer the reader to the corresponding works cited in the bibliography.

lexicographers' task has not in any way become easier with the advent of electronic corpora.

### 1.5. Lexical Semantics

In modern times, cultural analysis of new thinking as the hub of interdisciplinary methodology of social sciences has proven one of the most fruitful collaborations between scholars and analysts from different fields of enquiry, since it provides the most propitious setting for the conjoined efforts made over periods of time by philosophers, anthropologists, sociologists, psychologists, and linguists alike. At the very basis of the methodology of social sciences (Sapir 1949 p. 210),

‘a knowledge of linguistic mechanisms and historical developments is certain to become more and more important as our analysis of social behaviour becomes more refined. From this standpoint we may think of language as the symbolic guide to culture.’

From this privileged position, language may – and indeed, does – influence the evolution of human thought, while at the same time it draws on philosophical issues and inevitably leads to debate in search of new insights conducive to knowledge and progress.

Founded on the view that ‘words signify concepts rather than things’, the redefinition of meaning in early modern philosophy brought about the thesis that ‘language has a formative influence on thought’ and thus marked a shift of focus from the issue of meaning as core of nineteenth-century epistemological approach to the cognitive function of language (Meier-Oeser in Maienborn, Heusinger & Portner 2011 pp. 161-162).

It was due to the work of G W Leibniz (1646-1716) that the modern concept of dependency of thinking on the use of signs opened up the tradition of *symbolic knowledge* as the only path the (limited) human intellect may take in the process of reasoning in order to comprehend more complex concepts – thesis whose validity is based on the principle of ‘proportionality between the characters and the things, and the relations among different characters expressing the same things. This proportion or relation is the foundation of truth’<sup>28</sup>. Leibniz’s contribution to philosophy through the concept of symbolic knowledge has also represented the foundation of the modern concept of ‘universal language of science’ and led – by analogy – to its realization ‘in

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<sup>28</sup> Id., p. 167.

natural languages to a certain extent', thus exerting an important influence on the posterior development of Semiotics<sup>29</sup>.

#### 1.5.1. The Natural Semantic Metalanguage, An Empirical Approach to Semantic Analysis<sup>30</sup>

The idea of a universal 'alphabet of human thoughts' advanced by Leibnitz in the seventeenth century came to fruition in Lexical semantics through the work initiated in the 1970s by Anna Wierzbicka and Cliff Goddard, and associated linguists within the framework of Natural Semantic Metalanguage (henceforward NSM).

The on-going NSM project has been developed on empirical evidence from cross-linguistic studies as an attempt to construct a semantic metalanguage, a project motivated by such queries as whether there is a set of indefinable words shared by all the peoples of the world and – if research carried out into a number of languages chosen as 'genetically and typologically diverse' (Goddard & Wierzbicka 1994 p. 1) returns persuasive evidence – whether the construal, or re-composition of a 'universal grammar of thought'<sup>31</sup> is feasible on the basis of that set of indefinable words called semantic primitives.

The most basic assumption underpinning the approach adopted in Goddard and Wierzbicka's (1994) work pivots around what C S Pierce outlined in his definition of 'the irreducibility of the sign' (Pierce 1932 cited in Goddard & Wierzbicka 1994 p. 7):

"A sign cannot be reduced to or analysed into any combination of things which are not themselves signs; consequently, it is impossible to reduce meanings to any combinations of things which are not themselves meanings."

Seen from this stance, the commitments of NSM to 'a fully intensional conception of meaning' preclude other approaches such as truth-conditional semantics, reference-based, or denotation-based approaches to meaning, or else embodied action-schemata (cf. Johnson 1987 & Lakoff 1987 in loc.cit.).

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<sup>29</sup> Ibid.

<sup>30</sup> What follows is a summary of some of the aspects of NSM that we consider relevant for the present work. We will return to the issue further on when analysing the semantics of FEEL, mainly because Goddard's and Wierzbicka's seminal articles on emotions and thought intersect the topic of verbs of FEELING under discussion.

<sup>31</sup> Id., p. 2.

Positive assessment of the NSM program was expressed relatively shortly after publication in writings on Semiotics and in European Structural semantics, though less so in the American linguistic literature of the time. An exception is mentioned: Katz's (1987) reference to mainstream twentieth century philosophical semantics, which can be viewed as 'one attempt after the other to treat meaning as something else' (Katz 1987 cited in Goddard & Wierzbicka 1994 pp. 7-8).

As a decompositional system of meaning representation, the NSM incorporates thorough analysis of semantic primitives, or primes – a small set of words that can be thought of as a standardized subset of natural language – which have been developed and refined over almost four decades. Contemporary linguistics received the mini-lexicon, now containing 63 word-meanings, mainly with criticism in the 1990s, yet the increasing interest in and work on typological studies favoured a radical change in the general opinion about both the objectivity and usefulness of NSM, while attracting increasing interest on behalf of disciplines such as anthropology (D'Andrade 2001), cultural psychology (Shweder 2004), evolutionary psychology (Jones 1999), and semiotics (Eco 1999)<sup>32</sup>.

Preferring a metalanguage of semantic description is justified, in Goddard's view, on principled grounds. Indeed, the consistent and stable use of reductive paraphrases – which contrasts markedly with the variegated systems of notations existent in linguistics at large (Croft 2001 cited in Goddard 2008 p. 2); the proven 'meta-semantic adequacy' of natural languages for semantic representation; the possibility to formulate testable hypotheses about the lexical, grammatical, and illocutionary semantics of the real languages described are some of the most important assets of the NSM theory<sup>33</sup>. The natural terms, which constitute empirical evidence rather than a symbolic code interposed between the semantic description and the language described, are readily recognizable to the speakers of the language under consideration.

In the remaining paragraph of this subsection, we shall outline some of the most important aspects of the NSM model as it is now considered by one of its co-founders and promoters Cliff Goddard in advance of the role NSM occupies in the analysis of the verbs of FEELING to be carried out in section 5 of this dissertation.

Within the NSM theory, the phenomena of polysemy and homonymy condition identification of semantic primes across languages in that lexical units, and not whole

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<sup>32</sup> The works mentioned are cited in Goddard 2008 p. 2.

<sup>33</sup> Id., pp. 3-4.



lexemes, are matched – provided that they share a given primitive meaning. This particular feature has proved of paramount importance in finding similarities and differences between words denoting emotion concepts, considered as ‘a culture-specific system of folk psychology’ (Bruner 1990 cited in Wierzbicka 1996 p. 48).

Polysemy in exponents of semantic primes is reflected in a large amount of data gathered along the different stages of the NSM research program. These data are as important as the ones attesting the opposite phenomenon of what has been coined ‘allosemy’, namely, the existence in a given language of multiple realizations of a single prime with respect to a pattern. Such is the case with SOMETHING, WHAT and THING in English, which – in consistence with the semantics of NSM – render substitutable paraphrase impossible. Using them in semantic explication may sound somewhat ‘unnatural’, but there is no real danger of distorting the meaning (Goddard 2008 p. 7). Likewise, in explications for mental predicates, proof of a word’s polysemy comes from contrasting uses which are ‘genuinely semantically different’ – an area in which there is agreement among lexicographers as to diagnosing polysemy by contrasting ‘mutually exclusive syntactic frames or combinatorial possibilities’ (Goddard & Wierzbicka 1994 p. 32). Such is the case with FEEL, the semantic prime exercising authority over the entire field of emotions: unlike the other exponents of mental predicates THINK, KNOW, WANT, and SAY, its semantically primitive sense was readily distinguished from the other senses by observing that, in its syntactic frames *I feel good/bad*, and *I feel like this*, FEEL does not take a sentential complement<sup>34</sup>.

This and other issues, like the Strong Lexicalisation Hypothesis, have come to represent a case in point in the on-going research program, constituting as many sources of further exploration, for it is, in line with the principles stated within the approach, the only way to counter-arrest opinions which underscore the importance of the model as such (Goddard 1994 p. 13; 2008 p. 8).

The combinatorial properties of semantic primes make up what Goddard and Wierzbicka called a ‘conceptual grammar’ (Goddard & Wierzbicka 2002 pp. 41-85; Goddard 2008 p. 12), established according to the particular concept the semantic prime represents within the language under consideration. By virtue of their inherent ‘syntactic signature’, semantic primes can manifest their properties of occurrence in that substantives (i.e., nouns) combine with specifiers, and predicates may take one or

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<sup>34</sup> Id., p. 39.

several valences and appear in extended frames<sup>35</sup>. The relationships thus presented are also liable of creating clauses of the type and complexity of I KNOW THAT SOMEONE DID SOMETHING TO SOMEONE WITH SOMETHING – sufficient proof of the viability of the current model of NSM universal.

Morphology and syntax also present different formal realizations in terms of introduction of prepositional phrases, marking, or portmanteau phenomena. Also, due to language-specific variations, semantically identical expressions may differ in the number of constituent structures used in their realization – differences which do not prevent transposing the linguistic version of NSM expressed in one language into the linguistic version of another.

The 2011 list of semantic primes, in their respective English and Spanish variants, is reproduced below<sup>36</sup>:

<b>I, YOU</b> yo, tú	<b>HERE</b> aquí	<b>NOW</b> ahora	<b>HAPPEN</b> pasar	<b>DO</b> hacer	<b>SAY</b> decir	<b>NOT-DON'T</b> no	<b>CAN</b> poder	<b>BECAUSE</b> porque
<b>SOMEONE</b> alguien	<b>PLACE~ WHERE</b> sitio ~ donde	<b>TIME- WHEN</b> tiempo~ cuando	<b>WANT</b> querer	<b>FEEL</b> sentir	<b>THINK</b> pensar	<b>LIKE~WAY</b> como~ manera	<b>MAYBE</b> tal vez	<b>IF</b> si
<b>SOMETHING ~ THING</b> algo~cosa	<b>PART</b> parte	<b>KIND</b> tipo	<b>SEE</b> ver	<b>HEAR</b> oír	<b>KNOW</b> saber	<b>BEFORE</b> antes	<b>A SHORT TIME</b> poco tiempo	<b>FOR SOME TIME</b> por un tiempo
<b>PEOPLE</b> gente	<b>BODY</b> cuerpo	<b>WORDS</b> palabras	<b>BE (specific ational)</b> ser	<b>THERE IS</b> hay	<b>MOVE</b> moverse	<b>AFTER</b> después	<b>A LONG TIME</b> mucho tiempo	<b>MOMENT</b> momento
<b>THIS~IT</b> esto	<b>THE SAME</b> lo mismo	<b>OTHER~ ELSE</b> otro	<b>BE (locational)</b> estar	<b>HAVE</b> tener	<b>TOUCH</b> tocar	<b>ABOVE</b> arriba	<b>NEAR</b> cerca	<b>INSIDE</b> dentro
<b>ALL</b> todo	<b>ONE</b> uno	<b>MUCH~ MANY</b> mucho~ muchos	<b>LIVE</b> vivir	<b>DIE</b> morir	<b>MORE~ ANYMORE</b> más~ no más	<b>BELOW</b> debajo	<b>FAR</b> lejos	<b>ON ONE SIDE</b> a un lado
<b>SOME</b> algunos	<b>TWO</b> dos	<b>LITTLE~ FEW</b> poco~pocos						
<b>GOOD</b> bueno	<b>BAD</b> malo	<b>TRUE</b> verdad						
<b>BIG</b> grande	<b>SMALL</b> pequeño	<b>VERY</b> muy						

Table 1. NSM equivalence (English/Spanish)

<sup>35</sup> Terms like *valency*, or *valence*, which Goddard uses in his detailed description of the NSM model, have been borrowed from the usual set of semantic role labels. In the present work, a special subsection will be dedicated (in “Methodology”) to the senses ascribed to the terminology used.

<sup>36</sup> We have added the Spanish translation found in Goddard (2006) plus my own translation into Spanish of a few English allomorphs which are present only in the 2011 version.

From a cross-linguistic perspective, isomorphism and equivalence between the various natural semantic metalanguages are crucial properties of the mini-languages obtained, which ensure identity of conditions and acknowledge language specificity.

It is likely that anchoring cross-linguistic semantics in ‘universally lexicalised meanings’ will not only pave the way towards convergence of theoretical assumptions but will also expand efforts to find ‘the intersection of all languages’ (Goddard 2008 p. 5) and, in so doing, recover hope in a prospective consensus in linguistic endeavour.

## 2. CONTEXTUALIZATION OF THE PROJECT

### 2.1. An Overview of Role and Reference Grammar

An integral part of the foundation of FunGramKB, Role and Reference Grammar (hereafter RRG) represents one of the non-mainstream theoretical proposals of the 1990s (Van Valin 1993, 2000, 2005 cited in Mairal & Cortés 2006 p. 97) which brings in relevant theoretical approaches to aspects such as grammatical relations, the theory of linking within the framework of complex structures, and syntactic representation of noun phrases.

Considered from its underlying conception of language, RRG can be included among the functional-cognitive models of a moderate functional type in which *function*, *meaning* and *use* are the defining concepts within the declared communication-and-cognition persuasion. From this standpoint, analysis of communicative functions and grammatical structures in linguistic description has priority over syntax. In the structuralist sense, paradigmatic and syntagmatic relations do remain at the basis of the linguistic system thus conceived, but are completed by semantic and pragmatic co-occurrence and combinatory relations (Van Valin 1993 p. 2; Mairal Usón & Cortés Rodríguez 2006 p. 105). Therefore, pragmatics and semantics become the components of language that constrain syntax, which is pushed into the background. Another query at the origin of RRG as an innovative linguistic approach is reflected in the desire to include the description of a wide range of diverse languages – both configurational and non-configurational – in the proposed framework, and so capture the distinctions that their corresponding linguistic systems make – an aspect which, in all likelihood, a purely formal syntactic model fails to achieve.

In its dimension of a monostratal theory, RRG does not use an interposed set of abstract syntactic annotations between the levels of representation it consists of, namely,

(i) *the lexicon*, representing an inventory of logical structures and containing the meaning of linguistic expressions;

(ii) *a module of syntactic representation*, composed of a syntactic inventory of structures based on universally valid distinctions; and

(iii) *a parser*, containing the information structure of the utterance.

Instead, a set of rules, which account for the syntax-semantics interface, represent the linking algorithm. Mapping the syntactic and the semantic components is bidirectional,

thus enabling both the encoding and the decoding of the information involved in the communicative exchange.

## 2.2. The internal structure of the RRG lexicon component

Of special importance for the classification of linguistic expressions in RRG is the teleological view on ‘happenings’, called States of Affairs (henceforth *SoAs*) (Mairal Usón & Cortés Rodríguez 2006 p. 109), conceived of as instantiations of linguistically articulate utterances describing real or plausible worlds, and subsequently influencing the classification of verbs and other predicates in lexical classes according to their internal temporal properties (Aktionsart). RRG (Van Valin 2005 in loc.cit; Van Valin 2001 p. 3) follows Vendler’s (1967) *SoA*/Aktionsart distinctions and a modified version of Dowty’s (1979) system of formalised representation to express the different lexical classes of verbs, and also of types of words and expressions with a predicating function<sup>37</sup>. What follows is a brief review of *SoAs*, the corresponding Aktionsart type, the lexical verb classes and their defining parameters with respect to English verbs. For each of these four classes there is a causative counterpart. Thus,

(i) *Activities* are processes which continue in time ‘in a homogeneous way’ in that ‘any part of the process is of the same nature as the whole’ (Vendler 1967 p. 23). They call for periods of time which are neither unique, nor definite and denote dynamic, atelic actions (with no inherent terminal point) (Mairal Usón & Cortés Rodríguez 2006 p. 112)<sup>38</sup>:

(8) “The ball was rolling down the slope.” → causative activity: “The boy rolled the ball down the slope.”

(ii) *Accomplishments* are processes too, but differ from *Activities* in that they proceed (in time) toward a ‘terminus’, a ‘climax’, and call for unique and definite time periods (Vendler 1967 p. 23, p. 26). They express changes of state that are inherently

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<sup>37</sup> Different positions (and terminology) appear in the works consulted concerning the concepts of *SoAs* /Aktionsarten and Semantic Roles /Macroroles, respectively. We will make reference to Vendler’s (1967) time schemata and Dowty’s (1991) system of argument representation, which have turned out to be highly satisfactory from an explanatory point of view, and in consistence with the LCM (and RRG) denominations. Yet we will refer to Macroroles as such, without disregarding Dowty’s proposal of Argument Selection Principles, which have proved useful indeed for the description of the verbs analysed.

<sup>38</sup> Id., p. 26.

telic, are bounded in time and have duration (Mairal Usón & Cortés Rodríguez 2006 p. 112):

- (9) “Water freezes below 0°C.” → causative accomplishment: “We must freeze this piece of meat.”;

(iii) *Achievements* may be predicated of a subject for a given time; they do not indicate that a process is going on (in time), yet they refer to unique and definite time instants (Vendler 1967 p. 26). Therefore they express ‘instantaneous changes of state’ (Mairal Usón & Cortés Rodríguez 2006 p. 112):

- (10) “The balloon popped.” → causative achievement: “The boy popped the balloon.”

(iv) *States* may be predicated of a subject for a given time, and, like *Achievements*, are non-processes; yet, unlike *Achievements*, they call for shorter or longer periods of time ‘in an indefinite and non-unique sense’ (Vendler 1967 p. 26) in that for any of the time instants within the period it may be said that the state is true (or false). They are inherently atelic and temporally unbounded. It is to this class that the verbs of FEELING analyzed belong (BNC AAL 856):

- (11) “You could not be afraid of it, you could not possibly fear something so delicate and so insubstantial.” (BNC G10 170) → causative state: “But they also struck matches to frighten him. He caught fire and suffered fatal 80 per cent burns.”

An additional verb class (Smith 1997; Verkuyl 1993 cited in Mairal Usón & Cortés Rodríguez 2006 p. 113) has been created in order to complete Vendler’s (1967) classification, namely *Semelfactives*, described as ‘the simplest types of event, consisting only in the occurrence’; although they may involve a period of time, they are conceptualized as instantaneous – ‘single-stage events with no result or outcome’ (Smith 1997 pp. 29-30). Unlike *Achievements*, *Semelfactives* are not conducive to a result state. Even though they may occur in sequences, they also happen as single events: *Peter coughed (once)/ (for an hour)*.

There is also a further distinction between the use of *Semelfactives* with singular subjects in simple forms (e.g., *the gate banged*) or in the Progressive aspect (e.g., *the rear indicator was flashing*) and the possible interpretation of *Achievements* in the Progressive aspect: in the latter case, an iterative reading is possible only with plural subjects (e.g., *firecrackers are bursting*).

Much in the same way as there is not a one-to-one correspondence between *SoAs* and verb classes, there are cases in which the expression – or, conversely, the omission – of certain arguments in actual utterances lead to different interpretations of the verb's Aktionsart. Alternations in the case of certain activity verbs result in different interpretations:

(i) verbs of consumption and creation, when modified by definite NP objects, e.g., *he drinks a lot* versus *he drank a glass of wine* (from activity to active accomplishment);

(ii) verbs of movement, when modified by directional PPs, e.g., *the warriors rode to the fortress* versus *the warriors rode the prisoners to the fortress*<sup>39</sup>.

In order to establish the class of a verb, the results of several syntactic and semantic tests are needed which, after careful consideration, can give a faithful representation of the predicate as a whole<sup>40</sup>.

### 2.3. Logical Structures

The nucleus of the semantic representation of lexical units in the Lexicon is captured in the format of a Logical Structure seen as 'a compromise between the demands of semantics (make all the necessary distinctions relevant to meaning) and those of syntax (make syntactically relevant distinctions that permit the expression of significant generalizations)' (Van Valin & LaPolla, 1997 cited in Mairal & Cortés 2006 p. 120). Proposals of further enrichment of the lexical decompositional system are the object of studies, of which Mairal and Cortés mention Van Valin and Wilkins (1993), Mairal and Faber (2002) and Mairal and Cortés (2002). Since it is beyond the scope of this dissertation to undertake application of Logical Structures to the verbs of FEELING analysed, I will limit the considerations on this chapter to including the table of predicate types as shown in Van Valin (2005), following Mairal and Cortés (2006 p. 120):

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<sup>39</sup> The examples in italics are reproduced from Mairal & Cortés 2006 p. 112.

<sup>40</sup> The information in the *Overview of RRG* referring to testing the Aktionsart type is an integral part of the *protocol* in the FunGramKB Training subsection, namely, Guerra and Sacramento's (2011) work *Conocimiento morfosintáctico*, which has been given good use in the first stage of data selection in the FunGramKB editor.

Verb Class	Logical Structure
State	<b>predicate'</b> (x) or (x,y)
Activity	<b>do'</b> (x [ <b>predicate'</b> (x) or (x,y)
Achievement	INGR <b>predicate'</b> (x) or (x,y) <i>or</i> INGR <b>do'</b> (x, [ <b>predicate'</b> (x) or (x,y)]
Accomplishment	BECOME <b>predicate'</b> (x) or (x,y) <i>or</i> BECOME <b>do'</b> (x, [ <b>predicate'</b> (x) or (x,y)
Semelfactive	SEML <b>predicate'</b> (x) or (x,y) <i>or</i> SEML <b>do'</b> (x, [ <b>predicate'</b> (x) or (x,y)
Active accomplishment	<b>do'</b> (x, [ <b>predicate</b> <sub>1</sub> '(x,(y))] & INGR <b>predicate</b> <sub>2</sub> '(z,x) or (y)
Causative	$\alpha$ CAUSES $\beta$ where $\alpha, \beta$ are LS of any type

Table 2: Verb classes and Logical Structures in RRG

A verb's Logical Structure is constructed as a set of semantic representations that is applicable to items from any language on condition that they have the same Aktionsart characteristics. Three types of elements, as rendered in the table of Logical Structures are (i) constants (usually predicates); (ii) variables; and (iii) operators.

#### 2.4. Thematic roles and Macroroles

There are two levels of generality in RRG which are meant to capture the semantic relations between the arguments of a Logical Structure and its verb, or another predicate. The specific thematic roles refer to and are a function of the position an argument occupies in the Logical Structure of the predicate it occurs with. There are five possible argument positions in RRG's Logical Structures, corresponding to five relevant distinctions displayed in a continuum, for which the thematic relation Agent is characterized as having a very restrictive role<sup>41</sup>, since the argument which bears the function of Agent will always refer to an entity that carries out an action volitionally and/or intentionally.

Macroroles represent the other type of semantic function, 'generalizations across different argument types that have significant grammatical consequences'<sup>42</sup>. Regarded as an underlying semantic function to be placed between 'the specific thematic relations and the grammatical functions'<sup>43</sup>, Macrorole functions are to be assigned according to an Actor-Undergoer Hierarchy (henceforward AUH) in which, ideally, the Agent arguments will be the most prototypical Actors and the Undergoer arguments will be the most prototypical Patients.

<sup>41</sup> Id., p. 127.

<sup>42</sup> Id., p. 130.

<sup>43</sup> Ibid.



Since the content of the predicate and the position of the argument in Logical Structures bear on the specific semantic import of the argument, the default option will become a function of the language-specific configuration<sup>44</sup>.

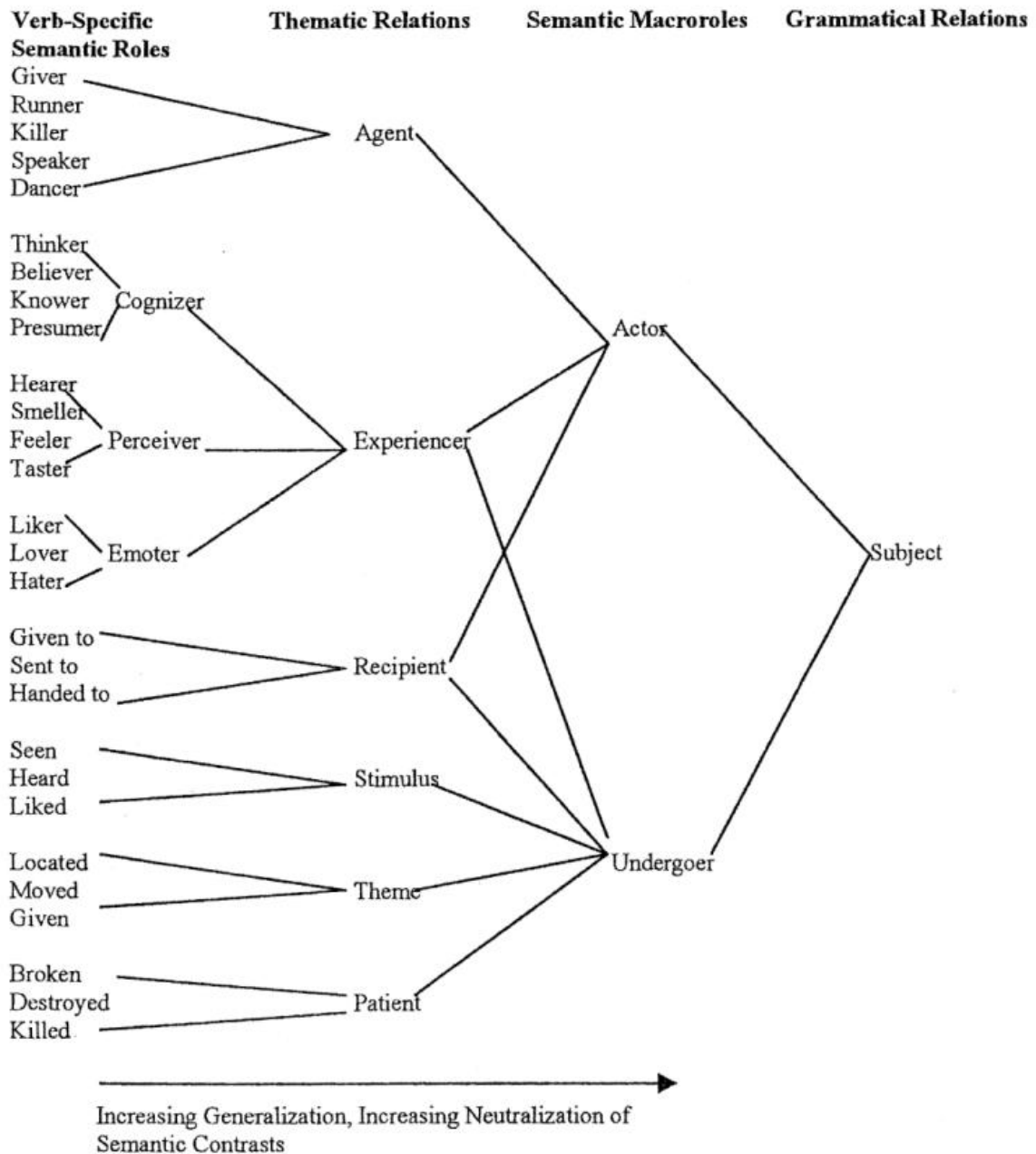


Figure 1: Continuum from verb-specific semantic roles to grammatical relations (Van Valin 2001p. 2)

The AUH for English assumes markedness of Argument realization as Macrorole from the left-most position (the ‘logical subject’) as Actor increasing towards the right-most position (the ‘logical object’) as Undergoer<sup>45</sup>. Both the thematic relations continuum and the AUH present the same five positions for logical structures. Hence

<sup>44</sup> Id., p. 131.

<sup>45</sup> Id., p. 132.

the positions of arguments that are relevant for verbs of FEELING are dependent on the content of the predicates. For example, *feel*'(x,y) is listed under **State predicates** as a two-argument predicate of internal experience for which *x* is the EXPERIENCER and *y* is the SENSATION<sup>46</sup>.

The number of Macroroles to be assigned is generally linked to the predicate's logical structure. Following Mairal Usón and Cortés Rodríguez (2006 p. 135), we will reproduce the default Macrorole assignment principles as outlined in Van Valin (2005), whose utility will be evinced in analysis of the verbs of FEELING in Part 5 of this dissertation:

- a. 'Number: the number of macroroles a verb takes is less than or equal to the number of arguments in its logical structure [LS].
  1. If a verb has two or more arguments in its LS, it will take two macroroles.
  2. If a verb has one argument in its LS, it will take one macrorole.
- b. Nature: for verbs that take one macrorole.
  1. If a verb has an activity predicate in its LS, the macrorole is actor.
  2. If a verb has no activity predicate in its LS, the macrorole is undergoer.'

Two separate concepts add to the above notions, namely *Macrorole-Transitivity* and *Syntactic-Transitivity*. Macrorole-Transitivity refers to the number of macroroles that a verb allows. Alongside this notion there is the notion of Syntactic-Transitivity, which is mentioned in reference to the syntactic representation of the clause structure. (S)-Transitivity indicates verb behaviour within the Layered Structure of the Clause, whereas (M)-Transitivity accounts for grammatical behaviour in simple sentences. Consequently, classification of verbs in *atransitive* (0 macrorole), *intransitive* (1 macrorole) and *transitive* (2 macroroles) will confer the corresponding semantic valence to each entry. Thus the intransitive sense of the verb *feel* will be assigned one macrorole for the subject-emoter as the first argument of the predicate:

- (12) *I went for my first visit to the therapist **feeling** panicky, nervous, hopeful and depressed.*  
(BNC ADG 242)

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<sup>46</sup> Adapted from figure 7: *A sample of some thematic roles in RRG* (<Van Valin & LaPolla 1997 cited in Mairal Usón & Cortés Rodríguez 2006 p. 126.

## 2.5. Constraints in syntactic representation

In consistence with the typological orientation of the theory, RRG postulates the adequacy of representing ‘comparable structures in comparable ways’ (Van Valin & LaPolla 1997 cited in Mairal Usón & Cortés Rodríguez 2006 p. 138) and proposes a theory of clause structure that should capture ‘all of the universal features’ for which there is evidence in a given language<sup>47</sup>. Therefore, the RRG clause structure, while being based on semantically universal distinctions, will be applicable to both configurational and non-configurational languages like, for example, Lakhota (as a head-marking language) and English (as a configurational and dependent-marking language) respectively. These are the reasons why RRG propounds an alternative framework for the syntactic representation of sentences called Projection Grammar, in which both universal and language-specific elements occur. Concerning universal aspects, there are two oppositions for clause structure: (i) between predicating and non-predicating elements and (ii) between elements that are arguments of the predicate (represented within the core) and those that are not (represented in the periphery). The language-specific aspects are represented by (i) a precore slot for interrogative elements and (ii) right- and left-detached positions for extra-clausal elements.

Thus the structure of the clause within the RRG theory is the basis for a syntactic inventory which stores syntactic templates. The distinctions that underlie the layered structure of the clause are universal; the syntactic templates in a syntactic inventory are language-specific. There are six templates for English, and a precore slot and a left-detached position template whose selection depends on principles derived from the universal aspects, and principles derived from language-specific elements (Mairal Usón & Cortés Rodríguez, *op.cit.*, pp. 150-155).

## 2.6. An Overview of the Lexical-Constructional Model

The Lexical-Constructional Model (from now on the LCM), whose co-founders are Professor Dr. Ricardo Mairal and Professor Dr. Ruiz de Mendoza, is the outcome of the collaboration of a number of scholars engaged in a joint research project whose main aim is the analysis, trial and assessment of linguistic accounts in the domains of

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<sup>47</sup> Ibid.

lexicography, applicability of theoretical findings to computational databases, and language pedagogy.

The underlying motivation for the project has been the belief that a better account can be provided not only for the relationship between syntax and all aspects of meaning construction but also for traditional implicature and illocutionary meaning. At the core of the model lie the notions of *lexical template* and *constructional template* as its ‘building blocks’ (Mairal Usón & Ruiz de Mendoza 2006; 2007; 2008; Ruiz de Mendoza & Mairal Usón 2008).

Another important reason for its continuous improvement is represented by the existence of differing views on the part of functional and cognitive approaches as regards the relationship between grammar and the nature of the lexicon of a language. Functional approaches propose the codification of morphosyntactic information in the form of a set of rules which link the structure to a lexical representation. Cognitive approaches – particularly Construction Grammar – claim that linking rules are not necessary, since ‘lexicon and grammar form a continuum’ (Ruiz de Mendoza & Mairal Usón 2008 p. 2).

The LCM is outlined in the following terms:

- (i) the lexical representation of a predicate and the linking construction are conceived of as lying in between projectionist approaches and construction-based models;
- (ii) in order to offer a better representation of the semantics at sentence level, a set of internal and external constraints are used to unify the information on the lexical entry with a linking construction.

#### 2.6.1. The Architecture of the LCM

The overall organization of the LCM consists of four modules, or *levels of representation*, of which level 1 contains ‘elements of syntactically relevant semantic interpretation’<sup>48</sup>. The second module (level 2) contains items with low-level inferential aspects of a pragmatic nature. The third module (level 3) is provided with elements of high-level illocutionary force, and the fourth module (level 4) considers discourse aspects, particularly phenomena of cohesion and coherence.

The semantic structure of lexical items is specified at level 1 in the form of abstract configurations of semantic representation called lexical templates. In the case of

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<sup>48</sup> Ibid.

verbs, a lexical template is the representation of the syntactically relevant content of a predicate. It represents a semantically enriched variant of *the logical structure* as proposed in RRG, and combines high-level inferences (i.e., elements with illocutionary force) of items belonging to a number of lexical classes with low-level inferential aspects of communication (specific to the item in question). In order for the lexical template to capture the lexical properties of a predicate from a cross-linguistic perspective, the semantic component is coded via universal lexical metalanguage based mainly on the inventory of semantic primes used in the NSM program (Wierzbicka 1996 cited in Mairal Usón & Ruiz de Mendoza 2006 p. 7). Some of the advantages of the NSM are the tractable descriptions of concepts, expressed in natural language and based on typologically shaped sets of primes. Yet there is an inconvenient to fully adopting the NSM when accounting for the use of concepts of an encyclopaedic character, which makes another, relatively recent approach – frame semantics – outrank NSM in its capability of representing metaphor and metonymy (cf. Van Valin's 2008 proposal).

The conceptual syntax of the metalanguage is specified in the form of a set of operators adapted from Mel'cuk's (1989) Meaning-Text Theory: semantic parameters that are not visible to syntax such as 'manner, purpose, means, social status, speaker's attitude, the urgency of a request among others' (Ruiz de Mendoza & Mairal Usón 2008 p. 7). These are hierarchically organized such that each lexical domain has 'a set of functions/operators (which are universal) that act on the superordinate term to generate more specific hyponyms and codify the most relevant domains and subdomains' (Ruiz de Mendoza and Mairal Usón 2006 p. 3).

A constructional template is a separate, abstract semantic representation of syntactically relevant meaning elements that makes use of the same metalanguage as a lexical template but which, at this first level (argumental constructions) makes use of internal variable descriptions observing verb and verb class idiosyncrasies. Transitivity in verbs is regarded as the potential of a verb or verb class to participate in a higher-level construction called *the transitive construction*, itself the basis for other, more complex constructions like the ditransitive, the resultative, and the caused-motion constructions.

Lexical templates and constructional templates share a number of features which become 'preliminary, enabling conditions for the incorporation of lexical structures' (Ruiz de Mendoza & Mairal Usón 2008 p. 3). A unification process governed by

constructional constraints on lexical items leads to absorption of lexical templates into the constructions.

Semantic interpretation is arrived at through a unification process between a lexical template and a constructional template. Two types of processes are at play: *elaboration* and subcategorical *conversion*, motivated at a higher level of conceptualization by metonymy and metaphor. *Elaboration* ensures the matching between constructional and lexical meaning in that it reflects the constituents in the argument structure of the predicate without having to make recourse to its semantics. Such is the case with e.g., the middle construction, the causative-inchoative, or the characteristic property of instrument alternation. *Subcategorical conversion* refers to morphosyntactic patterns which are not strictly derivable from the semantics of the predicate (e.g., the Caused Motion construction, the Resultative construction, or the Reaction-object construction)<sup>49</sup>.

Both the internal and the external constraints are then licensing factors for unification processes. While internal constraints include information about the status of elements which appear in both the lexical template and the constructional template, external constraints explain grammatical processes subject to metaphorical and metonymic operations. Thus meaning implications are conveyed through inference and at the same time the predictive power of the model presents a higher degree of regularity and an enhanced rendering of metaphor and metonymy.

Mention is made of external constraints such as:

- (i) the *Extended Invariance Principle* (cf. Ruiz de Mendoza 1998; Ruiz de Mendoza & Mairal 2006), a version of Lakoff's (1993) invariance principle which has been found pertinent for both metaphor and metonymy;
- (ii) *Correlation*, the principle according to which the implicational structure in a metaphor keeps the unity between the source and the target elements;
- (iii) *Mapping Enforcement*, which guarantees preservation of items in a mapping system provided that a corresponding source or target may be found.

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<sup>49</sup> Id., pp. 6-7.

## 2.6.2. The LCM, an on-going research project. The Lexical Grammar Model and the creation of an Ontology

As a relatively recent linguistic approach, the LCM is a complex model which combines ideas and material from a variety of compatible sources, ‘with antecedents in a whole range of functional, cognitivist, and constructionist approaches’ (Butler 2009 p. 1). “Compatibility of sources” is to be understood mainly as success in synthesising the two major strands of linguistics, namely functional and cognitive, into a model that has been constantly growing since the late 1990s.

Essential mechanisms for clause structure composition had already granted the lexicon a central place in Functional Grammar (henceforth FG) (Dik 1997 cited in Butler 2009 p. 4), which in turn represented the basis for systematic stepwise decomposition of lexemes in lexical fields within the Functional Lexematic Model (from here FLM) (Martín Mingorance 1990; Jiménez-Briones 2004a; Faber & Mairal Usón 1997). It was within the framework of FLM that the meaning definitions of predicates acquired the form of ‘a more nuanced predicate frame which indicates various components of the meaning’ (Butler 2009 p. 6) and served as a preliminary for Faber and Mairal Usón’s (1999) *Constructing a lexicon of English verbs*.

Unlike other types of conceptual organization, the FLM lexical architecture ‘is determined by working upward from words, not downwards from concepts’ (Faber & Mairal Usón 1999 p. 84). By analysing similarities in the complementation patterns and argument structure of the members of lexical hierarchies, regularities of complementation patterns emerge which ‘validate the membership of lexical items in a specific subdomain’ and prove that ‘semantic structure and syntactic representation are intertwined’<sup>50</sup>. Thus the FG predicate frames, endowed with notational devices which formalize arguments, semantic roles, selection restrictions and meaning definitions, were the basis for initial paradigmatic descriptions of lexical domains.

The introduction of a third axis – the cognitive axis – led to the creation of *predicate schemata* and of *semantic macronets*<sup>51</sup>, which conferred solid semantic and syntactic motivation for the new version, in which *categorization* became ‘the major psychological principle governing lexical structure’ (Faber & Mairal Usón 1997 p. 121). Thus, the semantic domains of a language – ‘in themselves lexical micro-grammars in

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<sup>50</sup> Id., p. 104.

<sup>51</sup> Id., pp. 213-228.

which pragmatic, semantic and syntactic regularities converge’ – display information codified in the paradigmatic and the syntagmatic axes. It is this type of information which gave rise to the predicate schema, which emerged from the observation that there is a proportional relationship between the meaning components that the hierarchy of a lexical domain inherits and the syntactic variations of lexical units<sup>52</sup>: ‘the more prototypical a term is, the more prototypical effects it will show’ (The *Principle of Lexical Iconicity*).

Predicate schemata are (i) *modular*, that is, organized hierarchically within lexical domains; (ii) *linguistic*, i.e., represented by ‘units obtained through semantic structure’ which ‘do not belong to any type of metalanguage’; and (iii) *dynamic*, viz., they may ‘experiment mutations and establish connections with other schemata, a process which is the basis of metaphor and metonymy’<sup>53</sup>.

All the FLM features succinctly reviewed in the previous paragraphs represent novel assumptions which shaped what was to become the Lexical Grammar Model (henceforth the LGM) – in its more recent version, the present LCM. Firstly, lexical templates are based on the firm belief that ‘all syntactic predictions originate in the lexicon’ (Jiménez-Briones 2004a p. 240), and therefore lexical representations include not only aspects of meaning of grammatical relevance but also ‘powerful semantic information’ which redirected the theoretical and methodological principles towards modelling lexical templates into an Ontology<sup>54</sup>. At that stage of development, ‘the Dikkian principle of stepwise lexical decomposition’ was abandoned ‘in favour of the use of abstract predicates’ (Butler 2009 p. 10): lexical templates as adaptations of the RRG lexical structures were now situated at the core of the model, and stipulated by lexical template modelling principles<sup>55</sup>. This means that several important changes emerge in the LGM on the basis of the systematic syntactic behaviour displayed by the predicates belonging to the same lexical class, or domain (Jiménez-Briones 2004a pp. 241-242):

- (i) both the primary and the derived lexicon components are characterized by semantic regularities such that the new model postulates the Principle of Lexical Iconicity and propounds the implementation of an Ontology;

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<sup>52</sup> Id., p. 122.

<sup>53</sup> Ibid.

<sup>54</sup> Id., pp. 240-241.

<sup>55</sup> Id., pp. 16-19.



- (ii) it is also the LGM which postulates the notion of Lexical Template as the theoretical and methodological construct capable of displaying the semantic and syntactic information the members of a class have in common;
- (iii) it proposes the steps of a first linking stage (the *Lexical Template Modelling Process*) within the lexicon component, and an inventory of Lexical Templates;
- (iv) finally, it devises a *Syntacticon* – a set of syntactic core templates equivalent to the lexical templates within the lexicon module with which linking is to be carried out through the RRG semantics-syntax algorithm.

Further enrichment of the model with the adaptations of NSM primes and of Meaning-Text Theory parameters mentioned in 2.6.1. has led to what is currently called the LCM, the theoretical background of the FunGramKB Ontology.

There are still ‘a number of questions to be answered, and challenges to be faced’ (Butler 2009 p. 27), of which mention is made of:

- (i) the permanence of the bi-directional RRG linking mechanism, and absence of a suggested specification of syntactic improvement with a supposed underestimation of the extent to which the RRG linking algorithm ‘is already a constructionist model’<sup>56</sup>;
- (ii) the need for clarification with respect to the treatment of the lexicon-grammar continuum, and the extent to which the notion, underlying other approaches in similar ways, represents within the LCM model the declared synthesis between projectionist and constructionist viewpoints;
- (iii) a generalized use of Corpus examples and deeper analysis of Corpus material, which, when taken as a starting point in investigation, has proved to lead linguists to quite different descriptions of their field of enquiry;
- (iv) revision and inclusion of previous work by Mairal Usón, and Ruiz de Mendoza and his colleagues on the as yet programmatic levels 2, 3 and 4 of the model.

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<sup>56</sup> Id., p. 28.

### 3. THE FUNCTIONAL GRAMMAR KNOWLEDGE BASE

#### 3.1. The Architecture of FunGramKB

Once the degree of granularity which characterizes the LCM as a meaning construction model was deemed apt for the development of NLP applications, the conditions were ripe for the model to become part of FunGramKB as a multi-functional and multilingual knowledge base for NLP systems, useful for such diverse tasks as information extraction and retrieval, machine translation or dialogue-based systems. Previous work by Periñán-Pascual and Arcas-Túnez (2004, 2005, 2006, 2007, 2008 cited in Mairal Usón & Periñán-Pascual 2009 pp. 217-218) has been updated and developed into what is, to date, the FunGramKB Suite – an online environment for the semi-automatic construction of a lexical-conceptual knowledge base.

FunGramKB consists of:

- (a) THE LEXICAL LEVEL for the storage of linguistic knowledge containing (i) *the Lexicon*, in which the LCM and FunGramKB share an adapted version of the linking algorithm of RRG; (ii) *the Morphicon*, a module for handling cases of inflectional morphology, and (iii) *the Grammaticon*, an inventory of constructions and their corresponding templates of the four levels of meaning proposed in the LCM;
- (b) THE CONCEPTUAL LEVEL, which contains non-linguistic knowledge in its three subcomponents: (i) *the Ontology*, which presents hierarchically ‘a catalogue of all the concepts that a person has in mind when talking about everyday situations’<sup>57</sup>, and in which semantic knowledge is stored in the form of meaning postulates; (ii) *the Cognicon*, where procedural knowledge is stored through *script-like schemata* (cognitive macrostructures); and (iii) *the Onomasticon*, where instances of entities and events are stored through *snapshots* and *stories*.

The two-tier design confers certain properties to the application, since the conceptual module is shared by all the languages involved in the knowledge base whereas the lexical modules for each language are language-dependent and are meant to be developed separately from one another. FunGramKB lexica are built in through ontological modelling of their corresponding concepts. Introducing a concept like e.g., +PANIC\_00, together with its *meaning postulate* and *thematic frame* will enable linguists to enter information related to the lexical unit under analysis.

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<sup>57</sup> Id., pp. 219-220.

It follows that the Ontology becomes the conceptual hub of the model which, from the theoretical background of the LCM, deals with the lexical-conceptual linkage. Conceived of as ‘a universal-concept taxonomy’<sup>58</sup>, the Ontology attains lexical-conceptual linkage through *conceptual logical structures* (CLS) by adopting ‘a universal approach to the relation between language and conceptualization’ (Jackendoff 1983, 1990 in op.cit., p. 221). In turn, designing the Ontology, which implies conceptual modelling, is a task to be carried out by the knowledge engineer(s) at work on conceptual elements and semantic properties.

The three different conceptual levels of the FunGramKB Ontology display a metaconceptual model designed for ‘the integration and exchange of information with other ontologies, [thus] providing standardization and uniformity’ (Mairal Usón & Perriñán-Pascual 2009 p. 222): (i) *metaconcepts*, (ii) *basic concepts*, and (iii) *terminal concepts*. Three sub-ontologies gather up the forty-two metaconcepts identified under #ENTITY for nouns, #EVENT for verbs, and #QUALITY for adjectives, respectively.

The defining units for the construction of meaning postulates – the *basic concepts*, which also take part in selectional preferences in thematic frames – have been identified on the basis of the *Longman Dictionary of Contemporary English* (Procter, 1978) (LDOCE) and the *Diccionario para la Enseñanza de la Lengua Española* (VOX-Universidad de Alcalá de Henares, 1995) and have led to the conceptual mapping of a unified inventory of 3,000 basic concepts. Finally, the nature and number of *terminal concepts* have been decided upon according to the potential they display on participating in meaning postulates.

Thus the ‘building blocks’ used in formal description of meaning – the *thematic frame* and the *meaning postulate* – become in FunGramKB ‘language-independent semantic knowledge representations’ (Mairal Usón & Perriñán-Pascual 2009 loc. cit.). Thematic frames are constructed in such a way that

‘every event in the ontology is assigned one single thematic frame, i.e., a conceptual construct which states the number and type of participants involved in the prototypical cognitive situation portrayed by the event.’<sup>59</sup>

Consequently, *theme* acquires a central role in these conceptual constructs, in relation to which any other participants will be defined, and simultaneously marks another point of departure from the RRG organization of the lexicon component, since

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<sup>58</sup> Id., p. 221.

<sup>59</sup> Id., p. 223.

it merges the layers of *verb-specific semantic roles* and *thematic relations* into one ‘while preserving the notion of Macrorole intact.’<sup>60</sup>

Unlike other NLP systems, which adopt a relational approach in the representation of lexical meanings, FunGramKB uses meaning postulates, sets of one or more logically connected predications that carry the generic features of concepts<sup>61</sup>. With respect to *the granularity of the semantic metalanguage used for meaning description*, unlike lexicographical definitions found in dictionaries, FunGramKB has opted for merging different senses into one single meaning postulate<sup>62</sup> on the grounds that polysemous lexical units would lead to not only a combinatory explosion but also to difficulties in lexical disambiguation. The result will be a set of meaning postulates which are ‘coarse-grained in comparison with standard lexicography’ yet ‘fine-grained in comparison with the axioms in other formal ontologies’<sup>63</sup>.

## 3.2. FunGramKB Modules

### 3.2.1. Conceptual information

As has been said (see 3.1. above), the FunGramKB conceptual module stores standardized and uniform information to be shared with other ontologies. Its makeup is the fruit of improvements applied to earlier versions, and observant of ‘solid ontological commitments’ (Periñán Pascual & Arcas-Túnez 2010 cited in Jiménez-Briones, Luzondo and Pérez 2011 p. 2) which constitute the all-comprising *protocol* for all those engaged in modelling the knowledge base. The taxonomy operating within and between the three sub-ontologies is realized through *subsumption* and *cueing* – processes that take place at all levels of meaning derivation (Mairal Usón & Ruiz de Mendoza 2006 pp. 17-35). Due to the conceptualist approach that characterizes the FunGramKB Ontology, the lexical units in the hierarchy are considered ‘atoms of grammar’ (Periñán Pascual & Arcas-Túnez 2011 p. 4) which contain semantic knowledge in the form of meaning postulates.

The frame displaying the conceptual information is divided into five rubrics, each of which renders information with respect to (i) the LEXICAL UNIT; (ii) the

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<sup>60</sup> Id., see footnote 14 on p. 238.

<sup>61</sup> See Periñán-Pascual 2004, 2007 in op.cit., p. 224.

<sup>62</sup> Id., p. 225.

<sup>63</sup> Ibid.

CONCEPT; (iii) the THEMATIC FRAME; (iv) the MEANING POSTULATE; and (v) a DESCRIPTION, whose modelling is the computational engineers' task.

As far as rubric (v) DESCRIPTION is concerned, it is relevant to mention here that the top-down completion of concepts is reflected in the FunGramKB Editor in that the same definition is inherited by all the verbs belonging to a class. Thus, the information in the rubric DESCRIPTION for the concept +ANNOY\_00 appears uniformly allocated to all of the subconcepts existent in the lexical hierarchy, i.e., for the headwords **annoy**, **bother**, **irritate**, and **rile** (Index: 02):

**Conceptual Information:**

LEXICAL UNIT:	annoy
CONCEPT:	+ANNOY_00
THEMATIC FRAME:	(x1)Agent(x2:+HUMAN_00 ^ +ANIMAL_00)Theme
MEANING POSTULATE:	+(e1: +FEEL_00(x1)Agent (x2)Theme (x3:+ANGRY_00)Attribute)
DESCRIPTION:	Cause annoyance in; disturb, esp. by minor irritations: "Mosquitoes buzzing in my ear really bothers (sic!) me"; "It irritates me that she never closes the door after she leaves."

Since factorisation of meaning components produces definitions characterized by *the nuclear meaning plus differentia* for each member of a lexical hierarchy, the content of the definition is especially important for a linguist contributing linguistic information to the lexical-grammatical module from the periphery (Periñán Pascual & Arcas-Túnez 2011 pp. 10-11). Algorithmic configurations fall outside the scope of this work, yet this is not to say that investigative methodology eschewed enquiry into training materials, which have been indispensable in undertaking the task. As far as a lexical unit's description is concerned, it meant observing the steps of the *protocol* for entering data into the FunGramKB lexicon, which specifies (in reference to verbs – the example chosen being **run**) that all the data to be entered into the Editor must refer to the particular sense the description evinces (Guerra & Sacramento 2011 p. 4):

“En este caso estaríamos trabajando con el predicado verbal *run* con el sentido de ‘to use and control a machine [or equipment]’, es decir, ‘poner en marcha, encender’; por lo tanto, todos los datos que introduzcamos a continuación deben referirse a este sentido de la palabra obviando a los otros dos.”

As shall be explained in 4.2.4., problems arose precisely because of the descriptions offered for the verbs presumably belonging to the same semantic dimension: to our understanding, the definition stored in the Ontology for each concept or subconcept necessarily becomes the definition stored in the Conceptual information framework, and it is this particular definition that guides the linguist, since it represents

the sense to be analysed. A group of verbs that are co-hyponyms must necessarily reflect at least one meaning component which they share with their archilexeme or hypernym in their corresponding definition. Therefore, in all the unclear cases, a choice had to be made between (a) dealing with the sense expressed by the definition and (b) tackling class membership as proposed in Jiménez-Briones's (2004a) classification of the verbs of FEELING in English.

### 3.2.2. Morpho-Syntax

Regarding the FunGramKB lexical-grammatical section, a series of features formatted in XML are used so that the lexical entries may be saved in the form of *feature-value data structures* and, concomitantly, information may be accessed easily. The value of the lexical unit is a *lemma* rendered through its orthographic representation, but encoding 'a collection of features linked to a particular sense of the lexical unit' (Mairal Usón & Perriñán-Pascual 2009 p. 227).

### 3.2.3. LCM Core Grammar

The three subsections of the LCM Core Grammar render the output of the Lexical-Constructional Model in terms of level 1 of representation (see 2.6.1.), in relation to which *AktionsArten* and *Macroroles* have been reviewed in Chapter 2 of this dissertation. The third subsection – *Constructions* – captures aspects related to Levin's (1993) *Verb Classes and Alternations*.

Theoretical and methodological compatibility of Rappaport and Levin's (1998) approach with the Lexical-Constructional Model is mentioned in Jiménez-Briones (2004a pp. 170-176)<sup>64</sup>, but reference to the interaction between a verb's meaning and general principles of grammar – namely, the fact that 'various aspects of the syntactic behaviour of verbs are tied to their meaning' (Levin 1993 p. 5) – have long been acknowledged in previous work for earlier versions of the LCM (Faber & Mairal Usón 1999 p. 25), albeit in a somewhat different wording<sup>65</sup>. Yet, little is mentioned in more

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<sup>64</sup> This and other highlights of Jiménez-Briones's (2004a) work will be reviewed in section 4.2.

<sup>65</sup> Our statement refers to the specifications made regarding the definition of a predicate schema, 'By *linguistic (emphasis in original text)*, we mean that the units which embody a predicate schema are obtained through semantic structure. As they are linguistic items, they do not belong to any type of metalanguage...This contrasts with other approaches such as..., the MIT Lexicon Project's Lexical Conceptual Structures...'

recent FunGramKB tutorials of these constructions, presumably because they have been embedded in the LCM conceptual logical structures (Mairal Usón & Perinián-Pascual 2009 p. 221):

‘In our case, the relation between language structures and conceptual constructs is mediated by what we have called *conceptual logical structures*, where phenomena such as diathetic alternations are directly reflected.’

As far as terminology is concerned, it is worth pointing out that “alternations” and “constructions” are used differently in Levin (1993) and in FunGramKB. Alternations – namely, *diathesis alternations* – are characteristics of certain verbs to present variations in the expression of arguments, ‘sometimes accompanied by changes in meaning’ (Levin 1993 p. 2), whereas constructions ‘involve the argument-taking properties of verbs’ in that some of them display ‘ability to take particular kinds of complements’, or – in the case of others – special interpretations are required which are ‘associated with certain choices of arguments’.<sup>66</sup> Both The FunGramKB *Protocol* and the Suite use the term ‘constructions’, and so the distinction between “alternations” (with or without a change in meaning) and “constructions” (ranging from “cognate object” to “resultative”) is disabled. Notwithstanding, Levin’s (1993) work represents an indispensable reference tool for the linguist keying information in the Editor, for her examples are as useful as the tables attached in the form of appendices to Guerra García and Sacramento Lechado’s (2011) *Protocol*, provided that modifications are observed.<sup>67</sup> Apart from the invaluable lists of verbs grouped according to their patterns of behaviour, *Verb Classes and Alternations* makes a point about the lexical knowledge a speaker has of a language, which goes beyond the meaning of individual verbs: it simultaneously involves knowledge of the meaning components that determine the syntactic behaviour of verbs and of ‘the general principles that determine behaviour from verb meaning’ (Levin 1993 p. 11).

In addition to comments on the behaviour of the verbs belonging to each class, emphasis is placed on one particular property which can test a verb’s class membership at any one time, namely, the fact that verbs belonging to the same class are substitutable in the same set of syntactic frames ‘though not necessarily in exactly the same contexts’<sup>68</sup>. In other words, if verbs belonging to a class are to be considered “syntactic

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<sup>66</sup> Id., p. 95.

<sup>67</sup> The names of the FunGramKB constructions do not always coincide with the ones in Levin’s (1993) work, see footnote 7 on p. 11 in Guerra García and Sacramento Lechado (2011).

<sup>68</sup> Id., p. 22.

‘synonyms’”<sup>69</sup>, this is not to say that their sharing the same syntactic behaviour is a sufficient condition for them to be considered semantically substitutable: in order for this to happen, the range of meaning components displayed through a given concept must simultaneously meet the requirements of the syntactic frame in which it is put to use.

#### 3.2.4. Miscellanea

The features <dialect> and <style> are granted relevance in FunGramKB lexica with respect to other knowledge bases. The importance of the latter lies in its capacity to evoke meaning ‘as a potential source of variation between cognitive synonyms’ (Mairal Usón & Periñán-Pascual 2009 p. 236).

Alongside dialect and style, mention must be made of: (i) the feature <domain>, which consists of an inventory of forty-eight basic subdomains selected from a language-independent hierarchy (WordNet Domains); (ii) the source of the examples given in FunGramKB, the *British National Corpus* (Davies) and the *Corpus de Referencia del Español Actual* (Real Academia Española); and (iii) the feature <translation>, which transfers default translation equivalents which best serve the lexical units under analysis.

#### 3.2.5. Features in FunGramKB lexical entries

The feature-value data we have selected for the corresponding basic concepts in the FunGramKB editor will be dealt with in Part 5 of this paper, and will refer to the concepts existent in the Ontology under #EVENT → #PSYCHOLOGICAL → #EMOTION → +FEEL\_00 and all its hyponyms, with the exception of +EXCITE\_00 and +SURPRISE\_00, which have not yet received conceptual modelling. Each entry will be charted by observing the rubrics in the following table, adapted from the sample displayed in the FunGramKB lexica *search word* box for the lexical unit **rile**:

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<sup>69</sup> Ibid.



Headword/ Part of speech / Index	rile / v / 02
Concept	+ANNOY_00
Thematic frame	(x1)Agent(x2:+HUMAN_00 ^ +ANIMAL_00)Theme
Meaning postulate	+(e1: +FEEL_00(x1)Agent (x2)Theme (x3:+ANGRY_00)Attribute)
Description	cause annoyance in; disturb, esp. by minor irritations: “Mosquitoes buzzing in my ear really bothers me” [sic!]; “It irritates me that she never closes the door after she leaves.”
Paradigm	regular
Constraints on voice or tense	no
Reflexivity	never
Reciprocity	never
Aktionsart	STATE
Lexical template: variables	X – Agent, Y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	Possessor subject construction (transitive)
Dialect	Standard
Usage (Style)	Informal
Topic (Domain)	FACTOTUM
Definition (Jiménez-Briones 2008 p. 4)	‘to anger somebody very much’
BNC Examples: (Jiménez-Briones, in the FunGramKB Editor)	1. Whitlock was the master of patience; nothing ever seemed to rile him, which was just as well considering the simmering tension between Sabrina and Graham. 2. How could she feel such deep emotions for a man who riled her so easily? It was anger she felt.
Translation	sacar de quicio

Table 3. Feature values for verbs of FEELING in English (adapted from the FunGramKB Editor).

The shaded rubrics will not be reproduced, as the information they contain – albeit important for the task to be carried out – is far beyond the scope of this dissertation. Likewise, some of the rubrics into which information has been entered (viz., Headword, Part of Speech, and Index) have been re-grouped in order to save space.

### 3.3. Conflicting viewpoints and methodological aspects.

#### 3.3.1. Terminology used in the analysis of verbs of FEELING in English.

The aspects submitted to consideration thus far are directly or indirectly related to the task of enhancing FunGram KB with further verbs of FEELING in English – the declared aim of this dissertation. They all acknowledge not only the complexity of the Lexical-Constructional Model and FunGramKB but also the variety of approaches implicated in their development, and the existence of numerous other models with their premises – of which we have mentioned only a few, and which sometimes seem to

coincide only in their aim: finding a theory of meaning, or *The Theory*, with little or no coincidence in their lines of argument. Therefore, carrying out the task implied (a) describing different kinds of language knowledge and (b) coming to terms with conflicting positions within the approaches themselves, and with sets of linguistic terms whose senses acquire subtle shades of meaning with every approach and every stage of development of the approaches considered. While taking for granted that *word* had already become an ‘umbrella’ term before the advent of modern linguistics (Cobley 2006 pp. 665-676), this dissertation makes use of series of *words* like *lexeme*, *term*, *lexical item/unit*, *lemma* in substitution for *verb*, or *substantive* for *noun*; in like manner, *meaning components/semantic features* co-exist in different subsections as do *inheritance/subsumption* and *inference/cueing*. In what follows we will concentrate on some of these aspects which – undoubtedly – will lead to a sharper focus, but, inevitably, will also narrow it: any close-up is liable of distorting the wider picture.

One cannot possibly disregard the range of application of the present theoretical model, which requires not only a knowledge of the complex notions used in both the LCM and RRG qua linguistic theories, but also of the delimitations their authors have made as to *how* these notions must be understood, or interpreted. Likewise, a proper grasp of the numerous modifications, or improvements that have been introduced in the two approaches at different stages in their evolution implies not only thorough knowledge of (all) the literature issued since their creation but also – more importantly – being aware of *proposals* made hitherto regarding terminology, or recent statements with respect to *how much* of each approach related to thematic roles, semantic roles, and macroroles has been adopted in RRG from, say, Dowty (1991), in what way Vendler’s (1967) *SoAs* have been adapted, or how much of Van Valin’s (1999; 2001) modifications to RRG has been adopted in the LCM thus far.

Investigation carried out up till now has hardly helped us get below the surface, as it were, and we must admit that, even if the aim of this dissertation is “only” entering data for verbs of FEELING in English into FunGramKB, the project would have turned out to be stillborn without a sufficient grasp of all the facets of the successive theoretical developments that the LCM has undergone – whose influence on the outcomes of this dissertation might be evident in case the data entered are deemed inconsistent with the theoretical assumptions. Therefore, in an attempt to render as faithful an account as possible, we will undertake a brief survey of some viewpoints which should eventually serve as a trustworthy guide to the analysis of the verbs under +FEEL\_00 in Chapter 5,

and aim at a personal interpretation, to which we will add the entire intuitive grasp we have of the semantic universe of the verbs of FEELING under analysis.

The nature of the semantic relationships established between a verb (or other predicating element) and its arguments, which has been ‘the focus of much research and controversy since the mid-1960s’, is reviewed in Van Valin (2001) with the purpose of elucidating the RRG concept of *semantic macrorole* – originally unique to RRG – by giving further explanations of the distinct levels of generality at which semantic roles have been discussed. They are captured in Figure 1, subsection 2.4 of this dissertation Van Valin 2001 p. 2) and gather together (from left to right) the correspondence between (i) *verb-specific semantic roles*, (ii) *thematic relations*, and (iii) *semantic macroroles*. Nevertheless, the application of the semantic contrasts grid shows overlapping in the case of Recipient and Experiencer, of which the latter is directly involved in analysis of State verbs. A closer look at the thematic relations continuum in terms of LS argument positions evinces that the positions concerning arguments of transitive verbs of FEELING are those of a two-place state predicate in which the first argument may be labelled one among *perceiver*, *experiencer* or *emoter*, and the second argument will correspondingly receive one of the labels *stimulus*, *sensation* or *target*:

- (13) “You could not *be afraid of it*, you could not possibly *fear something* so delicate and so insubstantial.” (BNC G10 170)

In the example above, *x fears y* will then be understood as *x* = the first argument of a two-place state predicate in which ‘some kind of internal activity’ is involved (Van Valin 2001 p. 7) (in this case one of the *emotional* or *perceptual* type, or a blend of both), which will readily make *x* the more agent-like participant in a relationship in which *y* as a participant does not make an effort of any kind to make *x* be afraid. In such complex cases, which synthesize through language the intricacy of human internal processes on the borderline between emotion and perception, Macrorole Assignment Principles stop short of successfully explaining verb and argument behaviour. Ultimately, it is a choice of the pair experiencer/stimulus, albeit without involving any kind of *internal activity* taking place in the first argument. In Van Valin’s (2001 p. 6) words,

‘When the system of lexical decomposition is developed to the point that each subclass of state and activity verb has a rich representation which indicates the subclass overtly, thematic labels will then be unnecessary, since the argument will follow directly from the representation. Until that point, however, it will be necessary to continue to refer to

the thematic relations as a stopgap.’

Since macroroles in RRG (and in the LCM) play a crucial role in the bi-directional syntactic/semantic representation of linking rules, the other important issue under analysis treats the nature of the relations established between *syntactic functions* and *semantic macroroles* formulated in RRG with respect to case assignment and agreement principles. RRG does not assume syntax to be autonomous and ‘consequently there is no theoretical problem with maintaining simultaneously that macroroles are semantic and that they play a role in syntax’ (Van Valin 2001 p.11).

In order to determine certain facets of compositional meaning, we believe that recourse should be made to additional systems proposed from other approaches, which might supply non-contradictory investigative tools, or modifications should be made to the initial RRG proposal<sup>70</sup>. For example, with a view to clarifying positions, Jiménez-Briones’s (2004a) line of argument contrasts several approaches, highlighting such aspects as the lack of correspondence between Thematic Tier and Aspectual Tier (Grimshaw 1990; Van Voorst 1992 cited in Jiménez-Briones 2004a p. 365), or Pustejovsky’s (1992) eventive structure of verbs (Pustejovsky 1992 cited in Jiménez-Briones op.cit., p. 371) in treatment of *fear-type* verbs, which are explained by making recourse to their counterpart, the *frighten-type* verbs. Nevertheless, in later work she tackles some of the *frighten-type* verbs from an LGM perspective (2004b pp. 120-134) and, more recently, from the LCM (2007).

Obviously, the classes to which the two verbs mentioned above belong, however rich in members<sup>71</sup>, are far from displaying doublets like *fear* and *frighten*, which means that such a discussion obligatorily requires more investigation and extra help in a field in which – at least to our knowledge – debate about denominations and terminology is still under way. It should come as no surprise that even the *pragmatics* of discourse used in the linguistic discussion itself apparently becomes symbolic in that using a set of terms from one approach is readily liable of interpretation as adhesion to the approach, or school, that uses them.

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<sup>70</sup> In her work, Jiménez-Briones (2004a) declares her intention of modifying Macrorole Assignment Principles in order to adapt them to analysis of verbs of FEELING, see footnote in op.cit. p. 143.

<sup>71</sup> Levin (1993) lists a sum total of 349 Psych-verbs (except *feel*) which she divides in four classes: (i) Amuse-type verbs (of which *frighten* is a member) – 220; (ii) Admire-type verbs (of which *fear* is a representative) – 45; (iii) Marvel-type verbs – 79; and (iv) Appeal-type verbs – 5; their range of behaviour holds together in many aspects regarded from both meaning and general grammar principles. See also Jiménez-Briones 2004a p. 295.

In the same way as Vendler's (1967) explanatory discourse for Aktionsart classification has already found a place in reviewing the internal structure of the RRG lexicon component (see 2.2 above), Dowty's (1991) *Proto-Role Theory* for Argument Selection may bring in a helpful methodological investigative tool, this time from model-theoretic semantics. Both RRG and the LCM adopt formalization of Dowty's (1991) *Proto-Role Theory* for Argument Selection (Mairal Usón & Cortés Rodríguez 2006 p. 110; Van Valin 2001 p. 3), not without adding further specifying notes<sup>72</sup>. From both Dowty (1991) and Van Valin (2001), semantic roles are equally presented as prototypes, although disclaimers are in place with respect to the differences that set the two positions apart.

In Dowty's framework, the distinction is made in terms of *fuzziness* of boundaries between Proto-Agents and Proto-Patients versus the *discreetness* of thematic roles in other theories (among them Foley & Van Valin's (1984) theory, in which natural language predicates are translated into 'certain configurations', and from which his proposal diverges regarding the question whether all lexical meanings can be broken down into semantic structures of the DO/CAUSE type<sup>73</sup>). He proposes the notion of *thematic role type* from a semantic point of view as 'a set of entailments of a group of predicates with respect to one of the arguments of each', and discusses its properties in terms of lexical entailments (in the standard logical sense) i.e., 'one formula entails another if in every possible situation (in every model) in which the first is true, the second is true also'<sup>74</sup>. His hypothesis is based on the assumption that "arguments may have different 'degrees of membership' in a role type"<sup>75</sup> for which he offers some lists of possible verbal entailments about the Agent Proto-Role and the Patient Proto-Role, respectively<sup>76</sup>:

'(27) Contributing properties for the Agent Proto-Role:

- a. volitional involvement in the event or state
- b. sent[i]ence (and/or perception)
- c. causing an event or change of state in another participant
- d. movement (relative to the position of another participant)
- (e. referent exists independent of action of verb)

(28) Contributing properties for the Patient Proto-Role:

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<sup>72</sup> Mairal Usón and Cortés Rodríguez (2006) mention the use of *internal temporal properties* of verbs according to their *Aktionsart* in a classification which differs from Levin's (1993) and Mairal's (1999), see footnote 9, p. 110; Van Valin (2001 p. 3) mentions that the formalization is based on Dowty (1979), but 'differs in certain crucial details'.

<sup>73</sup> See Dowty (1991) p. 553; pp. 598-599.

<sup>74</sup> Id., p. 552.

<sup>75</sup> Id., p. 571.

<sup>76</sup> Id., p. 572.

- a. undergoes change of state
- b. incremental theme
- c. causally affected by another participant
- d. stationary relative to movement of another participant
- (e. does not exist independently of the event, or not at all).’

An additional set of examples illustrating (i) independence of Proto-Agent entailments in subject NPs and (ii) Proto-Patient entailments independently (in object NPs)<sup>77</sup>, examples of combinations of certain Proto-Role entailments, and the Argument Selection Principle (and its corollaries) complete a methodological procedure that helps tackle the status of indeterminacy in Psychological predicates (cf. Postal 1970; Talmy 1985 cited in Dowty, op.cit.:579) and expands the range of possibilities in semantic analysis in a fashion that RRG does not offer<sup>78</sup>.

The Argument Selection Principle mentioned above determines the association of clusters of Proto-Agent and Proto-Patient properties with grammatical relations (Dowty 1991 p. 576):

‘(31)Argument Selection Principle: In predicates with grammatical subject and object, the argument for which the predicate entails the greatest number of Proto-Agent properties will be lexicalized as the subject of the predicate; the argument having the greatest number of Proto-Patient entailments will be lexicalized as the direct object.’

In response to the query previously formulated about a non-contradictory investigative tool (see above), *fear-* and *frighten-type* psychological verbs may thus be benchmarked against the Contributing properties reproduced above. Although the Experiencer argument of the *fear* and *frighten* classes are equal in Agent properties (‘each argument has a weak but apparently equal claim to subjecthood’<sup>79</sup>), they are unequal in that (a) the Experiencer-subject in *x fears y* has some perception of the stimulus – ‘thus the Experiencer is entailed to be sentient/perceiving though the stimulus is not’ and (b) the Stimulus subject *y frightens x* ‘causes some emotional reaction or cognitive judgement in the Experiencer’; hence (a) is a Proto-Agent entailment for the Experiencer-subject, while (b) is a Proto-Agent entailment for the Stimulus subject<sup>80</sup>. Other doublets that behave similarly to the fear-frighten classes are mentioned, and most of them are on the list of verbs of FEELING under scrutiny in this

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<sup>77</sup> Id., pp. 572-573.

<sup>78</sup> RRG offers “some definitions of thematic roles”, see Mairal Usón and Cortés Rodríguez 2006 p. 126; Van Valin 2001 pp.4-5

<sup>79</sup> Id., p. 579.

<sup>80</sup> Ibid.

work:  $x$  likes  $y$  –  $y$  pleases  $x$ ;  $x$  is surprised at  $y$  –  $y$  surprises  $x$ ; and  $x$  is disturbed at  $y$  –  $y$  disturbs  $x$ .

### 3.3.2. The FunGramKB *Protocol*

The FunGramKB Training section offers valuable materials for the linguist in need of details about all the aspects that have motivated and configured the Knowledge Base since its inception, and also information on how to enter lexical-grammatical data into the FunGramKB Editor, with helpful notes for each and every subsection (Guerra García & Sacramento Lechado 2011 pp. 1-26). Mention has already been made of problems encountered with respect to the Description rubric in the Conceptual information frame (see 3.2.1) and terminology (see 3.3.1), respectively. The Constructions (i.e., the Diathesis Alternations, see 3.2.3) have been consulted both from the appendices to the *protocol* and from Levin's (1993) work. They have all constituted a reliable, practical guide to the decisions made while selecting the corresponding features for each verb.

Extra help came from the FunGramKB Editor itself, where there are reminders for the features to be selected, with a caveat for the very verbs to be entered – an aspect which, undoubtedly, could have hardly found a place in what is, for the time being, an introductory guide. The most problematic aspect here arises from the special status of the verbs under scrutiny. In our view, it may explain why application in FunGramKB of analysis of the verbs of FEELING in English might result in incongruent information in the XML-formatted section. Further incongruities resulting from the information stored in the LCM block will be mentioned when analysing the corresponding verbs; suffice to add here that, according to the RRG principles of Macrorole assignment (see 3.3.1 above), distribution of the Actor/Undergoer pair characteristic of an M-transitive State verb in terms of S-Transitivity would lead to assignment of the role of Actor to the Experiencer-subject *Mary* in *Mary likes chocolate* and the role of Undergoer to the Object-stimulus *chocolate*. Terminology in the FunGramKB Editor offers a reminder – also present in the appendices accompanying the *protocol* – as to the values of the FunGramKB participants:

‘[A] REMINDER OF FUNGRAMKB PARTICIPANTS:

AGENT: Entity that makes another entity feel an emotion.

THEME: Entity that feels an emotion.

ATTRIBUTE: Entity or quality that describes an attribute of an entity when feeling an

emotion.’

In other words, what represents the Actor (i.e., the grammatical subject) for an M-transitive verb of State is, in our view, the Theme (i.e., the Experiencer-subject) as a FunGramKB participant. Likewise, the Undergoer (i.e., the Stimulus-object) will necessarily be selected as Agent in the FunGram KB Editor<sup>81</sup>.

In their work, Guerra García and Sacramento Lechado (2011) offer guidance as to how to fill the rubrics assigned to prototypical Prepositions and Collocations which may frequently appear with the lexical units under analysis.

As far as Prepositions are concerned, Jiménez-Briones (2004a footnote 7 p. 415) mentions that the mechanisms regulating the place and instantiation of prepositions in the Semantics-Syntax algorithm are still being developed. That is how we understand, for example, the absence of prepositions like *about* in the Conceptual information frame for the lexical unit *worry*, which receives the description *be worried, concerned, anxious, troubled, or uneasy*. They prove indispensable for distinguishing the uses of such verbs of FEELING in English as *worry someone* vs. *worry about/over something*, *delight someone* vs. *delight in something*, *suffer* (i.e., *endure*) vs. *suffer from something*, for on the presence of the preposition depends what sense the linguist chooses when entering lexical-grammatical information. In the complex relationship established between mono-transitive verbs like *worry* and *suffer*, and the prepositional objects that make provisions for grammaticality by completing their sense, other criteria like Corpus evidence, and the verbs’ capacity to express the sense under consideration through the Unexpressed Object Construction may have their say and arbiter between collapsing the different senses in one or else rendering them as distinct lexical structures.

Aspects related to the *Collocations* rubrics in FunGramKB have proved in large part as unavoidably inaccessible as the ones concerning prepositions. Understood in FunGramKB as ‘combinations that commonly and frequently co-occur in a language’ (Jiménez-Briones & Pérez Cabello de Alba 2011 p. 99), they cover both grammatical and lexical collocations and ‘find their way into the various lexica of FunGramKB’, precisely at the lexical level. Their storage in the Editor rubrics is therefore directly related to lexical composition to the extent to which their presence influences ‘the grammar of lexical concepts’ (Jackendoff 1989 p. 72). Unlike the compulsory presence

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<sup>81</sup> See also Jiménez-Briones 2004a pp. 424-436 for a detailed account of the problems related to M-transitivity and Macrorole assignment.



of prepositions in examples like the ones above, which confer grammaticality to the verbs under analysis, storage of collocations at this level (i.e., level 1 of the FunGramKB module) aims at stylistic and pragmatic implications. For instance, the (intransitive) use of *feel* with the adverbial *strongly* in a context like *we feel very strongly about freedom of expression* (NODE) is illustrative of both cases under discussion here: (i) the use of a preposition as an indispensable element for lexicalization of an oblique argument (cf. Jiménez-Briones 2004 pp. 413-414) and (ii) the use of *strongly*, which changes the meaning of the lexical conceptual unit into ‘have a specified reaction or attitude, especially an emotional one, towards something’ (NODE).

### 3.4. Methodology

This dissertation represents an analysis of the steps taken after entering data into the FunGramKB Editor with a view to enhancing the knowledge base with further verbs of FEELING in English. Analysis and subsequent input of data have been carried out as practice in application of study of the theoretical assumptions made by the Lexical-Constructional Model.

There are forty-two concepts and subconcepts denoting verbs of FEELING in English stored in the Ontology under +FEEL\_00 to be linked to their corresponding headwords in the English lexicon. Lexical-grammatical information has been entered in three successive phases, which roughly correspond with the amount of analysis the reference sources offered. As shall be detailed in the next chapter, there are eleven verbs that have been analysed in Jiménez-Briones (2004a): these have been entered by extracting the information offered in her PhD thesis<sup>82</sup>. Information for a set of other eleven verbs has been entered after completing analysis carried out by Faber and Mairal Usón (1994-1999) within the framework of the FLM predicate schemata<sup>83</sup>. Finally, information for the remaining twenty verbs has been entered after analysis during practice.

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<sup>82</sup> Jiménez-Briones’s PhD thesis ‘La interficie semántica-sintaxis en una gramática léxico-funcional: el Modelos de Gramáticas Léxicas y su aplicación a los verbos de sentimiento en lengua inglesa’ will be referred to for short as *The Semantics-Syntax Interface*.

<sup>83</sup> We refer the reader to the works consulted, and listed in the bibliography, which have been published in the specified lapse of time.

We shall present the verbs of FEELING in English in the order in which they have been modelled in the Ontology, namely, by dealing with each group of concepts and related subconcepts under +FEEL\_00 considered both from the conceptual information stored in the FunGramKB feature-value frame and on the basis of personal judgement of dictionary and thesaurus information. In each group, we shall refer to the analysis made in Jiménez Briones's (2004a) *The Semantics-Syntax Interface* and the organization proposed therein with respect to subdomains and (sub)dimensions. Apart from the explanations she offers for the verbs composing the subdomains analysed, we shall reproduce the definitions and the examples offered in her work as illustrative of the senses displayed in the FunGramKB Editor.

Likewise, we shall specify the definitions offered for the verbs that are listed as members of the remaining groups, and consider all the information we have had access to from Faber and Mairal Usón on Verbs of FEELING in English. The information charted as shown for *rile* in 3.2.5 will be placed in the Appendix of this dissertation for reasons of space; yet each group of verbs will be commented upon in successive subsections as mentioned above. The analysis will consist in commenting on relevant information as regards meaning components, number and type of participants involved in the cognitive situation, Aktionsarten, and the Constructions (i.e., the Diathesis Alternations). It is in the Appendix that the incompatibilities between the descriptions and the verb type will be highlighted: the information we consider incompatible will be shaded in grey.

As regards the verbs whose definitions haven't been considered in previous work on the verbs of FEELING in English, we shall endeavour to submit suggestions that have taken shape during practice and study; it is our belief that further investigation into the field will benefit from the technique of meaning factorization carried out thus far.

#### 3.4.1. Materials

Apart from the resources online offered by FunGramKB (a sum total of 46 online dictionaries), other materials have ensured accuracy of the information presented, among them the British National Corpus in its version BNC *web (CQP-Edition)* online (henceforth BNC) and the *Visual Thesaurus* (from here VT); seven of the dictionaries and thesauri mentioned in the *References* section have been used more frequently,

although recourse has been made to all of them in search of more clarifications. The BNC examples in Chapter 5 will be rendered in italics in order to make quotes unnecessary. The abbreviations for the most frequently mentioned reference tools are specified below:

- CC: COLLINS COBUILD ADVANCED LEARNER'S DICTIONARY (Sinclair), Harper Collins Publishers, 2003.
- CIDE: CAMBRIDGE INTERNATIONAL DICTIONARY OF ENGLISH (Procter), Cambridge University Press 1985.
- DUDE: DICCIONARIO DE USO DEL ESPAÑOL (María Moliner) Editorial Gredos, 2008.
- ECC: ENGLISH COLLINS COBUILD/ENGLISH THESAURUS online.
- FD: THE FREE DICTIONARY Online at <http://www.thefreedictionary.com/>
- LDOCE: LONGMAN DICTIONARY OF CONTEMPORARY ENGLISH online.
- LED: LONGMAN EXAMS DICTIONARY (Summers). Pearson Education Limited, 2006.
- NODE: OXFORD DICTIONARY OF ENGLISH [The NEW]. (Pearsall), Oxford University Press, 1998.
- NWT: WEBSTER'S NEW WORLD THESAURUS. Revised and Updated for the 1990s (Laird), Warner Books.
- OCD: OXFORD COLLOCATIONS DICTIONARY for students of English. Oxford University Press, 2002.
- VT: THINKMAP VISUAL THESAURUS. Online at <http://www.visualthesaurus.com/>

## 4. VERBS OF FEELING IN THE FunGramKB ONTOLOGY: Concepts and subconcepts under +FEEL\_00

The following table reproduces the distribution of the lexemes for which lexical-grammatical information has been entered in the framework of the FunGramKB Editor during practice. The lexical units in the column on the left are the ones modelled in the Ontology, and hyponymy is indicated through arrows. The class members in the second column have been collected from the corresponding conceptual frames in the Ontology, and the description has been gathered from the FunGramKB Editor.

LEXICAL UNIT	CLASS MEMBERS	DESCRIPTION
+FEEL_00	feel	seem with respect to the sensation given; of physical states,
	sense	indicating as health, etc.
	experience	of mental or bodily states or experiences; “get an idea”; “experience vertigo”, “get nauseous”; undergo a strange sensation”; “receive injuries”; have a feeling”
→+ANNOY_00	annoy bother irritate nettle rile	cause annoyance in; disturb, esp. by minor irritations
→+DISLIKE_00	dislike	have or feel a dislike or distaste for
→ →+HATE_00	abhor abominate detest execrate hate loathe	dislike intensely; feel antipathy or aversion towards
→+EXCITE_00	excite	not present in the lexicon
→+FEAR_00	fear dread scare	be afraid or scared of
→ →+TERRIFY_00	horrify make your blood run cold make your flesh creep make your hair stand on end panic scare to death \$terrify	to feel so frightened that you cannot think clearly
→+FORGIVE_00	forgive pardon	no description in the lexicon
→+LIKE_00	delight like please	give pleasure to; be pleasing to
→ →+LOVE_00	love enjoy	get pleasure from
→ → →+ATTRACT_00	appeal attract	no description in the lexicon no description in the lexicon

→+SUFFER_00	suffer	endure emotional pain
→+SURPRISE_00	surprise	not present in the lexicon
→+WORRY_00	disquiet disturb perturb trouble worry	be worried, concerned, anxious, troubled, or uneasy

#### 4.1. Previous work on verbs of FEELING in English (I): Faber and Mairal Usón

As has been mentioned in 2.6.2 above, the LFM was developed further under the initiative of Pamela Faber and Ricardo Mairal Usón (see Faber & Mairal Usón 1994a, 1994b, 1997, 1998a, 1998b, 1999) by taking as a starting point the considerable potential offered by a language’s lexicon and realising that the lexical resurgence of the 1980s ‘has become the informational domain *par excellence*’ (Faber & Mairal Usón 1994a p. 193). The theoretical foundations of the new model were to grant the lexicon the status of ‘a dynamic, textually oriented repository of information about words and their contexts’ by postulating ‘a fully-specified lexicon/dictionary which is in itself a grammar’<sup>84</sup>. In this way lexical units are assigned to a specific domain, and the relationships they hold at micro- and macro-structural levels are established according to objective criteria, since the semantic fields are configured ‘from the definitional structure of lexemes themselves.’<sup>85</sup>

Thus the initial lexical dimensions for the semantic field of FEELING were first established under the spell of the new functional lexicological model (later LFM)<sup>86</sup>:

**‘Example 1:** *Lexical dimensions established for the semantic field of “feeling”*

1. 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

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<sup>84</sup> Id., p. 199.

<sup>85</sup> Id., pp. 201-202.

<sup>86</sup> Id., p. 202.

- 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.'

As further study was carried out, variations to this initial classification added more examples and slightly modified the 1994 organization while at the same time addressing the structure of interconnected domains with 'fuzzy boundaries' which pivot around areas such as PERCEPTION, SPEECH, MENTAL PROCESSES, and CHANGE (Faber & Mairal Usón 1994b p. 38). It is precisely the recurrence of certain dimensions in several domains which led to the observation that 'certain words acquire a rather different classification from the one they have been given in more traditional thesauruses', and to subsequent reclassification of semantic fields according to conceptual parameters of semantic differentiation: 'transition zones', where semantic units 'have double field membership'<sup>87</sup>. The development of these transition zones, and the underlying assumption that 'the complexity of each domain (in other words, the degree to which it is lexicalized) is directly proportional to its psychological salience in human perception' produced further work on the lexical field of FEELING and overlapping domains, namely PERCEPTION and COGNITION. Dimension-level schemata have been recast according to categorization parameters featured by the superordinate term *feel* into what was called the semantic architecture of the field of FEELING (see the example above). Thus, the lexemes will be encoded by focalizing and subsuming different dimension-level schemata grouped into three sets (Faber & Mairal Usón 1998a p. 39):

- '(i) Feelings expressing an awareness of a phenomenon in the outside world [*He felt the earthquake tremors / the tension / the sadness in the room.*]
- (ii) Feelings expressing the physical / mental / emotional state of the experiencer [*I felt cold / brilliant / sad.*].
- (iii) Feelings expressing a strong idea based on intuition (not on evidence). This covers both intuitions about immediate situations [*He felt that he was despised*] and about future ones [*He felt that the trial would be over quickly*]

The variety of complementation patterns structures the field into three categorization patterns linked to conceptual saliency<sup>88</sup>:

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<sup>87</sup> Id., pp. 40-43.

<sup>88</sup> Id., pp. 40-41.

(i) To feel, being aware of a phenomenon in the outside world (with connections in the fields of PERCEPTION and COGNITION);

(ii) To feel something physical / mental / emotional (with connections in the field of CHANGE);

(iii) To feel sth is the case (connecting the field of FEELING with COGNITION).

While the first categorization pattern includes the conceptual categories of physical/emotional and interior/exterior phenomena (corresponding to *to feel a physical/mental sensation*), the second categorization pattern captures the intricacy of the shades of meaning entangled in the emotional area, where the focus can be placed (a) on state, (b) on the entity or event triggering it, or (c) on the reaction of the experiencer. The verbs modelled in the FunGramKB sub-Ontology #EMOTION → + FEEL\_00 belong to this categorization pattern and constitute part of the analysis carried out in this dissertation.

## 4.2. Previous work on verbs of FEELING in English (II): Jiménez-Briones

### 4.2.1. *The Semantics-Syntax Interface*

Jiménez-Briones's (2004a) doctoral thesis *The Semantics-Syntax Interface* is a thorough, comprehensive, and highly informative study of the evolution of the Lexical-Constructional Model and, simultaneously, a definitive reference work – the most recent in its kind to date – in the complex and extended field of verbs of FEELING in English.

Enquiry into lexical-semantic, and other, theories focused on semantics-syntax mapping offers a systematic, extensive review of projectionist, constructionist and syntax-oriented approaches with a view to contrasting the tenets of the then LGM with the most outstanding achievements in the linguistic domain in the last decades.

The different stages in the creation of an integrated lexical-functional grammar and the improvements made to the initial FG and LFM are presented in detail, with an emphasis on the principles used in devising the semantic architecture of a language (namely the Principle of Lexical Iconicity), the representation of meaning through Lexical Templates, and the steps towards the Lexicon-Syntax Linking Algorithm characterizing the LGM.

At the core of her work lies the initial hypothesis underlying the LFM /LGM with respect to the introduction of a new grammatical conception of the general structure of the lexical component (p. 211), which grew out of the firm belief that a lexical template will be the answer to the quest for ‘a unified, compact representation’ of ‘both the semantic and syntactic behaviour of lexical units, thus dispensing with the need to keep the semantic definition and the predicate frame of lexemes in separate compartments’ (Mairal Usón & Faber 2002 cited in Jiménez-Briones 2004a p. 251).

Extensive analysis of the classes of verbs of FEELING in English is presented in chapters 5 and 6 of her work, in which comprehensive study is presented from lexical-semantic, cognitive, and psycholinguistic perspectives. Organization of the lexical domain of the verbs of FEELING in English is presented in chapter 5, accompanied by thorough analysis of verb classes and diathesis alternations. Chapter 6 analyses examples from six subdomains in which verbs of FEELING in English have been organized; thereafter it presents description of the lexical templates obtained for the domains under scrutiny, and accounts for the syntax-semantics linking algorithm applied to the verbs analysed.

#### 4.2.2. The lexical domain of verbs of FEELING in English

Jiménez-Briones (2004a) proposes an organization of the lexical domain of the verbs of FEELING in English which differs from the semantic architecture initially proposed in Faber and Mairal Usón (1999 p. 287). She gives reasons for each of the modifications, which are of various kinds, all of them of particular importance for the status of the verbs of FEELING in English that have been entered into FunGramKB. We shall refer to this subclass in the next chapter; for now we shall mention only the first modification, namely, the creation of a lexical subclass denominated *Feeling Verbs* containing the archilexemes 1. FEEL, 1.1. SENSE, and 1.2. EXPERIENCE, which would be in consistence with the Ministerial Project DGICYT PB 90/0222 (Jiménez-Briones 2004a p. 330):

‘En primer lugar, en este trabajo se ha considerado una subclase léxica con los archilexemas o verbos prototípicos de todo el dominio de los verbos de SENTIMIENTO, a la que hemos denominado Feeling Verbs. Esta subclase ya había sido recogida en el proyecto del ministerio de recogida de datos (DGICYT PB 90/0222), aunque no apareció como tal en Faber y Mairal Usón (1999). Los siguientes lexemas componen este subdominio:

1. FEEL: to have a particular emotion, sensation or physical state; to perceive a state of



mind or a condition of [the] body.

1.1. SENSE: to feel something in an unconscious way. (percibir, sentir).

1.2. EXPERIENCE: FML. To feel strong emotions, sensations and physical feelings for a long period of time, as well as being affected by negative situations. (experimentar, sufrir).’

While not being in possession of the aforementioned Project, and taking into account that Jiménez-Briones’s (2004a) all-inclusive work is the result of exhaustive analysis on the verbs of FEELING in English; that their paradigmatic organization is the fruit of in-depth judgement; that it lists all the remaining subdomains and dimensions of the lexical field, we shall adopt her proposal as a starting point and comment on problematic aspects regarding lexical, semantic, and syntactic analysis of the verbs entered into the FunGramKB Lexical-Grammatical Module and the lexical-grammatical incompatibilities arising from characteristics of the Suite itself.

#### 4.2.3. Organization of the lexical domain of verbs of FEELING in English (Jiménez-Briones 2004a)

The most recent organization of the verbs belonging to the lexical field of FEELING is presented in Jiménez-Briones’s *The Semantics-Syntax Interface* in a classification of 28 subdomains, which is presented below in the form of a list that combines not only the variations as regards the initial organization in Faber and Mairal Usón (1999) but also the subdomains and the archilexemes for each subdomain, and the verbs belonging to each class (rendered in capital letters). Presence of numeric hierarchical organization exhibits the modifications made to the initial architecture of the field of FEELING and, in the case of the six subdomains dealt with in *The Semantics-Syntax Interface*, the organization that resulted from analysis (2004a pp. 328-346):

**FEELING VERBS** [*feel*]: 1.FEEL, 1.1.SENSE, 1.2. EXPERIENCE.

**1. To feel something bad** [*suffer*]: 1. SUFFER, 1.1. BEAR2, 1.1.1. ENDURE1, 1.1.1.1.TAKE1, 1.1.1.2. STAND1, 1.1.2, TOLERATE1, 1.1.2.1. STOMACH2.

**1.1. To cause somebody to feel something bad** [*punish*]: PUNISH, AVENGE, STARVE.

**2. To feel something good** [*enjoy*]: ENJOY, LIKE.

**3. To feel sadness** [*grieve*]: GRIEVE, SORROW, MOURN, PINE, MISS, PITY, REGRET, RUE, REPENT.

**3.1. To cause somebody to feel sadness** [*sadden, grieve, distress*]: SADDEN, GRIEVE, DISTRESS, DEPRESS, DISAPPOINT, DISILLUSION.

**4. To feel happiness** [*delight, thrill, gloat, cheer, gladden*]: 1. DELIGHT, 1.1. REVEL; 2. THRILL; 3. REJOICE; 4. GLOAT; 5. CHEER; 6. GLADDEN.

**4.1. To cause somebody to feel happiness** [*please, delight, cheer, gladden, thrill*]: 1. PLEASE, 1.1. GRATIFY, 1.2. SATISFY, 1.2.1. FULFIL, 1.2.2. CONTENT; 2. DELIGHT, 2.1. RAVISH; 3. CHEER, 3.1. HEARTEN; 4. GLADDEN; 5. THRILL, 5.1. EXHILARATE.

**5. To feel aversion** [*dislike, hate, detest*]: DISLIKE, BEAR, STAND, HATE, ABHOR, DETEST, EXECRATE, LOATHE, DESPISE, SCORN, ABOMINATE, RESENT.

**5.1. To cause somebody to feel physical aversion** [*disgust*]: DISGUST, SICKEN, NAUSEATE, REPEL, REVOLT, APPAL, HORRIFY.

**5.2. To cause somebody to feel emotional aversion** [*anger*]: 1. ANGER, 1.1. AROUSE, 1.2. ANNOY, 1.2.1. IRRITATE, 1.2.2. PROVOKE, 1.2.3. VEX, 1.2.4. AGGRAVATE, 1.3. RILE, 1.4. ENRAGE, 1.5. INFURIATE, 1.6. INCENSE, 1.7. MADDEN, 1.8. ANTAGONIZE, 1.8.1. ALIENATE.

**6. To feel attraction** [*like, love, admire*]: LIKE, PREFER, CARE FOR, CHERISH, LOVE, ADORE, WORSHIP, IDOLIZE, DEIFY, ADMIRE, ESTEEM, RESPECT, HONOUR, REVERE, VENERATE.

**6.1. To cause somebody to feel attraction** [*attract, fascinate, interest*]: ATTRACT, APPEAL TO, FASCINATE, INTRIGUE, CAPTIVATE, ENTHRAL, MESMERIZE, CHARM, ENCHANT, LURE, TEMPT, SEDUCE, ENTICE, INTEREST, DRAW, EXCITE, ABSORB.

**6.2. To feel a loss of attraction** [*tire of, weary*]: TIRE OF, WEARY.

**6.2.1. To cause somebody to feel a loss of attraction** [*tire, weary*]: TIRE, BORE, WEARY, FATIGUE, EXHAUST, PALL.

**7. To feel something bad in one's body** [*hurt, pain, ache, sting, prick, throb, itch, burn*]: 1. HURT; 2. PAIN; 3. ACHE; 4. STING, 4.1. SMART; 5. PRICK; 5.1. PRICKLE, 5.1.1. TINGLE; 6. THROB; 7. ITCH; 8. BURN.

**7.1. To cause somebody to feel physical/emotional suffering** [*hurt, afflict, inflict, torment, sting, prick*]: 1. HURT, 1.1. PAIN, 1.2. HARM, 1.3. DAMAGE, 1.4. INJURE, 1.4.1. DISABLE, 1.4.1.1. INCAPACITATE, 1.4.1.2. MAIM, 1.4.1.2.1. CRIPPLE, 1.4.1.2.2. MUTILATE; 1.4.2. DISFIGURE, 1.4.3. SPRAIN, 1.4.4. STRAIN, 1.4.4.1. PULL, 1.4.5. WOUND, 1.4.6. BURN; 2. AFFLICT; 3. INFLICT; 4. TORMENT, 4.1. TORTURE; 5. STING; 6. PRICK, 6.1. PRICKLE.

**7.2. To cause somebody to feel less physical/emotional suffering** [*ease, relieve, soothe, deaden, lessen*]: 1. EASE, 1.1. ALLEVIATE, 1.2. MITIGATE; 2. RELIEVE; 3. SOOTHE; 4. DEADEN / DULL; 5. LESSEN.

**8. To feel fear** [*fear, dread, panic, petrify*]: 1. FEAR; 2. DREAD; 3. PANIC; 4. PETRIFY.

**8.1. To cause somebody to feel fear** [*frighten, terrify, scare, panic*]: 1. FRIGHTEN, 1.1. ALARM, 1.2. PETRIFY, 2. TERRIFY, 2.1. TERRORIZE; 3. SCARE; 4. PANIC.

**8.1.1. To cause somebody to feel less fear/anger** [*calm, assuage, allay, comfort*]: CALM, SOOTHE, MOLLIFY, PACIFY, APPEASE, PLACATE, TRANQUILIZE, ASSUAGE, ALLAY, COMFORT, CONSOLE.

**9. To feel anxiety/worry** [*worry*]: WORRY, STEW, FUSS, FRET.

**9.1. To cause somebody to feel anxiety/worry** [*worry*]: WORRY, BOTHER, AGONIZE, ANNOY, IRRITATE, EXASPERATE, IRK, FLUSTER, PESTER, DISCONCERT, DISQUIET, PERTURB, CONCERN, AGITATE, UPSET, DISTURB, OFFEND, INSULT, SNUB, SLIGHT, FRUSTRATE, TROUBLE, DISTRESS, DISMAY, SHOCK.

**10. To feel surprise** [*wonder at, marvel*]: WONDER AT, MARVEL.

**10.1. To cause somebody to feel surprise** [*surprise, astonish, amaze*]: SURPRISE, ASTONISH, STUN, AMAZE, MYSTIFY, ASTOUND, DUMBFOUND, FLABBERGAST, STARTLE.

**11. To feel shame**

**11.1. To cause somebody to feel shame** [*shame, disgrace, embarrass*]: SHAME, DISGRACE, EMBARRASS, HUMILIATE, HUMBLE.

**12. To feel a need to do something or to have/get something** [*want, wish, desire*]: NEED, REQUIRE, DEMAND, NECESSITATE, WANT, WISH, LIKE, HOPE, ENVY, FANCY, DESIRE, CRAVE, HANKER, COVET, LUST, LONG FOR, YEARN FOR, PINE FOR, HUNGER, THIRST.

The overall classification of the 28 subdomains is reduced to three main groups according to the element which is emphasised (Jiménez-Briones 2004a p. 332):

- *to feel a physical/mental sensation*: 1. **To feel something bad**; 2. **To feel something good**; 7. **To feel something bad in one's body**. Emphasis is placed on the perception of a physical/emotional process which may be either internal or external to the experiencer;
- *to feel an emotion*: 3. **To feel sadness**; 4. **To feel happiness**; 5. **To feel aversion**; 6. **To feel attraction**; 8. **To feel fear**; 9. **To feel anxiety/worry**; 10. **To feel surprise**; 11. **To feel shame**; 12. **To feel a need to do something or to have/get something**; Feelings originate in the experiencer, provoking certain changes in him/her;
- *to cause somebody to feel a physical/mental sensation or an emotion*: the corresponding causative versions of the previous two types of subdomains are represented, with the introduction of a new argument in the discourse, namely, the entity which causes the change of state.

4.3. Problems with the descriptions offered in the FunGramKB Editor

As mentioned in 3.2.1 above, of paramount importance for the linguist entering information into the FunGramKB Lexical-Grammatical module is observance of the sense specified for each lexical unit in the feature-value frame *Conceptual information* while leaving aside any other senses the lexical unit may have. Whenever incongruities appear that clearly show a clash between the meaning and syntactic behaviour of the lexical unit and the definition stored for it, a choice must be made of the sense – whether denotative or connotative – of the verb to be analysed, and therefore subsequent selection of variables, Macroroles and Constructions in the LCM core grammar must follow in compliance with the choice. Additionally, class membership of some of the verbs does not correspond to the description offered, and others represent the opposite

syntactic relationship with respect to the subdomain in which they have been recast in Jiménez-Briones's (4002a) work.

The verbs of FEELING in English modelled in the Ontology to date under #EMOTION → +FEEL\_00 are distributed among nine subconcepts corresponding to twelve archilexemes and having their class members and hyponyms, with further derivations in twelve subdomains. The information in the table below reproduces the lemmas as they appear in the Ontology and the Lexicon, with additional observations as regards distribution of descriptions. Following Jiménez-Briones (2004a pp. 328-346), the subdomains they belong to appear in the rubric on the right; the verbs preceded by an asterisk do not appear in Jiménez-Briones's (2004a) list, but they do figure in the FunGramKB Editor<sup>89</sup>.

Two of these verbs, namely, *excite* and *surprise*, have not yet been entered in the Suite; in turn, *appeal* and *attract* display a meaning postulate but do not have a description.

The descriptions offered in the FunGramKB Editor belonging to each concept (or subconcept) figure in the third column, next to Jiménez-Briones's (2004a) organization. Not all the specifications made in respect of some verb groupings are consistent with the descriptions stored in the Lexicon: (i) LIKE is grouped with DELIGHT and PLEASE, yet its semantic load places the verb with *love*, *enjoy*, and *delight in* in **2. To feel something good**; likewise, (ii) only the sense reflected in the FunGramKB Editor will be considered when dealing with PANIC, which is analysed in PANIC<sub>1</sub> and PANIC<sub>2</sub> in Jiménez-Briones (2004a) and corresponding to **8. To feel fear** and **8.1. To cause somebody to feel fear**, respectively; finally, (iii) the sense *delight in* will be analysed in **2. To feel something good**.

The descriptions displayed in Jiménez-Briones's (2004a) organization of the verbs of FEELING in English will have priority over the FunGramKB descriptions which do not obtain semantically.

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<sup>89</sup> The sense with which +HORRIFY\_00 is mentioned in **5.1. To cause somebody to feel physical aversion** differs from the sense reflected in the FunGramKB Editor.

LEXICAL UNIT	CLASS MEMBERS	DESCRIPTION	SUBDOMAIN (Jiménez-Briones )
+FEEL_00	feel sense experience	seem with respect to the sensation given; of physical states, indicating as health, etc. of mental or bodily states or experiences; “get an idea”; “experience vertigo”, “get nauseous”; undergo a strange sensation”; “receive injuries”; have a feeling”	<i>Feeling Verbs</i>
→+ANNOY_00	annoy bother irritate *nettle rile	cause annoyance in; disturb, esp. by minor irritations	<b>5.2. To cause somebody to feel emotional aversion</b>
→+DISLIKE_00	dislike	have or feel a dislike or distaste for	<b>5. To feel aversion</b>
→ →HATE_00	abhor abominate detest execrate hate loathe	dislike intensely; feel antipathy or aversion towards	
→+EXCITE_00	excite	<i>not present in the lexicon</i>	<b>6. 1. To cause somebody to feel attraction</b>
→+FEAR_00	*horrify *make your blood run cold *make your flesh creep *make your hair stand on end panic *scare to death terrify	be afraid or scared of	<b>8. To feel fear</b> <b>8.1. To cause somebody to feel fear</b>
	dread fear scare	to feel so frightened that you cannot think clearly	
→+FORGIVE_00	forgive pardon	no description in the lexicon	---
→+LIKE_00	delight (in) like please	be pleasing to give pleasure to;	<b>2. To feel something good</b> <b>4.1. To cause somebody to feel happiness</b>
→ →+LOVE_00	love enjoy	get pleasure from	<b>2. To feel something good</b>
→ → → +ATTRACT_00	appeal attract	no description in the lexicon	<b>6.1. To cause somebody to feel attraction</b>
→+SUFFER_00	suffer	endure emotional pain	<b>1. To feel something bad</b>
→+SURPRISE_00	surprise	<i>not present in the lexicon</i>	<b>10.1. To cause somebody to feel surprise</b>
→+WORRY_00	disquiet disturb perturb trouble worry	be worried, concerned, anxious, troubled, or uneasy	<b>9.1. To cause somebody to feel anxiety / worry</b>

## 5. DATA INPUT: Further verbs of FEELING in English for Lexicon Enhancement

### 5.1. Group 1: *Feeling verbs* analyzed in Jiménez-Briones (2004a)

#### 5.1.1. FEEL as a semantic prime

As outlined in 1.5., the results of cross-linguistic research carried out for NSM members and on the taxonomy of emotions as they appear shaped through languages and within cultural patterns are the topic of a host of books and articles published since 1986 (Goddard & Wierzbicka 1994, 2002; Wierzbicka 1986, 1996, 1997, 1999, 2002; Goddard 2008, 2011). Considered as ‘a culture-specific system of folk psychology’ within a given culture, the area of emotions offers not only “a set of ... more or less normative descriptions about how human beings ‘tick’” (Bruner 1990 cited in Wierzbicka 1996 p. 48) but also a starting point for further developments within “the innate and universal ‘theory of mind’”, which testifies to the existence of exponents of the predicates THINK, KNOW, WANT, SEE, HEAR, and FEEL substantiated in all languages.<sup>90</sup>

The universality of FEEL has sometimes been disputed, and for a time it was dropped from the NSM inventory (Wierzbicka 1980 cited in Goddard & Wierzbicka 1994 p. 39), but subsequent research reinstated it as a universal and indispensable element for the semantic analysis of words for emotions and sensations, as well as for pragmatic realizations like speech act verbs, ‘experiencer constructions’ and interjections<sup>91</sup>. FEEL has often proved effective in modelling similarities and differences in explications of emotion concepts, which are rendered through phrases like ‘to feel something (good or bad) towards someone’; yet what seemed initially advantageous for NSM explications was later acknowledged as a language-specific pattern of English and subsequently led to reconsidering the valence properties of FEEL (Wierzbicka 1996 p. 120):

“Perhaps the least clear of all is the semantic syntax of FEEL. In many languages (including English), sentences with FEEL and ‘complements’ such as *something* or *this* are not fully acceptable. In English, sentences such as ‘I feel good’, ‘I feel bad’, and ‘I feel like this’ sound of course better than ‘I feel something like this’.”

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<sup>90</sup> SEE and HEAR as universal mental predicates have been added at a later date than the one mentioned in the source cited here (Wierzbicka 1996).

<sup>91</sup> Ibid.

Both *X feels something good/bad towards Y* and *X has good/bad feelings towards Y* have been shown to represent a compound valence possible only with the evaluators GOOD and BAD and not available to universal grammar (Wierzbicka 1996 p. 120; Goddard & Wierzbicka 2002 pp. 310-311).

Finding the universal lexical sense of a polysemous word like FEEL also meant clarifying which of the senses of FEEL has exponents within NSM. Proof that its various uses are ‘genuinely semantically different’ should be reflected in ‘distinct (though usually overlapping) reductive paraphrase explications’ (Goddard & Wierzbicka 1994 pp. 31-38):

‘English *feel* is polysemous between its semantically primitive sense (*I feel good/bad*), its action sense (*I felt her pulse*) and its cognitive sense (*I feel it’s wrong*).’ ... ‘it can be shown that the action and cognitive senses of FEEL contain the elements DO and THINK respectively, thereby establishing these senses as complex and distinct from the semantically primitive FEEL.’

The canonical syntax for the mental predicates above allows for a personal subject (I, YOU, SOMEONE or PEOPLE); except for FEEL, they take sentential complementation (that-clauses) (Goddard & Wierzbicka 1994 p. 39; Wierzbicka 1996 p. 120).

Further research within the NSM program led Goddard and Wierzbicka to advance two main proposals. One of them is reflected in Wierzbicka’s (1996) surmise that FEEL, like WANT, has ‘universally, only two slots: ‘psychological subject’ and ‘psychological complement’ (e.g., ‘I want something’, ‘I don’t feel anything’), which classifies FEEL with transitive verbs according to the number of semantic valences (2 macrorole verbs, in terms of RRG M-transitivity). The canonical contexts for FEEL in its primitive sense are, ‘however, very restricted indeed: ‘feel (something) good/bad’’ (Goddard & Wierzbicka 1994 p. 39).

Although the different combinatorial versions presented above show FEEL either with or without *something* in its canonical contexts, i.e., displaying a transitive or an intransitive use respectively, the sentences below still represent a trustworthy reference for the verb’s universal behaviour<sup>92</sup>:

‘Canonical contexts for Lexical Primitives

This list gives syntactic (combinatorial) contexts in which the proposed semantically primitive meanings could be expected to be found, in any language. Put another way,

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<sup>92</sup> Id., p. 52.

the following sentences, or sentence fragments, represent things which we would expect or predict could be said in any language.

2. Mental Predicates THINK, SAY, KNOW, FEEL, WANT

[...]

I feel good/bad

I feel like this.'

We consider the sense stored for +FEEL\_00 in the FunGramKB Lexicon description as reflecting the semantically primitive sense of *feel*, with states a prototypical situation involving one participant, the other element being an entity describing a quality, and expressed by an adjective or an adverb which complements its pattern.

As mentioned in 4.2.2., in the organization that Jiménez-Briones (2004a) presents of the verbs of FEELING in English, a separate class dubbed *Feeling Verbs* has been created, which contains the archilexeme FEEL and its hyponyms SENSE and EXPERIENCE. Apart from the reason already specified therein, other aspects are mentioned, related to the very status of FEEL and its hyponyms as semantic primes (op.cit p. 330):

‘... los **verbos de sentir** son verbos de estado bivalentes transitivos-M o intransitivos-M, que participan en las alternancias transitiva-infraespecificación y holística-atributo, así como en la construcción atributiva, alternancias éstas que, en gran parte, definen a las otras subclases analizadas. Además, los parámetros semánticos que definen al archilexema *feel* también se reflejan en el tipo de subdimensiones en los que se estructura este dominio léxico.’

The definitions given in Jiménez-Briones’s analysis of FEEL refer to two of its main uses, namely, ‘to have a particular emotion, sensation, or physical state’; and ‘to perceive a state of mind or a condition of [the] body’, respectively<sup>93</sup>.

The first definition is applicable when it comes to ‘caracterizar o describir propiedades episódicas de las entidades por el sujeto o el objeto de la oración’. In consistence with RRG macrorole assignment principles, this use of *feel* evinces its M-intransitive features, and represents a predicate containing the semantic primitive *feel* and a predicating element, realized syntactically through an Adjectival Phrase or an Adverbial Phrase which assigns a property to the subject ‘en el momento en el que se produce el estado expresado, sin que intervenga ningún factor de cambio’<sup>94</sup>. The resulting frame corresponds with the SVC (i.e., Subject-Verb-Complement) pattern analyzed in Faber and Mairal Usón (1998b p. 41) as the second categorizing parameter

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<sup>93</sup> Id., p. 406.

<sup>94</sup> Id., p. 407.



*To feel sth physical /mental/ emotional* in respect of the dimension-level schemata of the lexical field of FEELING.

Unlike Jiménez-Briones, and in line with Faber and Mairal Usón (1998b), we consider that in this pattern the experiencer is focalized in that ‘feelings originate within and affect an experiencer provoking certain changes in him/her’; the frame NP V AP/AdvP ‘does not so much lexicalize a process of internal awareness’; rather, it renders a ‘state of being’, which connects FEELING with the field of EXISTENCE (op.cit p. 41):

- (14) *Instantly, by some perverse chemistry of his body or nervous system, he feels tired and drowsy, reluctant to leave the warm bed.* (BNC ANY 41)
- (15) *He felt embarrassed, yet cursed himself for feeling that way.* (BNC GW2 3277)
- (16) *The persuasiveness of Berkeley’s argument about heat and pain depends on two things: (i) our readiness to distinguish between feeling heat and feeling hot, and (ii) our having the idea that if two things are called by the same name it must be because we suppose them to be like one another.* (BNC CK1 734)

Examples (14) and (15) above consider some of the instantiations of the combinatorial possibilities of *feel*, either as a lexical copular verb replacing *be* in what Quirk et.al. (1985) call ‘the passive gradient’, or as a transitive verb. While *he feels tired* in (14) ‘is clearly to be analysed as having an adjectival complement following a copular verb’ (op.cit p. 167) where *tired* confirms its adjectival status by allowing adverbial modification<sup>95</sup>, *he felt embarrassed* in (15) represents “a ‘mixed’ or semi-passive class whose members have both verbal and adjectival properties” where *be* is replaced by a lexical copular verb such as *feel* or *seem*<sup>96</sup>.

The latter half of (15) puts forth yet another semantic property of *feel* among lexical copular verbs, namely the possibility of taking adverbial phrases. In fact, this particular example draws *feel* nearer to the behaviour of some of the members of another verb class, this time from Levin (1993), where *feel* belongs with **See Verbs** insofar as it is tied to a particular sense modality. Surprisingly enough, the only example given by the author which contains *feel* displays it in the Progressive<sup>97</sup>:

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<sup>95</sup> Much in the same way as the other two adjectival complements *drowsy* and *reluctant*, with which it forms the predicative complement (even though the latter differ from one another in their meaning components).

<sup>96</sup> Id., p. 168.

<sup>97</sup> We consider this to be one of ‘the complications that may arise’ when applying the RRG criteria for establishing the verb’s lexical class (cf. Mairal Usón & Cortés Rodríguez 2006 p.117). State verbs do not occur with progressive; yet BNC frequency of progressive forms is telling: out of the 4,048 texts

(17) “[451] I can see that you are feeling great.” (op.cit: 185)

This, in turn, apparently reinforces aspectual peculiarities commented upon within the Aristotelian concept of time: ‘what may be true at a moment is not necessarily true over a period’. Nevertheless, even if the idea of duration here may be understood as representing ‘countable instantaneous stages of a motion’ (Sorabji 1983 p. 85), the difference between verbs that possess continuous tenses and verbs that do not still holds true<sup>98</sup>, since motion cannot be invoked as an explanation. Rather, the frequency of progressive forms of the type exemplified above might be either because the verb receives a special interpretation (Levin 1993 p. 186) or because it is the result of extensions of such uses as ‘He’s being naughty again’ – a case referring to transitory conditions of behaviour or activity (Quirk et al. 1985 p. 75).

As regards Levin’s (1993 p. 180) verbs used to describe properties of entities, the variety of frames **Verbs with Predicative Complements** are found in do take predicative complements; yet none of the frames has the predicative complement expressed by an AP or an AdvP directly predicated of the verb; rather, the complement is predicated of the immediately postverbal NP, like in **Conjecture Verbs**, where an Infinitival Copular clause is possible<sup>99</sup>:

(18) “The press conjectured Smith to be the appointee.”

*Feel* is a member of this class, but no APs or AdvPs are associated with this alternation.

Example (16) presents yet another case which should make us reflect upon the difference between (i) *feeling[the] heat* and (ii) *feeling hot*: in (i) the underlying idea of “temperature” is rendered through “heat” as the quality of being hot:

(19) ‘She could feel the heat of the dog’s body as it sat at her feet.’ (CIDE)

In (ii), the distinction is built along the dimension ‘having a high temperature’:

(20) ‘After all that running she **was/felt** hot.’ (CIDE)

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containing *feel*, progressive forms of *feel* followed by an adjectival or adverbial phrase register 295 hits in 274 texts, with a frequency of 3.03 instances per million words. The other forms, *feels/felt* cast a frequency of 84.87 instances per million words.

<sup>98</sup>cf. Vendler 1967 p. 22, footnote 4: ‘*I am pushing a cart* is a correct sentence, while *I am loving you* remains nonsense.’

<sup>99</sup> Id., p. 183.

In the guise of reflection upon a constraint that accusative languages seem to share, we would like to add that judgement of the status of a direct object in an SVO construction will easily entail a process of *objectifying*, viz., a subtle shift of the concept expressed by the direct object which detaches itself considerably from the meaning of the (transitive) verb which displaces the sense towards “to experience; to perceive by the mind” (ONLINE DICTIONARY) – we would even suggest “harbour”, or “foster”:

- (21) *Being aware and **feeling love** for mankind cannot — and should not — mean that you have to be totally submissive.* (BNC AYK 1877)
- (22) *The relationship between husband and wife is seen as the closest one can get to God; **the love** that a man and a woman **feel** for each other is the highest form of spirituality.* (BNC ACL 1199)

Finally, the shared behaviour of the whole class of verbs of FEELING in English in terms of stativity and transitivity, and the affinities that these verbs largely display in acceptance of syntactic alternations may, indeed, represent sufficient reasons for grouping FEEL, SENSE and EXPERIENCE together insofar as M-transitivity and M-intransitivity are granted differentiated status and are realized and stored as different senses in the FunGramKB lexicon, for only FEEL displays predicative complementation (cf. ‘construcción atributiva’ in Jiménez-Briones 2004a p. 411), whereas SENSE and EXPERIENCE do not. Besides, the diathesis alternations that the second sense of FEEL accepts, namely Unexpressed Object and Attribute Object (Guerra García & Sacramento Lechado 2011 pp. 20-26), are not applicable to FEEL participating in this complementation pattern.

Therefore, the semantically primitive sense as envisaged above shall be the one stored in the FunGramKB lexicon. We shall consider this sense FEEL<sub>1</sub>, since not only the meaning components and the syntactic frame isolate it from its second (main) use – the transitive dimension – but also the truth of the predicative complement meaning sets the sense apart from the sense expressed in the second part of Jiménez-Briones’s (2004a: 330, 397, 406, 411-423) definition:

- (23) a. How do you feel? ~ I feel happy / angry / sorry (DG)  
b. What do you feel? ~ I feel happiness / anger / sorrow (DG)

The feature value “Reflexivity” has been completed as *optional* because there is a (usually negative) use of *feel*, “to feel unwell”, which justifies it:

- (24) ‘Ruth was not quite feeling herself.’ (NODE)

The translation in Spanish corresponds to the pronominal sense “Notarse en cierto estado físico o de ánimo; encontrarse”: *Me siento optimista* (DUDE).

Therefore FEEL<sub>1</sub> is an M-intransitive state predicate, with one macrorole assigned to the unique argument *x* (Undergoer) and taking an Attribute as a predicating element which belongs to the Core.

SENSE, the second lexical unit under analysis in this section, is a hyponym of FEEL, a semantic prime linked to the second part of the definition proposed in Jiménez-Briones (2004a), namely ‘to perceive a state of mind or a condition of [the] body’. Its lexical structure shows complete correspondence between the Lexical Template variables and the prototypical participants in the transitive alternation. Being an M-transitive verb of state which takes two arguments, it takes the perceiver as subject and the stimulus as object.

According to the chart in the appendix to *The Anatomy of the Lexicon within the Framework of an NLP Knowledge Base* (Mairal Usón & Perrián-Pascual 2009), meta-conceptual distribution of thematic role arguments mentions #PERCEPTION with the following definitions for the participants: *the Theme*, i.e., an entity that perceives another entity through any of the senses, and *a Referent* (viz., an entity that is perceived through any of the senses).

(25) *She could feel and sense the strength in him, not merely physical.* (BNC AN7 3127)

The FunGramKB Suite does not offer the possibility to select these arguments. Instead, *x* must appear as the Theme, that is, the entity that feels an emotion and *y* as the Agent (i.e., the entity that makes another entity feel an emotion). A similar judgement, but from RRG macrorole assignments, casts the Experiencer in the position of Actor and what is perceived as the Undergoer (cf. Jiménez-Briones 2004a p. 417). Nevertheless, in the case of *sense*, the Theme is a sentient entity that exhibits no volitional involvement in the state (an Experiencer); the Experiencer subject is entailed to be sentient/perceiving, though the Stimulus object is not (cf. Dowty1991 p. 579).

The lexeme allows the Unexpressed Object Construction, corresponding to Levin’s (1993 p. 33) Object Not Specified alternation. Also, a different phrase shift is found with *sense*, namely Attribute Object Possessor-Attribute Factoring Alternation (Levin 1993 p. 186):

- (26) a. “I sensed his eagerness.”  
b. “I sensed the eagerness in him.”

EXPERIENCE, the other semantic prime in this group, is also a hyponym of FEEL; it has been analysed under the same definition of the archilexeme, ‘to perceive a state of mind or a condition of [the] body’. Again, like SENSE, EXPERIENCE is analysed as an M-transitive verb of state that takes two arguments, which requires an argument object whose lexical selections reflect the semantic nature of the whole class of verbs of FEELING in English (Jiménez-Briones 2004a p. 416). However, in the case of *experience* and unlike the behaviour of *sense*, the phrase shift Object Not Specified is not possible (cf. Levin 1993 in op.cit. p. 416).

A somewhat more straightforward definition of *experience* which does justice to its idiosyncratic nature is offered in NODE: ‘to feel (an emotion)’: *an opportunity to experience the excitement of New York*. Likewise, it appears as a (formal) synonym of *feel* in Faber and Mairal Usón (1998b p. 47), since the focus is placed on ‘the way the speaker manifests his/her feeling towards an entity in the outside world’, that is, the entity or event that produces the emotion is focalized.

The lexical units described thus far provide only partially the information concerning the group of *Feeling Verbs* as analysed in Jiménez-Briones (2004a). Since the archilexeme FEEL has been entered in consistence with the lexical-grammatical features belonging to one of its senses, namely its semantically primitive sense, it yielded one entry, FEEL<sub>1</sub>, corresponding to one of the two lexical templates devised in Jiménez-Briones. Further analysis on this and other verbs of FEELING in English may make up for the missing information.

As a hyponym of FEEL, SENSE is shown not to comply with the description and the definitions offered in its FunGramKB feature-value frame: the distribution of meta-conceptual thematic role arguments would be more in consistence with its intrinsic lexical-grammatical properties if the FunGramKB LCM Core Grammar offered the same dialogue as for +EXPERIENCE\_00, namely, an adjustment of FunGramKB Participants from Agent/Theme/Attribute to Theme/Referent.

The detailed information entered into the FunGramKB Suite for FEEL, SENSE and EXPERIENCE is displayed in the Appendix in tables 1 to 3. An outline of the lexical units’ conceptual lexical structures (CLS) is presented in the table below:

Lexical unit	Aktionsart	Lexical template: variables	Lexical template: restrictions	Constructions
FEEL	STATE	x-Theme; y- Attribute	MR1, U = x	pred'
SENSE	STATE	x – Theme; y – Agent	MR2, U = x	Unexpressed object; Attribute Object
EXPERIENCE	STATE	x – Theme; y – Referent	MR2, U = y	--

## 5.2. Group 2: **To cause somebody to feel emotional aversion**

The verbs stored under this subconcept are ANNOY, BOTHER, IRRITATE, NETTLE, and RILE. Following Jiménez-Briones (2004a), four of them, namely *annoy*, *irritate*, *nettle*, and *rile* belong to the subdomain **To cause somebody to feel emotional aversion**, whose archilexeme is *anger*.

Paradigmatic organization was initially tackled in Jiménez-Briones (2004a pp. 342-343) when the entire field of verbs of FEELING in English was analysed. There, definitions are supplied for three of these verbs:

ANNOY: to **anger** moderately (usu. by certain repeated persistent acts);  
IRRITATE: to **annoy** somebody (usu. because you cannot stop it continuing);  
RILE: to **anger** (informal).

Further work on the subdomain of ‘anger verbs’ is reconsidered in Jiménez-Briones (2007), where the paradigmatic organization of this lexical subdimension proposes both lexical templates and slightly modified definitions for the members of the class. We reproduce below the definitions for four of the five verbs under discussion:

**Annoy**: to **anger** a little  
**Nettle**: to **annoy** somebody for only a short time  
**Irritate**: to **annoy** somebody, causing them to feel irritated  
**Rile**: to **anger** somebody very much [infml.]<sup>100</sup>.

According to the organization of the domain of Verbs of FEELING in English in Jiménez-Briones (2004a), *bother*, the fifth member of the group, actually belongs to **9.1. To cause somebody to feel anxiety/worry**.

Factorization of meaning components shows connections of *bother* with several subdomains, it being a polysemous verb. It is again by considering the complementation patterns that the verb’s membership with *annoy* can be isolated:

(27) ‘Don’t **bother about** me – I’ll find my own way home’. (NODE)

<sup>100</sup> Id., p. 2.

Within this pattern, *bother* is a verb of State (valence 1, M-intransitive) whose lexical structure presents an Experiencer subject that reacts affectively to an event or situation representing the cause of the change in the Experiencer's psychological state. This sense of *bother* is associated with causative alternations in what Levin (1993 p. 191) calls transitive/intransitive pairs; it expresses the stimulus/object of emotion in a prepositional phrase (an oblique NP) headed by the preposition *about*:

(28) 'If something **bothers** you, or if you **bother about** it, it worries, annoys or upsets you'.  
(CC)

This sense groups *bother* with *Marvel Verbs*, a set of intransitive Psych-verbs which do not show as wide a range of behaviour as the *amuse*-type verb class (Levin 1993 pp. 192-193), of which *annoy* is a member. The oblique object is never human, i.e., no Agent is present syntactically; rather, the semantic distinction leads to considering the stimulus – a derived nominal – in terms of stativity (Rappaport 1983 cited in Dowty 1991 p. 558), which could explain why *by*-phrases are ungrammatical with this verb class:

(29) Sam's annoyance (\* by Dave)

The derived nominal has a "passive" interpretation only (Levin 1993 p. 190):

(30) David's annoyance (at her pressing requests) (DG)

The description that *bother* receives in the FunGramKB Editor demonstrates class membership together with *annoy*, *irritate*, *nettle*, and *rile*. In this sense, *bother* is a hyponym of *annoy* realized through a lexical structure applicable to all the verbs in the group. They all behave like M-transitive verbs taking the Actor as subject (an event, a situation, an animal, or a human participant) and the Undergoer as the human object affected by the psychological situation:

(31) *The nettle-rash got somewhat better in time, but it continued to **bother** him at regular intervals for the next 20 years.* (BNC BM1 966)

(32) *I can't remember, it was so awful it seemed a lifetime, why do you endlessly **bother** me, why do you carp so?* (BNC APM 2840)

(33) *Although they did not know the reason for my journey, they were far too sensitive to my feelings to **bother** me with questions.* (BNC FR6 2567)

The Agent in (31) causing “minor irritations” finds expression in a health condition, hence not involved volitionally in the same way as the one in (32). From pragmatics, the intentionality of the Agent frequently appears in formulaic expressions which apparently try to minimize the inconvenience by apologizing in anticipation of the outcome (e.g., ‘I’m very sorry *to bother* you’), in which case the sense is displaced towards *disturb* (through interruption), and annoyance in the Experiencer object is the result of the interruption. Example (33) shows the presence of an additional prepositional phrase headed by *with* which introduces the type of inconvenience, hence participation in the Possessor Subject Alternation (Levin 1993 p. 77).

Bother	
Nuclear meaning	cause annoyance (NODE); annoy (LDOCE); annoy (CIDE), annoy (MacMillan); cause inconvenience or discomfort (VT)
Manner	by interrupting (NODE, LDOCE, MacMillan); by inconveniencing them (NODE); causing mild irritation or impatience (NODE) / when they are trying to do stg (NODE); when they are busy and want to be left alone (MacMillan); when someone bothers you, they talk to you when you want to be left alone or interrupt you when you are busy (CC)
Phenomenon	stg unpleasant, like petty annoyances (LDOCE), interruptions (NODE, MacMillan), or inconveniences (NODE)
Experiencer	Human / you
Usage/ Pragmatics	Common /Familiar

Interrupting someone does not always entail that the Experiencer is busy doing something; rather, the (human) Stimulus subject demands attention of the Experiencer object so as to entice/drive him/her into a kind of social interaction which is, in terms of synonymy, demonstrated by an array of verbs describing various degrees of intrusion into the Experiencer’s vital space. Most of the circumstantial components which accompany the definitions are centred around the psychological state created in the experiencer-object, whose semantic field includes *annoyance, inconvenience, irritation, discomfort*.

We propose the following definition for *bother* belonging to the subdimension **To cause someone to feel emotional aversion**: “To **annoy** somebody by demanding their attention and service” – provided that *demand* does not flout the principle of defining a word by using terms which are more complex than the ones used in the nuclear meaning itself. Another possible version might be “To **annoy** somebody by insistently asking their attention and service”.



There are several features common to the whole group: firstly, they all represent a Causative state in the lexical structure, which contains two variables, an Actor and an Undergoer (an Agent and a Theme as FunGramKB participants). They all participate in the Possessor Subject Alternation (although examples illustrative of this behaviour are quite scarce in the BNC for the informal hyponyms *nettle* and *rile*):

(34) *Jane's constant chatter was beginning to annoy him.* (BNC EVG 2132)

The elements can be reordered so as to produce (35), in which the cause of the psychological state referred to by the verb is expressed as two distinct arguments, which makes this type of factoring alternation be viewed as an “‘oblique’ subject alternation” (Levin 1993 p. 77).

(35) *Jane was beginning to annoy him with her constant chatter.* (DG)

Appendices 4 to 8 gather the information entered into the FunGramKB Editor for the verbs in group 2.

### 5.3. Group 3: **To feel aversion** (+DISLIKE\_00 → +HATE\_00)

The verbs stored in the Ontology under +DISLIKE\_00 analysed in this dissertation display +DISLIKE\_00 as a hypernym of +HATE\_00 and, in turn, +HATE\_00 as a hypernym of +ABHOR\_00, +ABOMINATE\_00, +DETEST\_00, +EXECRATE\_00, and +LOATHE\_00. The subdomain was first dealt with in Faber and Mairal Usón (1998a) from the perspective of predicate frames. Dimension-level schemata that have been found to respond to this categorization parameter highlight the different ways in which the speaker shows his or her feelings, with the focus on the entity that produces the emotion: *to feel/experience aversion/dislike* and *to feel/experience attraction/interest* (op.cit p. 47), in themselves polarized along the axiological coordinates of *good* vs. *bad* (Faber 1992 pp. 4-5). Parts of the hierarchy established therein emphasise the scale of intensity which is increasing from *love* to *deify* and, similarly, from *dislike* to *loathe*.

As shown in 4.2.3, organization of the whole field of verbs of FEELING in English groups the verbs enumerated above in **5. to feel aversion** and assigns *dislike*, *hate*, and *detest* as archilexemes of the subdomain, as they lexicalize distinct degrees of intensity of the negative feelings they express (Jiménez-Briones 2004a p. 342).

The description offered in the FunGram KB Conceptual frame sets *dislike* apart from its hyponyms: *have or feel a dislike or distaste for*; a guiding example is meant to focus the linguist’s attention on the idiosyncratic features of the verb to be analysed: ‘I really dislike this salesman’.

Surely *dislike* is by no means the only concept in English which is bound to be defined by making recourse to its antonym/opposite. Most of the definitions used for establishing the meaning components give ‘not to like’ or even ‘to not like’ as the denotative explanation:

Dislike	
Nuclear meaning	not like them (LDOCE); do not like them (CC); to not like (CIDE); feel distaste for or hostility towards (NODE); be averse to (NWT)
Manner	<i>think</i> someone or something is unpleasant (LDOCE); you <i>consider</i> them to be unpleasant (CC); <i>show</i> aversion to (Webster); to <i>find</i> someone or something unpleasant, difficult (CIDE)
Phenomenon	thing to which one feels aversion (NODE); the things that you do not like (LDOCE), feeling of not liking (OC)
Experiencer	Human / you
Usage/Pragmatics	(rather) formal; “slightly more formal and stern than ‘not to like’” (NWT)

In the case of *dislike*, from among the dictionaries and thesauri consulted for identification of selection restrictions, the only dictionary which gives a definition directly related to *feel* is NODE. All the other definitions refer the user to considering a cognitive process (via *think*, *consider*, or *find*) or else a change in attitude, facial expression, posture and the like (suggesting therefore an outward physical expression of the feeling or the psychological process). While keeping the “slightly formal” pragmatic feature as distinctive of the use of *dislike*, I propose the definition ‘To **feel** distaste for or ill will towards’.

(36) *Simply to like or dislike, be attracted or repelled, feel pleasure or pain, involves a quickening or a shrinking from awareness, a point which we shall be looking at more closely in the chapter Awareness and pleasure.* (BNC CB1 168)

### 5.3.1. HATE, DETEST, ABHOR, ABOMINATE, EXECRATE, and LOATHE

As stated in section 5.3 above, the intensity displayed through concepts expressing aversion increases along both the positive and the negative dimensions from the superordinate term downwards through hyponymy (Jiménez-Briones & Pérez Cabello de Alba 2008 p. 137). To the members of the negative scale,

*hate*→*abhor*→*detest*→*execrate*→*loathe* (Faber & Mairal Usón 1998a p. 47), we add another subconcept, +ABOMINATE\_00, modelled in the Ontology and stored with the same description as the other members of the group.

The distinctions to be made between the lexemes lie not only in regard to frequency, usage/pragmatics and style but also in status, or presence in dictionaries. Thus, *hate* and *loathe* are common style as compared with *abhor* (educated), *abominate* (formal), and *execrate* (literary), while *detest* occupies a position in-between (rather formal). One can hardly expect to find them in the same contexts, yet they are more often than not considered synonyms in the resources consulted.

Although the description *have or feel a dislike for* stored in the FunGramKB conceptual frame for *hate* meets the requirements for appropriateness as regards meaning components, the definition considers either *have* or *feel* or as the superordinate term, which casts considerable ambiguity on the concept due to both the presence of alternatives and the expression of awareness of the feeling (Faber & Mairal Usón 1998a p. 39). We shall adopt the definition of **hate** proposed in Faber and Mairal<sup>101</sup> to **dislike** (*somebody or something*) *extremely and intensely*, as it is in consistence with paradigmatic organization of the subdomain, in which *hate* is a hyponym of *dislike*.

In view of further work on meaning factorization, the following may constitute suggestions for some of the meaning components of the hyponyms of HATE:

- ABHOR has formal usage and contains two axiological vectors related to “moral reasons” (LDOCE): someone hates a way of behaving (i.e., right vs. wrong) and a way of thinking (goodness vs. badness of human character) in someone who does not accept the rules seen as right and good by the members of a group or community;
- EXECRATE: someone expresses hatred towards wrong behaviour or bad character in someone who does not accept the rules seen as right and good by the members of a group or community;
- ABOMINATE (literary; social sciences): someone sees with disgust and hatred an act that caused, or may cause, physical harm or mental shock;
- DETEST (rather formal): someone hates someone or something very much;
- LOATHE: someone hates someone or something intensely/very much (common).

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<sup>101</sup> Id., p. 48.

The resources consulted (LDOCE, NODE, CIDE, CC, OCD, VT, NWT) allow comparison between the idiosyncratic features present in the meanings of the verbs above and a reordering on two different scales of intensity. One subgroup is represented by *detest* and *loathe* as hyponyms of *hate*. *Detest* may be differentiated not only through (rather formal) usage but also because it entails the existence of an inherent negative quality in the person or thing that makes them “deserve to be hated” (NODE, LDOCE, CIDE). The Experiencer subject shuns proximity to or interaction with the Stimulus Object. *Loathing* suggests visceral hatred that causes, or may cause, a physiological reaction (NWT, CC, OCD, VT).

The second subgroup evinces links with judgement, therefore approximating them to verbs of saying; the examples found in the BNC and in dictionaries and thesauri reflect their use in situations in which an opinion is requested from the speaker (i.e., the Experiencer subject). While *abhor* and *abominate* are attested as synonyms, *execrate* has been found in only four of the dictionaries consulted. Also, there are few examples in the BNC of these lexemes as verbs; rather, they appear as *abhorrent*, *abominable*, and *execrable*, respectively in a relatively frequent number of texts.

Class membership matches all the verbs belonging to Jiménez-Briones’s (2004a pp. 328-346) organization with Levin’s (1993 pp. 191-192) **negative Admire Verbs**. They are transitive verbs with an Experiencer subject and an object that received several characterizations (e.g., theme, stimulus, or subject matter). The archilexeme *hate* presents the most complementation patterns, while *execrate* appears in the passive in four out of the six examples attested in the BNC; in one of the two (active) transitive samples, it shows participation in the Possessor Object Possessor-Attribute Alternation, or takes Sentential complements:

(37) *Fundamentalists execrate someone for writing a book that they haven't read, and a famous novelist has to go into hiding for fear of his life.* (BNC A7Y 254)

The verbs in this group represent M-transitive verbs with two variables. Macrorole assignment follows the same restrictions as for Causative States, MR2, U = y. The FunGramKB participants are a Theme (i.e., the Experiencer subject) that feels an emotion and an Agent (which we deem as *stimulus* in the case of *hate*, *detest* and *loathe*; and a *target object* or *subject matter* in the case of *abhor*, *abominate*, and *execrate*). Tables 9 to 15 in the Appendix reflect the information entered into the FunGramKB Editor for the verbs in this group.

#### 5.4. Group 4: **To feel fear** and **To cause somebody to feel fear**

As mentioned in 4.2.3, the verbs stored in the Ontology under +FEAR\_00 represent in large part verbs analysed in Jiménez-Briones (2004a pp. 462-471). Two of the verbs in the subdomain **8. To feel fear**, namely, *fear* and *dread*, are modelled under +FEEL\_00 with +FEAR\_00 as the archilexeme. The third verb receiving the same description, *scare*, belongs to **8.1. To cause someone to feel fear**, and has been entered into the FunGramKB Editor according to the characteristics of bivalent transitive verbs in the subgroup it belongs to. In turn, the subconcept \$TERRIFY\_00 registers *panic*, an anticausative verb in its primary use, which may also participate in the Causative Alternation. We have entered the information for the former, more frequent use after consulting the BNC samples, and it will therefore belong to the subgroup under +FEAR\_00. The subconcepts marked with an asterisk do not figure in Jiménez-Briones's (2004a) classification:

SUBCONCEPT	CLASS MEMBERS	DESCRIPTION	SUBDOMAIN Jiménez-Briones (2004a)
→+FEAR_00	fear dread ↗ scare	be afraid or scared of	<b>8. To feel fear</b>
→ → +TERRIFY_00	*horrify *make your blood run cold *make your flesh creep *make your hair stand on end panic ↗ *scare to death \$terrify	to feel so frightened that you cannot think clearly	<b>8.1. To cause somebody to feel fear</b>

##### 5.4.1. **To feel fear**

The archilexemes *fear* and *dread* are bivalent (transitive) verbs with an Experiencer subject belonging to the class of negative **Admire Verbs** (Levin 1993 p. 191; Jiménez-Briones 2004a p. 462) that participate in the Causative Construction, and show the following Diathesis Alternations: Object Not Specified, Possessor Object, and Attribute Object.

One of the senses of *panic* is described as an anticausative verb of State (Jiménez-Briones 2004a pp. 462-473) which can also appear in the Causative subdomain. In the

former case, its cause argument can be left unexpressed ‘only if the nature of the causing event is left completely unspecified’ (Levin & Rappaport 1995 cited in Jiménez-Briones 2004a p. 467).

Apart from the specificity of *panic* in its frequent use, it can also appear in the Resultative Construction:

(38) *Do not stop medication such as this overnight, however, because it is possible to suffer withdrawal symptoms that **panic** the sufferer into taking the pills for the rest of their lives.* (BNC BNL 1741)

(39) *I know the events of last week have been difficult for you, but you shouldn't allow them to **panic** you into a hasty decision.* (BNC HD7 1837)

Out of the 438 BNC samples, there are 18 hits of *panic*-transitive, 8 hits of *panic*-resultative and the remaining 412 show *panic* in its most frequent use, i.e., as an anticausative verb.

The verbs in this subgroup receive the following definitions (Jiménez-Briones 2004a p. 339):

FEAR: ‘feel fear, i.e. the unpleasant, strong feeling caused by the presence or expectation of danger’;

DREAD: ‘feel great fear about something unpleasant that is going to happen’;

PANIC: ‘feel panic, i.e. a great sudden feeling of fear which makes you unable to act sensibly or think clearly’.

The information entered into the FunGramKB Editor occupies tables 16 to 18 in the Appendix to this dissertation.

#### 5.4.2. To cause somebody to feel fear

The verbs and idiomatic expressions stored under \$TERRIFY\_00 can be grouped under the same concept of causation because of their unifying property of having a Stimulus subject as the causing Agent and an Experiencer object as the Theme.

Meaning distinctions and the presence of composing elements sets them apart for several reasons. But first, we shall mention the properties they have in common, namely, they represent lexical concepts expressed by single lexemes in the case of *terrify*, *scare*, and *horrify*, and they are lexicalized as complex concepts in the case of *make your blood run cold*, *make your flesh creep*, and *make your hair stand on end*.

TERRIFY and SCARE are analysed in Jiménez-Briones’s (2004a) class **8.1. To cause somebody to feel fear** alongside other verbs which have not yet been stored in

the Ontology as (sub)concepts of +FEEL\_00, therefore we will only refer to these two lexemes, for which tables 19 and 20 in the Appendix reflect pertinent information. They are bivalent transitive verbs redefined as ‘*cause (somebody) to feel terrified, i.e., extreme fear because they think they might be killed*’ and ‘*cause (somebody) to feel fear in a sudden way*’, respectively. They belong to the class of (negative) **Amuse Verbs**, and participate in the Middle Alternation, the Unexpressed Object Construction and the Resultative Construction:

- (40) *Apart from **terrifying** him into submission, there is no sure-fast remedy to make him comply with your wishes.* (BNC HP6 1142)  
 (41) *He had felt that he was in the presence of something that wished him harm; some malign, unseen enemy who wanted to **scare** him into leaving.* (BNC ACV 1133)

Unlike *scare*, *terrify* also takes the Possessor Subject Alternation – again, characteristics which are reflected in their corresponding table:

- (42) *It's exactly like those fairy-tale books they **terrified** us with.* (BNC FEP 813)

SCARE TO DEATH has been modelled as an example of a resultative construction, of which there are quite a few types (Jiménez-Briones 2004a pp. 474-475; Levin 1993 pp. 99-101; Mairal Usón & Ruiz de Mendoza 2006 pp. 17-26), presumably in order to validate the correct functioning of the algorithm, and so it has been given priority over other terms forming the Standard English Core Vocabulary. Its characteristics are inherited from the causative use of *scare*, except that it only participates in the Resultative Construction, where other paradigmatic variants are possible:

- (43) *But his new picture of Marie did not take into account those disturbing scenes in her kitchen, or in the pill-box tunnels when her aggressive, violent behaviour had **scared** him half to death.* (BNC ACB 3048)  
 (44) *He also **scared** the daylights out of us when he said: ‘If you put down anything I don't like, I'll hunt you down like a shit-house rat’.* (BNC ABS 880)

The thematic frame includes the prototypical participants of a Causative Accomplishment situation which involve an Actor (x) and an Undergoer (y). The Lexical Template restrictions follow the same configuration as for single lexical units (MR2, U=y), while the idiosyncratic characteristic of Phrase Constituents has been completed with the headword *scare*.

HORRIFY, ‘fill with horror, cause someone great shock’ belongs to the same subdimension **8.1. To cause someone to feel fear**. Nevertheless, pragmatic evidence situates it among other verbs of FEELING in English which may be downtoned in their use and made to refer figuratively to something seen as a bad event or ‘action contrary to expectations’ and therefore ‘is more compatible with an impulse to counteract what has happened’, in which case it represents the counterpart of the formal *appal*, whose synonym it is (Wierzbicka 1992 p. 571). It is a bivalent (transitive) verb of the negative set of *Amuse Verbs*, with an Experiencer object reacting to an alarming situation or on becoming apprehensive of physical injuries. It does not show the same range of possibilities as most of the verbs of the class, and it appears in only 172 BNC samples, of which only one shows the Unexpressed Object Construction:

(45) [...] *on a canopy late at night. The kind that defies logic, and horrifies. The severed human or animal head was another powerful pre-Christian image --.* (BNC A7D 1093)

Most of the BNC examples represent passive constructions (167 out of 172).

The information entered into the FunGramKB Editor is reflected in table 25 of the Appendix.

#### 5.4.3. MAKE YOUR BLOOD RUN COLD, MAKE YOUR FLESH CREEP, and MAKE YOUR HAIR STAND ON END

Analysis of these idiomatic expressions is, in our view, beyond the scope of this dissertation for several reasons. Firstly, they are but three of a very large set of idioms which constitute the material for a specialized dictionary of idioms – in this case, they are attested in the Cambridge Idioms Dictionary, 2<sup>nd</sup> Edition (Cambridge University Press 2006). Secondly, the relationships between the terms go beyond the ordinary linguist’s capacity of finding appropriate slots in the FunGramKB Editor where all the elements entering their composition may be reflected. Thirdly, they do not even inscribe in the challenging set of Resultative Constructions, which restricts our range of analysis to a traditional, grammatical set of considerations. The information entered in the Editor considered them as single units through their closest synonyms among the generous class of verbs of FEELING in English. Thus, (i) *make your blood run cold* has been considered an informal counterpart of *shock*; (ii) *make your flesh creep* has been matched with *horrify*; and (iii) *make your hair stand on end* found a near synonym in



*make someone feel very frightened* (i.e., *frighten someone*), but without sharing the characteristics of Diathesis Alternations with the corresponding lexical units.

Further evidence may be added from the BNC samples:

- (i) 15 hits in 15 different texts for *make your blood run cold*;
- (ii) 9 hits in 9 different texts for *make your flesh creep*;
- (iii) 12 hits in 12 different texts for *make your hair stand on end*,

They have been our source of illustrative examples. The corresponding information is reflected in tables 22 to 24.

### 5.5. Group 5. Judgement Verbs: FORGIVE and PARDON

The verbs belonging to this group share some properties with the positive *Admire*-type of psychological verbs in that someone may have a particular feeling in reaction to someone's behaviour or attitude. Unlike ***Admire Verbs***, they establish a link with a moral dimension, i.e. they entail passing judgment upon someone's way of behaving (right vs. wrong) or way of thinking (i.e. goodness or badness of character) reminiscent of some reprehensible act. The axiological dimension of condemning someone is intimately linked to a set of values and/or a code of conduct which is transmitted through generations in a human community. Unlike *abhor* in Group 3, *forgive* and its formal counterpart *pardon* evokes human interrelationships and implications of a religious criterion of right vs. wrong.

The description in the FunGramKB Conceptual information framework *stop blaming* has been corroborated with similar definitions in other dictionaries. We consider it in consistence with the meaning of the verbs.

The BNC samples cast a rather different picture precisely because both *forgive* and *pardon* are polysemous words related diachronically with religious topics. While distinguishing between the different senses, the complementation patterns became evident.

While both verbs are bivalent (transitive) with Experiencer subjects and subject-matter (or target) objects, *forgive* has by far a wider range of syntactic behaviour than *pardon*. They participate in the Possessor Object Alternation and the Possessor and Attribute Alternation:

- (46) *And I'm sure she's long ago forgiven her dad for the pain he unwittingly caused her.*  
(BNC CH5 1131)

(47) Give me the leave to make the best of my fortune and only **pardon** me the abuse of your house.(BNC KPV 7719 )

What characterizes *forgive* and *pardon* within the class of judgement verbs is their property of displaying a construction with a double object which presents constraints of a different type from the Dative Alternation of the Give-type verbs. In the case of *forgive* and *pardon*, the possible construction is restricted to NP V NP1 NP2, in which NP1 expresses the indirect object (i.e. the person to whom forgiveness/pardon is granted) and NP2 expresses the direct object (i.e. the wrong deed or attitude).

The information entered into the FunGramKB Editor for *forgive* and *pardon* is reflected in tables 26 and 27.

#### 5.6. Group 6: To feel something good, to feel happiness/attraction, to cause somebody to feel happiness/attraction

The verbs analysed in this group are included in different subdomains in Jiménez-Briones's (2004a pp. 328-346) organization, from which we reproduce only the relevant stretches:

‘(p. 342): **2.To feel something good** [*enjoy*]: ENJOY, LIKE  
 (p. 335): **4. To feel happiness** [*delight, thrill, gloat, cheer, gladden*] DELIGHT (IN), [...]  
 (p. 336): **4.1. To cause somebody to feel happiness** [*please, delight, cheer, gladden, thrill*]: PLEASE, [...] DELIGHT, [...]  
 (p. 343): **6. To feel attraction** [*like, love, admire*] LIKE, PREFER, [...], LOVE, [...]  
**6.1. To cause somebody to feel attraction** [*attract, fascinate, interest*]: ATTRACT, APPEAL TO, [...] EXCITE, [...]

In her work, detailed analysis is carried out for the subdomains **4. To feel happiness** and **4.1. To cause somebody to feel happiness**, some of the members of which are stored in the Ontology under +FEEL\_00.

CONCEPT +FEEL_00	CLASS MEMBERS	DESCRIPTION	SUBDOMAIN (Jiménez-Briones (2004a)
→+EXCITE_00	--	not yet modelled	<b>6.1.To cause somebody to feel attraction</b>
→+LIKE_00	DELIGHT LIKE PLEASE	give pleasure to; be pleasing to	<b>4.To feel happiness; 2.To feel something good</b>
→ →LOVE	<u>LOVE</u> <u>ENJOY</u>	get pleasure from	<b>2.To feel something good</b>
→ → →ATTRACT	APPEAL ATTRACT	no description in the lexicon	<b>6.1.To cause somebody to feel attraction</b>

The presence of the archilexemes *like* and *love* in two different subdomains refers us to their status of polysemous verbs. The complexity of these particular subdomains is reflected in the diversity of complementation patterns. As specified in Methodology (see 3.4 above), one of the criteria considered in undertaking analysis of the verbs was to observe their organization in the FunGramKB Editor and the descriptions stored in the Conceptual Information frame whenever they are in consistence with the meaning of the verbs under analysis, or else turn to the organization proposed in Jiménez-Briones (2004a) whenever the descriptions do not obtain. *Like* has been underlined for reasons of emphasis: since it appears in two distinct subdomains, namely, **To feel something good** and **To feel attraction**, we had to decide which of the definitions corroborates the superordinate term and to what extent the description renders its meaning. We have finally decided to tackle LIKE in its sense *get pleasure from*, in which case it is in consistence with and closer to the description and the examples offered in the Conceptual Information frame of LOVE and ENJOY, respectively. The example given for these two concepts “I love cooking” – and, by extension – “I enjoy cooking” is in agreement with “I like cooking”, with a caveat for the intensity of the emotion felt by the subject, i.e., the Experiencer. The object has been characterized through various labels, among them ‘theme, target of emotion, stimulus, and subject matter’ (Levin 1993 p. 192). Given polysemy in both *like* and *love*, we believe that they may figure not only in **6. To feel attraction** but also in **2. To feel something good**. Considering the three verbs with their sense *to feel something good* would eliminate ambiguity as regards the status of the semantic role of the object they take, namely, that of stimulus or subject matter, since the examples chosen do not refer to animate objects.

Jiménez-Briones’s arguments in favour of including DELIGHT (IN) in the same group with LIKE represent yet another challenge. As mentioned in 3.4 above, the problem of considering the preposition of certain ‘prepositional verbs’ within the core or outside it might find support in other criteria, for example, the way in which the verb under consideration behaves in BNC concordances. Both *suffer* (which shall be dealt with in 5.8 below) and *delight* appear in the Unexpressed Object construction:

- (48) *Goldberg **delighted** when I told him about the gauze and the draught, he wrote.* (BNC A08 2515)
- (49) *There is much else to **delight** and to be savoured in this collection.* (BNC CAJ 1679)

The example in (48) does present the anticausative use of *delight*, yet it is the only hit out of 544 in the BNC. In (49), another unique example in its kind seems to confirm the transitive pattern. A few isolated hits (7 in number) display the complementation *someone delights to do something*. The remaining samples are distributed between the causative construction (332) and the *delight in* pattern (203). Evidence from ‘real’ language seems to confirm that there is a tendency to misuse the verb *delight*, which is included in the somewhat reduced list of **Marvel Verbs** (Levin 1993 p. 192): an intransitive verb which expresses the stimulus/object of emotion through a prepositional phrase headed by the preposition *in*. The verb also participates in the Possessor Subject Possessor-Attribute Factoring Alternation, although its frequency of use is inconclusive (3 examples):

(50) *They clear the lawn of slugs and at the same time **delight** us with their presence.* (BNC A70 592)

Until new amendments are made to the status of prepositions in both theoretical assumptions and the FunGramKB application, we shall tackle *delight in* in the sense *get pleasure from* because of the frequency in BNC examples of inanimacy in the semantic load of the entity expressed through the prepositional phrase.

The information entered for the members of this subgroup is reflected in tables 28 to 31 of the Appendix.

#### 5.6.1. EXCITE and PLEASE

Both verbs belong to the positive set of **Amuse Verbs** (Levin 1993 pp. 189-191). They are transitive verbs whose subject denotes the cause of the change of state in the Experiencer object. They participate in the Pro-Arb Object Alternation and the Possessor Subject Possessor-Attribute Alternation.

Nonetheless, there are noteworthy differences in the use of these two verbs with respect to the Passive Voice. Examples of *excite* do appear, but in them animate Stimulus subjects are scarce in the sense **6.1. To cause somebody to feel attraction** (Jiménez-Briones 2004a p. 343). Rather, the Stimulus subject is in most cases an event, a fact, or else an inanimate entity that acts upon an Experiencer object:

(51) *Flying still excites me with that curious mixture of fear ... and the knowledge that at the other end of the journey there will be new sounds and smells and things to look at.*  
(BNC A6T 1439)

PLEASE, belonging to **4.1. To cause somebody to feel happiness**, has been entered into the FunGramKB Editor according to Jiménez-Briones's analysis<sup>102</sup>.

Tables 32 and 33 reflect the information entered into the FunGramKB Editor for these verbs.

### 5.6.2. SURPRISE

Unlike most of the other verbs discussed so far, SURPRISE has a special status due to its ambivalent axiological status. In the sense related to FEEL, the verb appears with the meaning *to cause someone to feel mild astonishment or shock*: the surprise itself is meant to cause pleasure. The other sense does not vary the complementation pattern dramatically, yet the pattern imposes a shift in meaning towards action, or aggression, while keeping a common nuclear meaning of unexpectedness. In this case the scale is not of intensity of the feeling expressed or experienced; rather there is a movement between two opposed poles, in the latter case, pain (*to attack or capture someone*). SURPRISE belongs to the positive set of **Amuse Verbs** (cf. Levin 1993 pp. 189-191). It is a transitive verb whose subject denotes the cause of the change of state in the experiencer object. It participates in the Pro-Arb Object Alternation and the Possessor Subject Possessor-Attribute Alternation. Table 34 in the Appendix reflects the information proposed for this lexical unit.

### 5.7. Group 7. **To cause somebody to feel attraction**: ATTRACT and APPEAL TO

Although organization in Jiménez-Briones (2004a) of the verbs of FEELING in English groups APPEAL TO and ATTRACT in 6.1. (see 4.2.3 above), we consider that they do not display the same causative behaviour. APPEAL TO is an intransitive verb belonging to the small class of **Appeal Verbs** and taking the Stimulus as subject and expressing the Experiencer in a prepositional phrase headed by the preposition *to*. The stimulus is expressed as a nominative NP and the experiencer as a Dative NP (cf. Levin

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<sup>102</sup> Id., p. 400.

1993 p. 193). BNC concordances show a fairly consistent use of the Dative construction, although three examples have been found in which the prepositional object is not expressed:

- (52) *The apparent ritualistic posing, although strongly performed and easy to understand, did not **appeal** in the same way as his Song of the Earth.* (BNC A12 1242)

ATTRACT, in turn, is characterized as a bivalent verb with a Stimulus subject and an Experiencer object which participates in the Unexpressed Object Construction and the Possessor Subject Alternation.

One of the possible nuclear meaning components that both *attract* and *appeal to* share is “arouse interest in”, which has been found in several thesauri (VT, ECC, NWT). In *x attracts y*, *x* (the Stimulus subject) possesses the force to cause *y* (the sentient Experiencer subject) to feel interested; likewise, *x appeals to y* presents the Experiencer as a sentient indirect object resonating with that which represents the interest or the attractiveness. A possible gradient could be established by taking *x appeals to y* as the starting point in what may be considered the culminating points of stages in a process:

- (53) It appeals to me → It attracts me/I am *or* feel attracted by it → It pleases me/I am pleased by it → I am delighted by it/It delights me → I am excited by it/It excites me (DG)

It is only *it appeals to me* that blocks the use of the passive construction, whereas all the other verbs not only accept but give precedence to the passive over the active variants. The corresponding information for *attract* and *appeal to* is reflected in tables 35 and 36 of the Appendix.

#### 5.8. Group 8: **To feel something bad**

Out of the verbs belonging to the subdomain **1. To feel something bad**, which is analysed in Jiménez-Briones (2004a), SUFFER is the only one that has been modelled in the Ontology to date. It is a bivalent verb with an Experiencer subject and a subject-matter object expressing in most cases the cause of the psychological state. The status of the preposition *from*, which heads the object when it is expressed, is the cause of debate as to the place it occupies in the core of the lexical structure (cf. Jiménez-Briones 2004a pp. 424-436). We agree with Jiménez-Briones on the treatment of *suffer*, whose information is reflected in table 37 of the Appendix.

### 5.9. Group 9: **To cause somebody to feel anxiety/worry**

The last group to be dealt with in this analysis is represented by a set of causative verbs whose archilexeme is +WORRY\_00. As hyponyms of *worry*, the FunGramKB Editor stores DISQUIET, DISTURB, PERTURB, and TROUBLE. The description in the Conceptual Information frame is not in consistence with the behaviour of these bivalent verbs, which express the cause of the psychological change as the Agent and the Experiencer object as the Theme. There are two distinct subsets as far as style and usage are concerned: the archilexeme *worry* displays a wider range of complementation patterns than all the other members, and is related to *trouble* through meaning components that render them synonymous in most contexts. The usage of *disquiet* and *perturb* is formal, whereas *disturb* occupies a position in between, showing close semantic links with *bother* in group 2 (see 5.2 above).

The verbs belong to the negative set of **Amuse Verbs** (Levin 1993 pp. 189-190) and behave in large part like the verbs in group 2. The fact that *worry*, *disturb*, and *trouble* allow use in the progressive has determined us to assign them the Aktionsart *Causative Accomplishment*. The information entered into the FunGramKB Editor is reflected in tables 38 to 42 of the Appendix.

## 6. CONCLUSIONS AND FUTURE WORK

### 6.1. Conclusions

The analysis presented in this chapter is to be regarded as an attempt at applying within FunGramKB the procedures we became acquainted with after studying the theoretical assumptions reviewed in the preceding sections of this dissertation. The information has been steadily benchmarked against BNC samples of real language – albeit mainly from written texts. The variety of dictionaries and thesauri consulted has proved unequal and in most cases confusing and circular, which has determined us to base our analysis on the BNC as a rule.

Entering information for idiomatic expressions has been disconcerting in that there are no specific slots for fixed phrases, so it is altogether impossible to rest assured on the basis of the feature-value block that all the complex syntactic and semantic relationships will be rendered through the built-in algorithm in consistence with the linguistic judgement carried out for them.

Various attempts at suggesting definitions in “plain English” from a linguist’s stance have proved the difficulty to render such complex terms as e.g., *moral reasons*, found in definitions for *abhor*. They appear to confirm the ‘reductionist[ic]’ character of NSM (Ruiz de Mendoza & Mairal Usón 2007 p. 4), and we, too, believe that valid meaning factorization may be difficult to carry out only through NSM scripts – an assumption that apparently contradicts the statements presented in 1.5.1 above in support of natural language obtained through explications and scripts. Indeed, a language must first contain a concept for which a definition is to be given and, in this respect, what language can provide better proof of dramatic stages in its development than Middle English – through massive borrowing in the Period of Great Change (1150-1500) – when thousands of words from French and Latin were added to the grammar and vocabulary of the Old English word-stock undergoing a rapid process of transformation (Baugh & Cable 1978 p. 158). Again, even when NLP and NSM seem to go along similar lines in their development, it is somewhat premature to conjecture that an imminent convergence will bring together an ideal NLP product – capable of successfully replacing human pondering over the meaning of utterances – and a comprehensive NSM mapping of human concepts endowed with unquestionable universality. From this perspective, the principles propounded within the Lexical-Constructional Model ensure faithful rendering of all the relevant aspects of a word’s



meaning and give precedence to the LCM over other models precisely due to meaning factorization. Coverage of the meaning components of a term through thorough semantic judgement may represent not only the solution to definition circularity but also the missing link between the full potential of concepts and their actualization. It is our belief that a better grasping of concepts endowed with nuclear meaning, inference, illocutionary force, and discourse coherence is the basis of human communication: it is only through assigning the same meaning to concepts that misunderstandings arising from partial knowledge can be avoided.

Entering information into the ‘linguist’s subsections’ of the FunGramKB verb lexicon has presupposed unequal degrees of complexity. The second subsection, Morpho-syntax, is fairly manageable from knowledge of linguistics and an intuitive discernment between sense distinctions – which are not to be neglected, for they are indispensable when one seeks to mediate between theoretical findings and the intrinsic properties of words and their meanings. Yet it is the LCM core grammar with its three subsections (Aktionsart, Lexical Template, and Constructions) which is as central to FunGramKB data input as it is complex: this means that applying some of the findings propounded by the LCM (a) requires application of in-depth analysis of both the LCM and RRG, and (b) continually calls for decisions in using certain sets of terms while discarding others. The latter aspect will inevitably tip the scales towards one or the other seemingly irreconcilable positions as to what is first in importance, the lexical unit’s meaning components *per se*, or else the lexical unit with its environment – or, using a different set of terms: what comes first, syntax or semantics?

No one can deny that lexemes as bearers of semantic traits are crucial for obtention of meaning, and this is in large part what motivates the present study; yet reference to lexical units as such is altogether counterproductive, since from the beginnings of the LFM the belief that ‘one can arrive at an inventory of conceptual categories and their interrelationships through the structure of language itself’ has constituted the centrepiece of its subsequent models (Faber & Mairal Usón 1994a p. 196). It was under the spell of this particular idea that consulting the BNC in search of illustrative examples of natural language changed from seeing it as a tool for extracting concordances and percentages into a challenge: *the need to receive validation of the semantic links which make the word’s meaning change with every complementation pattern*. An unquestionable instantiation of craftsmanship, reading through the BNC examples of polysemous verbs like *feel*, *bother*, *delight (in)*, *forgive*, *pardon*, or *appeal*

– to name just a few – have brought us *the* proof of the foundational idea of the LFM, for, indeed, we would venture to say, the syntactic environment reacts to the different meaning components of a verb insofar as they themselves are activated by the meaning components of the noun, or noun phrase, endowed with Prototypical Agenthood (whether expressed, as is the case in most utterances, or implied, as in pragmatic ‘small clauses’). By virtue of the structure of the language itself (i.e., English) – except for existential *there* and inversion (Crystal 2003 p. 231) – even in Wh-Questions, the expression of an entity is required *before* the verb in the order of the elements which compose the meaning of an utterance, to which all the other semantic and syntactic relations (in any order) must do justice. It is there that additional semantic restrictions impose their presence upon the possibilities of combining certain types of noun phrases with certain types of verbs in a kind of ‘superordinate collocation’ which finally confers coherence to an otherwise syntactically well-formed utterance:

- (54) *Relegate those few kisses to ridicule, why don't you! Pardon me **for thinking** they were important, pardon me **for feeling beautiful and lyrical**, pardon me **for loving you**.*(BNC AOL 2988)
- (55) *... sorry I've got to go, sorry I'm late, sorry I'm so pretty, sorry I'm a housewife, sorry I'm not pretty enough, sorry it's my fault, **pardon me for breathing**, sorry I'm a woman.* (BNC BP8 1607)
- (56) *Well, pardon me **for belching**, but what we're talking about here is a virtually unparalleled (in this musical medium, at least) honesty and open-ness that so far has hampered the Kitchens' career like a rucksack full of rocks.* (BNC CAE 2191)
- (57) *Pardon me **for being rude**, it was not me it was my food, it just popped up to say hello, and now it's gone back down below.* (BNC KC2 2447)

Examples (54) and (55) differ in their implicature: while in (54) the speaker reproaches and is being sarcastic for having been rejected, in (55) there is a (pragmatic) tone of bitterness and resignation which prevents the speaker from “striking back”. In (56), the speaker is far from “really” apologizing; rather, the physiological manifestation invites a different reading, namely the speaker’s obvious intentionality to shock the audience with a (male-like) boorish attitude. Again, in (57), the arrangement of the four rhyming, coordinated sentences does imply apologizing, but in a playful way.

In our view, instances like the ones above prove that associating meaning structure with phonological and syntactic structures may explain why human lexical and sentential concepts are ‘both possible in all their variety and also learnable on the basis

of some realistic combination of linguistic and non-linguistic experience' (Jackendoff 1989 p. 73). Revival of the importance of lexical items has gathered momentum indeed; but composing meaning and making sense seems to stick to the old concept of *the pattern*. That is why we believe that giving priority to Corpus evidence and sentential compositional meaning will finally provide answers to the long-lasting quest for an all-comprising theory of meaning.

## 6.2. Future Work

Beyond analysis of the verbs of FEELING in English carried out in view of FunGramKB enhancement and keying in information in the FunGramKB Editor, the present dissertation has taken steps towards meaning factorization in a number of cases, which represent but a small part of the numerous list of members composing the domain. In line with the work of Faber and Mairal Usón (1995-1999), and Jiménez-Briones (2004a, 2007), creation of valid definitions through factorization, and of lexical templates for the remaining subdomains may well represent continuation of the work initiated within the Lexicom group and contribute to completion of level 1 of representation in FunGramKB. It is highly probable that further improvements made to the online application will be matched by contributions on behalf of computational lexicographers with a deeper understanding of lexical-constructional templates, or will ease the linguist's task of bridging the gap between linguistic knowledge and handling the language of algorithmic formalism.

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## 8. RESOURCES

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- BNC web (CQP-Edition) Online at <http://bncweb.lancs.ac.uk/cgi-bin/bncXML/BNCquery.pl?theQuery=search&urlTest=yes>
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APPENDIX

Tables 1-42: Information entered into the FunGramKB Editor

1. FEEL

Headword/ Part of speech / Index	feel/ v / 04
Concept	+FEEL_00
Description	seem with respect to the sensation given; of physical states, indicating as health, etc: “My cold is gone. – I feel fine today”; she felt tired after the long hike”
Paradigm	irregular
Constraints on voice or tense	yes
Reflexivity	optional
Reciprocity	never
Aktionsart	STATE
Lexical template: variables	X – Theme; Y – Attribute
Lexical template: restrictions	MR1, U = x
Prepositions	--
Constructions	Copular verb
Dialect	Standard
Usage (style)	Common
Topic	FACTOTUM
Definition (Jiménez-Briones 2004a p. 406)	“have a particular emotion, sensation, or physical state”
BNC Examples (DG): (1) C9Y 2738; (2) EB1 882	1. ‘Other diets left me feeling tired and sickly but on this I feel great.’ 2. ‘A sudden sensation of tightness in the throat, gasping for breath, rapid shallow breathing, feeling faint, dizzy and hot.’
Translation	Sentir(se); encontrarse; notarse en cierto estado físico o de ánimo

2. SENSE

Headword/Part of speech/Index	sense / v / 11
Concept	+FEEL_00
Description	seem with respect to the sensation given; of physical states, indicating as health, etc: “My cold is gone. – I feel fine today”; she felt tired after the long hike”
Paradigm	regular
Constraints on voice or tense	no
Reflexivity	never
Reciprocity	never
Aktionsart	STATE
Lexical template: variables	X – Theme; Y – Agent
Lexical template: restrictions	MR2, U = x
Prepositions	--
Constructions	Unexpressed Object Constr., Attribute Object Constr.
Dialect	Standard
Usage (style)	Common
Topic	FACTOTUM
Definition (Jiménez-Briones 2004a p.406)	“ <b>feel</b> something in an unconscious way”
BNC Examples (DG): (1) BO6 1894; (2) G15 667.	1. ‘If he held his hand over a flowering plant, he could sense in himself the healing properties of that flower.’ 2. ‘She felt protective towards him and he sensed her warmth.’
Translation	Percibir, sentir

3.

4. EXPERIENCE

Headword / Part of speech / Index	experience / v / 03
Concept	+FEEL_00
Description	of mental or bodily states or experiences: “get an idea”; “experience vertigo”; “get nauseous”; “undergo a strange sensation”; “The fluid undergoes shear”; “receive injuries”; “have a feeling”
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	STATE
Lexical template: variables	X – Theme; Y – Referent
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	--
Dialect	Standard
Usage (style)	Formal
Topic	FACTOTUM; Medicine
Definition (Jiménez-Briones 2004a p. 406)	“ <b>feel</b> strong emotions, sensations, and physical feelings for a long period of time, as well as being affected by negative situations”
BNC Examples (DG): (1) AO5 1210; (2) AYK 1882.	1. ‘In middle age he has experienced a breakdown, an identity crisis, which followed a long illness and an operation.’ 2. ‘Whether you are experiencing physical pain, mental anguish or emotional distress, you will feel it deeply at the time.’
Translation	experimentar, sufrir

5. ANNOY

Headword/Part of Speech/Index	annoy / v / 01
Concept	+ANNOY_00
Description	cause annoyance in; disturb, esp. by minor irritations: “Mosquitoes buzzing in my ear really bothers (sic!) me”; “It irritates me that she never closes the door after she leaves”
Paradigm	regular
Constraints on voice or tense	no
Reflexivity	never
Reciprocity	optional
Aktionsart	Causative State
Lexical template: variables	X – Agent; Y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	Unexpressed Object Constr., Possessor Subject Constr.(Trans.)
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Definition (Jiménez-Briones 2004a p. 342)	“ <b>anger</b> moderately (usu. by certain repeated persistent acts)”
BNC Examples (DG): (1) EVG 2132; (2) EX 7 125	1. ‘Jane's constant chatter was beginning to annoy him.’ 2. ‘Speak roughly to your little boy, And beat him when he sneezes, He does it only to annoy, Because he knows it teases.’
Translation	fastidiar

6. BOTHER

Headword/Part of Speech/Index	bother / v / 02
Concept	+ANNOY_00
Description	cause annoyance in; disturb, esp. by minor irritations: “Mosquitoes buzzing in my ear really bothers (sic!) me”; “It irritates me that she never closes the door after she leaves[.]”
Paradigm	regular
Constraints on voice or tense	no
Reflexivity	never
Reciprocity	never
Aktionsart	Causative State
Lexical template: variables	X – Agent; Y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	
Constructions	Possessor Subject Constr. (Trans.)
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Proposed definition (DG)	“ <b>annoy</b> (somebody) by demanding their attention and service”
BNC Examples (DG): (1) APU 888; (2) BM1 966.	1. ‘Now go on and coop up the fowls and don't bother me any more with your obstinacy.’ 2. ‘The nettle-rash got somewhat better in time, but it continued to bother him at regular intervals.’
Translation	molestar

7. IRRITATE

Headword/Part of Speech/Index	irritate / v / 02
Concept	+ANNOY_00
Description	cause annoyance in; disturb, esp. by minor irritations: “Mosquitoes buzzing in my ear really bothers (sic!) me”; “It irritates me that she never closes the door after she leaves[.]”
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	Causative State
Lexical template: variables	X – Agent; Y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	Unexpressed Object Constr., Possessor Subject Constr. (Trans.)
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Definition (Jiménez-Briones 2004: 342)	“ <b>annoy</b> somebody (usu. because you cannot stop it continuing)”
BNC Examples (DG): (1) F51 662; (2) AD6 606.	1. ‘It irritates him beyond measure that she is nearly always right about everything.’ 2. ‘Someone who annoyed with her need for sympathy, who irritated with her shameless display of pathos.’
Translation	irritar

8. NETTLE

Headword/Part of Speech/Index	nettle / v / 02
Concept	+ANNOY_00
Description	cause annoyance in; disturb, esp. by minor irritations: “Mosquitoes buzzing in my ear really bothers (sic!) me”; “It irritates me that she never closes the door after she leaves[.]”
Paradigm	regular
Constraints on voice or tense	Yes (usu. Passive)
Reflexivity	never
Reciprocity	never
Aktionsart	Causative State
Lexical template: variables	X – Agent; Y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	
Dialect	Standard
Usage (Style)	Informal
Topic (Domain)	FACTOTUM
Definition (Jiménez-Briones 2007 p. 2)	“ <b>annoy</b> somebody for only a short time”
BNC Examples (DG): (1) ABW 859; (2) JY5 2303.	1. ‘A few things nettled her: she did not relish being a clearing house for family complaints, for instance, and was carefully reticent on such occasions.’ 2. ‘She glared back at him, nettled that he should even ask such a thing.’
Translation	molestar

9. RILE

Headword/Part of Speech/Index	rile / v / 02
Concept	+ANNOY_00
Description	cause annoyance in; disturb, esp. by minor irritations: “Mosquitoes buzzing in my ear really bothers (sic!) me”; “It irritates me that she never closes the door after she leaves[.]”
Paradigm	regular
Constraints on voice or tense	no
Reflexivity	never
Reciprocity	never
Aktionsart	STATE
Lexical template: variables	X – Agent, Y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	Possessor subject Constr. (Trans.)
Dialect	Standard
Usage (Style)	Informal
Topic (Domain)	FACTOTUM
Definition (Jiménez-Briones 2008 p. 4)	“ <b>anger</b> somebody very much”
BNC Examples: (Jiménez-Briones: FunGramKB Editor)	1. Whitlock was the master of patience; nothing ever seemed to rile him, which was just as well considering the simmering tension between Sabrina and Graham. 2. How could she feel such deep emotions for a man who riled her so easily? It was anger she felt.
Translation	sacar de quicio

10. DISLIKE

Headword/Part of Speech/Index	dislike / v / 01
Concept	+DISLIKE_00
Description	have or feel a dislike or distaste for; 'I really dislike this salesman[.]'
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	optional
Aktionsart	State
Lexical template: variables	x – Theme, y – Agent
Lexical template: restrictions	MR2, U = x
Prepositions	--
Constructions	Possessor Object Constr.
Dialect	Standard
Usage (Style)	Common; rather formal
Topic (Domain)	FACTOTUM
Proposed definition (DG)	" <b>feel</b> distaste for or ill will towards (someone or something)"
BNC Examples (DG): (1) B1D 839; (2) EBR 1313.	1. 'Although he knew Disraeli, from the outset he had a personal antipathy towards him, and the party leaders disliked Hope's independent attitude.' 2. 'A woman's attitudes to the housewife role may be positive - she may feel herself to be a housewife, and agree with the idea that housewifery is an appropriate role for women, but she may at the same time dislike doing housework.'
Translation	desagradarle; no gustarle

11. HATE

Headword/Part of Speech/Index	hate / v / 01
Concept	+_00
Description	dislike intensely; feel antipathy or aversion towards; "I hate Mexican food"; "She detests politicians[.]"
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	optional
Reciprocity	optional
Aktionsart	State
Lexical template: variables	x – Theme, y – Agent
Lexical template: restrictions	MR2, U = x
Prepositions	--
Constructions	Possessor Object Constr., Attribute Object Constr.
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Definition (Faber and Mairal Usón 1998a p. 48)	" <b>dislike</b> (somebody or something) extremely and intensely"
BNC Examples (DG): (1) AC4 2790; (2) BP8 1192.	1. 'She knew how much he hated relying on other people or being involved in their affairs.' 2. 'I found myself hating them, hating myself for hating them, hating myself for wanting to say so, hating them for putting me in a position of wanting to say so.'
Translation	odiar

12. ABHOR

Headword/Part of Speech/Index	abhor / v / 01
Concept	+HATE_00
Description	dislike intensely; feel antipathy or aversion towards; "I hate Mexican food"; "She detests politicians[.]"
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	State
Lexical template: variables	x – Theme , y – Agent
Lexical template: restrictions	MR2, U = x
Prepositions	--
Constructions	Unexpressed Object Constr.
Dialect	Standard
Usage (Style)	Formal
Topic (Domain)	FACTOTUM; literature
Definition	--
BNC Examples (DG): (1) BN3 49; (2) HH0 3425.	1. 'Mother would not permit my brothers to impart a slap on my face or bottom, as she abhorred any display of violence.' 2. 'Wearing a pair of men's underpants and a scarf across my breasts, I have that unprepared look that Americans can abhor culturally and admire individually.'
Translation	aborrecer

13. ABOMINATE

Headword/Part of Speech/Index	abominate / v / 01
Concept	+HATE_00
Description	dislike intensely; feel antipathy or aversion towards; "I hate Mexican food"; "She detests politicians[.]"
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	State
Lexical template: variables	x – Theme , y – Agent
Lexical template: restrictions	MR2, U = x
Prepositions	--
Constructions	Possessor Object Constr., Attribute Object Constr.
Dialect	Standard
Usage (Style)	Formal
Topic (Domain)	FACTOTUM; Social Science; literature
Definition	--
BNC Examples (DG): (1) CHA 1480; (2) CKR 1399.	1. 'Loads of them, with varying degrees of politeness, refused to have anything to do with us, and, of those that did reply, over half appear to loathe, despise and abominate us.' 2. 'But Anselm was something more than this: he was the most rigorous thinker, and the most severe appraiser of motives of his day; he abominated worldly power, and he sought every excuse to avoid having to exercise power himself.'
Translation	abominar

14. DETEST

Headword/Part of Speech/Index	detest / v / 01
Concept	+HATE_00
Description	dislike intensely; feel antipathy or aversion towards; “I hate Mexican food”; “She detests politicians[.]”
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	optional
Reciprocity	optional
Aktionsart	State
Lexical template: variables	x – Theme , y – Agent
Lexical template: restrictions	MR2, U = x
Prepositions	--
Constructions	Possessor Object Constr., Attribute Object Constr.
Dialect	Standard
Usage (Style)	rather formal
Topic (Domain)	FACTOTUM; literature
Proposed definition (DG)	“ <b>hate</b> someone very much”
BNC Examples (DG): (1) ALT 63; (2) GUE 2868.	1. ‘To the very last he consulted his own common sense rather than the orders of his doctors whom he detested because they advised him to give up the roast meats that he loved.’ 2. ‘How could she feel so physically drawn to him, when intellectually she was detesting him for this arrogant charade?’
Translation	detestar

15. EXECRATE

Headword/Part of Speech/Index	execrate / v / 01
Concept	+HATE_00
Description	dislike intensely; feel antipathy or aversion towards; “I hate Mexican food”; “She detests politicians[.]”
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	State
Lexical template: variables	x – Theme , y – Agent
Lexical template: restrictions	MR2, U = x
Prepositions	--
Constructions	Possessor Object Constr.
Dialect	Standard
Usage (Style)	formal
Topic (Domain)	FACTOTUM; literature
Definition	--
BNC Examples (DG): (1) A7Y 254; (2) AE8 908.	1. ‘Fundamentalists execrate someone for writing a book that they haven’t read, and a famous novelist has to go into hiding for fear of his life.’ 2. ‘As a consequence, the very idea of politics became degraded and execrated in the minds of the citizens, as it seemed to them synonymous with lawlessness, mendacity and opportunism.’
Translation	execrar



16. LOATHE

Headword/Part of Speech/Index	loathe / v / 02
Concept	+HATE_00
Description	dislike intensely; feel antipathy or aversion towards; "I hate Mexican food"; "She detests politicians[.]"
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	optional
Reciprocity	optional
Aktionsart	State
Lexical template: variables	x – Theme , y – Agent
Lexical template: restrictions	MR2, U = x
Prepositions	--
Constructions	Possessor Object Constr.
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Proposed definition (DG)	" <b>hate</b> someone or something intensely/very much"
BNC Examples (DG): (1) BOU 1626; (2) CDM 580.	1. 'You loathed it when you saw other people behaving like this and yet you could no more control it in yourself than you could any other automatic physical reflex.' 2. 'He loathed the constant uproar of our house and only wanted peace and quiet when he was in the house.'
Translation	odiar

17. FEAR

Headword/Part of Speech/Index	fear / v / 03
Concept	+FEAR_01
Description	be afraid or scared of; be frightened of; "I fear the winters in Moscow"; "We should not fear the Communists!"
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	State
Lexical template: variables	x – Theme, y – Agent
Lexical template: restrictions	MR2, U = x
Prepositions	--
Constructions	Possessor Object Constr., Attribute Object Constr.
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Definition (Jiménez-Briones 2004a p. 339)	"feel fear, i.e. the unpleasant, strong feeling caused by the presence or expectation of danger"
BNC Examples (DG): (1) C8Y 422; (2) EB1 414.	1. 'Many elderly housebound people living alone feel the loss of their independence very keenly and fear becoming a burden to others.' 2. 'The person who fears dogs may convince him/ herself that dogs always bite people, especially them.'
Translation	tener miedo a/de; temer, anticipar algo no deseado

18. DREAD

Headword/Part of Speech/Index	dread / v / 01
Concept	+FEAR_01
Description	be afraid or scared of; be frightened of; "I fear the winters in Moscow"; "We should not fear the Communists!"
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	State
Lexical template: variables	x – Theme; y – Agent
Lexical template: restrictions	MR2, U = x
Prepositions	--
Constructions	Possessor Object Constr., Attribute Object Constr.
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Definition (Jiménez-Briones 2004a p. 339)	"feel great fear about something unpleasant that is going to happen"
BNC Examples (DG): (1) JY5 3117; (2) K1D 3129.	1. 'She only wished she could look forward to that day - instead, she realised, aching inside at the prospect, she was dreading it.' 2. 'I have to use sleeping tablets to help me sleep at night because I'm dreading getting up in the morning in case anything's happened further.'
Translation	tenerle terror o pavor a

19. PANIC

Headword/Part of Speech/Index	panic / v / 04
Concept	\$TERRIFY_00
Description	to feel so frightened that you cannot think clearly
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	State
Lexical template: variables	x – Theme
Lexical template: restrictions	MR1, U = x
Prepositions	--
Constructions	Anticausative Constr.
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Definition (Jiménez-Briones 2004a p. 339)	"feel panic, i.e. a great sudden feeling of fear which makes you unable to act sensibly or think clearly"
BNC Examples: (1) ASO 539; (2) ACM 604.	1. 'He may be frightened by crossing a road, by fast cars, by crowds or sudden noises, so that his spasticity increases; he may panic and freeze in these situations, so that he cannot move at all.' 2. 'I was beside myself with fear, and started panicking as she didn't seem to be able to swim.'
Translation	asustarse, entrarle a uno el pánico, aterrarse

Group Five: TERRIFY, SCARE, SCARE TO DEATH, MAKE YOUR BLOOD RUN COLD, MAKE YOUR FLESH CREEP, MAKE YOUR HAIR STAND ON END, HORRIFY

20. TERRIFY

Headword/Part of Speech/Index	terrify / v / 01
Concept	\$TERRIFY_00
Description	to feel so frightened that you cannot think clearly
Paradigm	regular
Constraints on voice or tense	yes (usu. Passive)
Reflexivity	never
Reciprocity	optional
Aktionsart	Causative state
Lexical template: variables	x – Agent; y – Theme
Lexical template: restrictions	MR2; U = y
Prepositions	--
Constructions	Causative Constr., Unexpressed Object Constr., Middle Constr., Possessor Subject (Trans.) Constr., Resultative Constr.
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Definition (Jiménez-Briones 2004a p. 340)	“cause (somebody) to feel terrified, i.e., extreme fear because they think they might be killed”
BNC Examples (DG): (1) HPT 186; (2) EB1 343.	1. ‘Charles the Bald, in other words, had the two-facedness of medieval kings: his friendly smile could win loyalty, his frown could terrify.’ 2. ‘Unfortunately, it is exactly these thoughts and behaviours which make the panic attacks worse, make us terrified of having another [and -].’
Translation	aterrar, aterrorizar

21. SCARE

Headword/Part of Speech/Index	scare / v / 01
Concept	+_00
Description	be afraid or scared of; be frightened of; “I fear the winters in Moscow”; “We should not fear the Communists!”
Paradigm	Regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	optional
Aktionsart	Causative state
Lexical template: variables	x – Agent; y – Theme
Lexical template: restrictions	MR2; U = y
Prepositions	--
Constructions	Causative Constr., Middle Constr., Unexpressed Object Constr., Resultative Constr.
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Definition (Jiménez-Briones 2004a p. 340)	“cause (somebody) to feel fear in a sudden way”
BNC Examples (DG): (1) APL 521; (2) BM4 2691.	1. ‘When I have shown it to people it even scares me; your heart really starts to beat, you see the intensity of the situation.’ 2. ‘I’ve paid my money to be terrified but you can’t scare me.’
Translation	asustar, atemorizar, meter miedo

22. SCARE TO DEATH

Headword/Part of Speech/Index	scare to death / v / 01
Concept	\$TERRIFY_00
Description	to feel so frightened that you cannot think clearly
Paradigm	regular
Phrase Constituents	scare
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	Causative state
Lexical template: variables	x – Agent; y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	*fixed phrase
Constructions	Resultative Const.
Dialect	Standard
Usage (Style)	Informal
Topic (Domain)	FACTOTUM
Suggested Definition (DG)	“ <b>scare</b> someone so much that they think they will die”
BNC Examples (DG): (1) ACV 1133; (2) H8F 2061	1. ‘He had felt that he was in the presence of something that wished him harm; some malign, unseen enemy who wanted to scare him into leaving.’ 2. ‘That wave of jealousy had really scared her half to death.’
Translation	meterle (a alguien) un susto de muerte

23. MAKE YOUR BLOOD RUN COLD

Headword/Part of Speech/Index	make your blood run cold / v / 01
Concept	\$TERRIFY_00
Description	to feel so frightened that you cannot think clearly
Paradigm	irregular
Phrase Constituents	blood
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	Causative accomplishment
Lexical template: variables	x – Agent; y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	*fixed phrase
Constructions	Causative Accomplishment
Dialect	Standard
Usage (Style)	Informal
Topic (Domain)	FACTOTUM
Suggested Definition (DG)	“ <b>scare</b> someone so much that they feel like a dead body”
BNC Examples (DG): (1) B0B 1790; (2) J1M 2587.	1. ‘But whenever she passed the wood the tales rushed back into her mind and made her blood run cold.’ 2. ‘The subject they’re tackling in this report is one that makes the blood run cold in most people’s veins. Including mine.’
Translation	hacer que se le hiele la sangre (a uno)

24. MAKE YOUR FLESH CREEP

Headword/Part of Speech/Index	make your flesh creep / v / 01
Concept	\$TERRIFY_00
Description	to feel so frightened that you cannot think clearly
Paradigm	irregular
Phrase Constituents	flesh
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	Causative accomplishment
Lexical template: variables	x – Agent; y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	*fixed phrase
Constructions	Causative Accomplishment
Dialect	Standard
Usage (Style)	Informal
Topic (Domain)	FACTOTUM
Suggested Definition (DG)	“cause someone to shiver at the thought that an unpleasant thing or action might put them in danger”
BNC Examples (DG): (1) APW 746; (2) AHG 1362.	1. ‘These Scotsmen fairly make my flesh creep, with their laws and papers and fancy airs and lying words.’ 2. ‘The handsome and sombre costumes, historically accurate, are relieved by colour only in the auto-da-fe, which seemed to belong to another production and signally failed to make the flesh creep, even when the fire was lit in the victims’ underground cage.’
Translation	horripilar

25. MAKE YOUR HAIR STAND ON END

Headword/Part of Speech/Index	make your hair stand on end / v / 01
Concept	\$TERRIFY_00
Description	to feel so frightened that you cannot think clearly
Paradigm	irregular
Phrase Constituents	hair
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	Causative Achievement
Lexical template: variables	x – Agent; y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	* fixed phrase
Constructions	Causative Achievement
Dialect	Standard
Usage (Style)	Informal
Topic (Domain)	FACTOTUM
Suggested definition (DG)	“terrify someone suddenly so much that they think they are dead”
BNC Examples (DG): (1) FS0 740; (2) FAP 156.	1. ‘It was so weird it made my hair stand on end; it was almost as if a ghost had walked into the room.’ 2. ‘Some of the stories people had told me in that room would make your hair stand on end.’
Translation	poner (le a alguien) los pelos de punta

26. HORRIFY

Headword/Part of Speech/Index	horrify / v / 01
Concept	\$TERRIFY_00
Description	to feel so frightened that you cannot think clearly
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	Causative State
Lexical template: variables	x – Agent, y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	Causative Accomplishment; Possessor Subject Constr. (Trans.)
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Suggested Definition (DG)	“cause someone great shock, fill with horror”
BNC Examples (DG): (1) ADS 355; (2) KAR 302.	1. ‘It horrified her to hear her own voice screaming at her husband for his indolence but she could not help herself.’ 2. ‘She told us stories about her childhood in Clophill (I think) but she never told us anything unpleasant, whereas I remember one good lady who loved to horrify us with tales of ghastly happenings!’
Translation	horrorizar

27. FORGIVE

Headword/Part of Speech/Index	forgive / v / 02
Concept	+FORGIVE_00
Description	stop blaming
Paradigm	irregular
Constraints on voice or tense	yes
Reflexivity	optional
Reciprocity	optional
Aktionsart	State
Lexical template: variables	x – Theme, y – Agent, z – Referent
Lexical template: restrictions	MR2, U = x
Prepositions	--
Constructions	Unexpressed Object Constr., Possessor Object Constr., Dative Constr.
Dialect	Standard
Usage (Style)	Common; religion
Topic (Domain)	FACTOTUM
Definition (FunGramKB Editor)	“stop blaming”
BNC Examples (DG): (1) AC6 2359; (2) EFP 244.	1. ‘It only remained for us to forgive one another, and for my part I gladly forgave him for anything that might still need forgiveness.’ 2. ‘Clara could have forgiven the things their ugliness, if that very ugliness were not such a source of pride.’
Translation	perdonar

28. PARDON

Headword/Part of Speech/Index	pardon / v / 01
Concept	+FORGIVE_00
Description	stop blaming
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	State
Lexical template: variables	x – Theme, y – Agent
Lexical template: restrictions	MR2, U = x
Prepositions	--
Constructions	Possessor Object
Dialect	Standard
Usage (Style)	Formal; literature
Topic (Domain)	FACTOTUM
Definition (FunGramKB Editor)	“stop blaming”
BNC Examples (DG): (1) FRH 1699; (2) AOL 2988.	1. ‘She saw then that saying this had been unpardonable, but the odd thing was that he did pardon her, and laughed, and quietly fished some of the soggy pills out of the sink in case he fancied one later after all.’ 2. ‘Pardon me for thinking they were important, pardon me for feeling beautiful and lyrical, pardon me for loving you.’
Translation	perdonar

29. LIKE

Headword/Part of Speech/Index	like / v / 02
Concept	+LIKE_00
Description	get pleasure from
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	optional
Reciprocity	optional
Aktionsart	State
Lexical template: variables	x – Theme; y – Agent
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	Attribute Object
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Definition (Jiménez-Briones 2004a p. 342)	“feel something good”
BNC Examples (DG): (1) A6L 194; (2) CA9 622.	1. ‘Fewer people were coming forward to take jobs because they didn’t like having to go to school.’ 2. ‘Martin turned out to be a delightful man; I liked him instantly.’
Translation	gustarle

30. LOVE

Headword/Part of Speech/Index	love / v / 03
Concept	+LOVE_00
Description	get pleasure from
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	State
Lexical template: variables	x – Theme; y – Agent
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	Possessor Object Constr.
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Definition (FunGramKB Editor)	“get pleasure from”
BNC Examples: (1) H06 3142; (2) ADG 1426.	1. ‘Because I’m not very organized, I don’t get round to entertaining very much, even though I love having people around.’ 2. ‘For years I convinced myself that I hated eating, and loved the dance lessons.’
Translation	encantarle;

31. ENJOY

Headword/Part of Speech/Index	enjoy / v / 02
Concept	+LOVE_00
Description	get pleasure from
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	State
Lexical template: variables	x – Theme; y – Agent
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	Possessor Object Constr.
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Definition (FunGramKB Editor)	“get pleasure from”
BNC Examples: (1) AND 493; (2) A70 1429.	1. ‘Children, like everyone else, enjoy being praised and their parents and teachers enjoy sharing in their triumphs.’ 2. ‘If you enjoy your food and don’t want to eat less, but do want to lose weight and reduce the risk of heart disease, this is for you.’
Translation	disfrutar



32. DELIGHT IN

Headword/Part of Speech/Index	delight / v / 01
Concept	+LIKE_00
Description	give pleasure to; be pleasing to
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	State
Lexical template: variables	x – Theme, y – ?Referent
Lexical template: restrictions	MR1, U = x
Prepositions	in
Constructions	Causative Constr. Attributive Constr. *Trans. with a Prepositional Object
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Definition (Jiménez-Briones 2004a p. 335)	“to feel happiness and great pleasure”
BNC Examples (DG): (1) AMC 700; (2) B19 1101.	1. ‘I was overjoyed that our letters had regained their old intimacy, and I wrote telling him how much I delighted in sharing his thoughts once more.’ 2. ‘Everyone who comes here at once delights in the surroundings, and yet when those periods were upon me, nothing could brighten my day nor lift the gloom.’
Translation	encantarle (algo) deleitarse con (algo)

33. EXCITE

Headword/Part of Speech/Index	excite / v /
Concept	+INTEREST_00
Description	--
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	Causative State
Lexical template: variables	x – Agent; y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	Unexpressed Object Constr., Possessor Subject Constr.
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Suggested definition (DG)	“cause to feel great interest in”
BNC Examples (DG): (1) ADS 1546; (2) A6T 1439.	1. ‘But this realisation, which only the year before had excited her, merely pleased her.’ 2. ‘Flying still excites me with that curious mixture of fear – [...] – and the knowledge that at the other end of the journey there will be new sounds and smells and things to look at.’
Translation	apasionar

34. PLEASE

Headword/Part of Speech/Index	please / v / 02
Concept	+LIKE_00
Description	give pleasure to; be pleasing to
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	optional
Reciprocity	optional
Aktionsart	Causative State
Lexical template: variables	x – Agent; y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	Unexpressed Object Constr., Possessor Subject Constr.
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Definition (Jiménez-Briones 2004a p. 336)	“cause somebody to feel pleasure/happiness and satisfaction”
BNC Examples (DG): (1) C85 2960; (2) B7B 259.	1. ‘Her evident eagerness pleased him and some of the depressing mistrust was dispelled.’ 2. ‘Eager to please, hypnotised subjects are particularly prone to fill in the gaps in their memory with information conveyed to them in questions.’
Translation	agradar, complacer, contentar

35. SURPRISE

Headword/Part of Speech/Index	surprise / v / 02
Concept	+SURPRISE_00
Description	--
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	optional
Reciprocity	optional
Aktionsart	Causative State
Lexical template: variables	x – Agent; y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	Unexpressed Object Constr.; Possessor Subject Constr.
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Suggested definition (DG)	“cause somebody to feel mild shock”
BNC Examples (DG): (1) A40 16; (2) A73 284.	1. ‘Things like this shouldn’t really surprise people because we have been telling them about what has been going on Down Under for years.’ 2. ‘His daughter’s beauty had never ceased to surprise the chief inspector.’
Translation	sorprender

36. APPEAL

Headword/Part of Speech/Index	appeal / v / 11
Concept	+ATTRACT_00
Description	--
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	State
Lexical template: variables	x – Theme
Lexical template: restrictions	MR1, U = x
Prepositions	to
Constructions	? Dative Construction
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Suggested definition (DG)	“engage the interest of (someone)”
BNC Examples: (1) B05 221; (2) A7C 1201.	1. ‘These pictures speak of the kind of movement that implies progress and therefore appeals to us.’ 2. ‘It appeals entirely to that part of you which lives in the throat and chest, leaving the spirit untouched.’
Translation	llamar la atención

37. ATTRACT

Headword/Part of Speech/Index	attract / v / 04
Concept	+ATTRACT_00
Description	--
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	optional
Aktionsart	State
Lexical template: variables	x – Agent; y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	Possessor Subject Constr.
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Suggested definition (DG)	“cause (someone) to feel drawn to”
BNC Examples (DG): (1) B1F 1206; (2) B1H 1175.	1. ‘Although love between human beings has in the first place a physical basis, in that two people are physically attracted to each other, ultimately it is not physical but mental.’ 2. ‘The problems of these rural areas have ‘pushed’ or repelled people away from the country, while the towns and cities of central Scotland and England have ‘pulled’ or attracted them.’
Translation	atraer

38. SUFFER

Headword/Part of Speech/Index	suffer / v / 03
Concept	+SUFFER_00
Description	endure emotional pain
Paradigm	regular
Constraints on voice or tense	no
Reflexivity	never
Reciprocity	never
Aktionsart	State
Lexical template: variables	x – Theme
Lexical template: restrictions	MR1, U = x
Prepositions	(from)
Constructions	--
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM; medicine
Definition (Jiménez-Briones 2004a p. 334)	“feel something bad in your body or mind”
BNC Examples: (1) ASK 1011; (2) AOF 3372.	1. ‘His wife didn’t want to watch him suffer, and she wanted him to die also, and she didn’t want to see any suffering.’ 2. ‘If you really want to help someone, I think you have to make an effort to suffer with them - to see it from their point of view - and then to do something.’
Translation	sufrir

39. WORRY

Headword/Part of Speech/Index	worry / v / 01
Concept	+ WORRY_00
Description	be worried, concerned, troubled, or uneasy
Paradigm	regular
Constraints on voice or tense	no
Reflexivity	never
Reciprocity	never
Aktionsart	Causative Accomplishment
Lexical template: variables	x – Agent; y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	Unexpressed Object Constr. Possessor Subject Constr.
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Definition (Jiménez-Briones 2004a p. 329)	“cause someone to feel anxiety/worry”
BNC Examples: (1) ANA 791; (2) BIJ 293.	1. ‘It worries me that turning a blind eye to the deliberate starvation of these patients is portrayed as contributing in some way to the high ethical standards of the nursing profession.’ 2. ‘For I appear to be going round in circles in answer to a question which has been worrying me for some time.’
Translation	preocupar

40. DISQUIET

Headword/Part of Speech/Index	disquiet / v / 03
Concept	+WORRY_00
Description	be worried, concerned, troubled, or uneasy
Paradigm	regular
Constraints on voice or tense	no
Reflexivity	never
Reciprocity	never
Aktionsart	Causative State
Lexical template: variables	x – Agent; y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	Possessor Subject Constr.
Dialect	Standard
Usage (Style)	Formal
Topic (Domain)	FACTOTUM
Definition	--
BNC Examples (DG): (1) HGG 1748; (2) EDN 947.	1. “‘You need not fret,” she said equably, with the darling smile that disquieted him more than her enmity.’ 2. ‘She did not think it good, it was the first time she had played for weeks and the sounds she made disquieted her, but perhaps it was good enough for busking.’
Translation	inquietar

41. DISTURB

Headword/Part of Speech/Index	disturb / v / 02
Concept	+ WORRY_00
Description	be worried, concerned, troubled, or uneasy
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	Causative Accomplishment
Lexical template: variables	x – Agent; y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	Unexpressed Object Constr. Possessor Subject Constr.
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Definition	--
BNC Examples: (1) AC4 1418; (2) ACM 746.	1. ‘What disturbed her was the feeling, at the back of her mind, that there was something she ought to have understood.’ 2. ‘These emotions may disturb you for a little while, but they are simply a natural response to the trauma of death and they will usually pass with time.’
Translation	desasosegar

42. PERTURB

Headword/Part of Speech/Index	perturb / v / 01
Concept	+ WORRY _00
Description	be worried, concerned, troubled, or uneasy
Paradigm	regular
Constraints on voice or tense	yes
Reflexivity	never
Reciprocity	never
Aktionsart	Causative State
Lexical template: variables	x – Agent; y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	Possessor Subject Constr.
Dialect	Standard
Usage (Style)	Formal; literary
Topic (Domain)	FACTOTUM
Definition	--
BNC Examples (DG): (1) JYA 4081; (2) BMD 315.	1. 'Miguel finished tuning the guitar and turned to look at her, obviously perturbed at the sudden anger in her voice.' 2. 'Despite a diary mix-up, my unexpected arrival on a Saturday did not perturb him in the slightest.'
Translation	perturbar

43. TROUBLE

Headword/Part of Speech/Index	trouble / v / 08
Concept	+ WORRY _00
Description	be worried, concerned, troubled, or uneasy
Paradigm	regular
Constraints on voice or tense	no
Reflexivity	never
Reciprocity	never
Aktionsart	Causative Accomplishment
Lexical template: variables	x – Agent; y – Theme
Lexical template: restrictions	MR2, U = y
Prepositions	--
Constructions	Possessor Subject
Dialect	Standard
Usage (Style)	Common
Topic (Domain)	FACTOTUM
Definition	--
BNC Examples (DG): (1) ALP 485; (2) GUF 3483.	1. 'Memory loss was the worst aspect, the fact that he was unable to complete a crossword puzzle in ten minutes as he once could troubled him.' 2. 'She's told me about your accident yesterday, but I gather that's not what's troubling you?'
Translation	inquietar