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FACULTAD DE LETRAS Y DE LA EDUCACIÓN
DEPARTAMENTO DE FILOGÍAS MODERNAS

TESIS DOCTORAL

**GROUNDING THE CONSTRUCTIONAL ARCHITECTURE
OF THE LEXICAL CONSTRUCTIONAL MODEL IN
COGNITION: IMPLICATIONS FOR THE DEVELOPMENT
OF A KNOWLEDGE BASE**

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To my family, for their unconditional support in this adventure...

and in every step I take in life.

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CHAPTER 1: Introduction

This dissertation aims to provide evidence that supports the feasibility of establishing a connection between theoretical linguistics and the computational field of Natural Language Processing (NLP). With this view in mind, the present dissertation has been structured into two parts: the first part, which constitutes the bulk of this dissertation, is devoted to the linguistic study of cognitive models and cognitive operations and how they underlie the way we construct meaning in actual language use; the second part offers a preliminary exploration of the computational implementation of a selection of the proposals on meaning construction made in the first part.

As far as the linguistic module of this dissertation is concerned, the present study develops previous insights within cognitive semantics on how knowledge is structured and put to use in specific production and interpretation tasks. Our starting point for this purpose is found in the seminal proposals on *idealized cognitive models*, made by George Lakoff in *Women, Fire and Dangerous Things* as far back as 1987. The amount of literature on cognitive models –especially metaphor, metonymy and image schemas– is impressive (see Dirven 2005, Dirven and Ruiz de Mendoza 2010, 2013, Gibbs 2011, and Ruiz de Mendoza and Pérez 2011, for some critical overviews; see also González et al. 2011, for updates and developments). However, little emphasis has been made on the fact that

cognitive models are more than the result of structuring principles like those originally identified by Lakoff (1987a), i.e. predicate-argument relations for frames, topological arrangement for image schemas, conceptual mappings for metaphor and metonymy. Crucially, cognitive models can also provide the conceptual material for a broad range of cognitive operations to work upon. This point, which has been made, in a rather preliminary way, by Ruiz de Mendoza and Peña (2005), and Ruiz de Mendoza (2011), is central to the present dissertation.

It should be noted that the exact amount and nature of cognitive operations is still an open issue. The work cited above is largely programmatic and in serious need of further development. This dissertation is intended to fill in some of the gaps, which it will do in two ways: one, by exploring the actual range of applicability of the cognitive operations that have already been postulated; the other, by postulating new cognitive operations and examining, as with the previous ones, to what extent they are active at different levels and in the various level-internal domains of meaning construction. The first way requires a large corpus of analysis and quite a lot of manual work to achieve sufficient systematicity. The second way further requires a fine-grained analysis of linguistic phenomena that have not been dealt with within Cognitive Linguistics or its associated accounts, including the LCM. It is for this reason that we have searched for the activity of cognitive operations within the domain of so-called figures of thought. Note, in this respect, that most if not all of the work on cognitive

modeling within CL has been carried out with reference to frame semantics, image schemas, metaphor and (more recently) metonymy. Hyperbole, litotes, irony, auxesis, etc. are linguistic phenomena, with their own specific communicative import, that merit attention in the same way as metaphor and metonymy. Our inquiry has led us to postulate specific cognitive operations and combinations of cognitive operations on specific cognitive model types in order to account for the meaning impact of a selection of figures of thought. The kind of cognitive activity thus discovered, by making use of linguistic tools, should be as sensitive to further psycholinguistic exploration as metaphor and metonymy have been for such scholars as Gibbs and Matlock (2008) among others, whose work is compliant with the basic assumptions of Cognitive Linguistics.

Our second goal is to provide linguistic evidence that cognitive operations can underlie the interpretation of utterances in different domains as well as at different levels of meaning construction. To this end, we have chosen the *Lexical Constructional Model* (LCM), a usage-based approach to language that reconciles insights from functional and cognitively-oriented constructionist perspectives (cf. Ruiz de Mendoza and Mairal 2008, 2011, and Mairal and Ruiz de Mendoza 2009; see Butler 2009b for a critical assessment).

In its present stage of development, the LCM distinguishes four broad levels of meaning representation. These are the following: level 1 or argument-structure; level 2 or implicational; level 3 or illocutionary; and

level 4 or discourse. The LCM supplies a descriptive apparatus for each of these levels and it specifies the conditions that are necessary for the combination of representations both within and across levels. In order to meet our second goal, we apply a methodological assumption according to which the researcher should test whether linguistic processes that have been attested to be operational at one level of description, or in a given domain within a level, are (at least partially) active at other levels or in other domains. In the LCM, this assumption, which originates in previous work in Ruiz de Mendoza (2007), has been termed the *equipollence hypothesis*. Throughout this work, the reader will be able to see the strength of this methodological hypothesis. While not all cognitive operations (and their potential combinations) have been attested at all levels and in all areas within the scope of our research, it is true that many operations have proved to be active in widely disparate areas such as lexical, illocutionary and discourse structure. As will be made evident further on, the equipollence hypothesis has been essential to systematize meaning construction processes in all these areas, while allowing for a great degree of economy in our account. That is, this hypothesis has been greatly useful to strike a balance between descriptive delicacy (i.e. producing a fine-grained analysis of phenomena) and explanatory adequacy, which, in our view, amounts to accounting for the broadest range of phenomena with the least amount of rules or principles. The reader will find a thorough discussion of these issues in Chapter 3, section 1.

The computational part of this dissertation is framed within the field of Artificial Intelligence (AI); more specifically, the dissertation is intended to offer specific applications for Natural Language Processing (NLP). In this connection, we integrate relevant theoretical postulates developed in the linguistic part of our work from the perspective of the LCM into the computational FunGramKB project. FunGramKB is a multipurpose lexico-conceptual knowledge base for natural language processing. In its initial stages, this knowledge base consisted of a universal ontology and a number of language-specific lexica. The Ontology, which sets up explicit relations among concepts, was devised in such a way that it reflected the kind of encyclopedic knowledge that speakers usually have. This knowledge underlies many aspects of human reasoning and communication. However, it is not sufficient per se to deal with all aspects of language-based reasoning. For this reason, in its more recent developments, FunGramKB has incorporated ways to deal with meaning arising from conventionalized constructions. More specifically, FunGramKB has imported into its structure the overall four-level architecture of the Lexical Constructional Model or LCM. In addition, FunGramKB has been equipped with ARTEMIS, which is a processing unit capable of converting text into machine-readable language. These enhancements have endowed FunGramKB with greater computational power; at the same time, it has drawn computation closer to linguistic postulates.

While the reader may intuitively think that aligning computational and linguistic postulates is a desirable goal, the truth is that so far this goal is not as clear for Artificial Intelligence theorists or even for linguists. There have been attempts at computational implementation of some linguistic approaches. A case in point is the work on the implementation of Systemic Functional Linguistics carried out by Teich (1999). However, this work is mainly focused on articulating dependency systems in order to produce reliable grammaticality judgments, even though Systemic Functional Linguistics is by and large a meaning-oriented approach to grammar. Then, there is computational work within Cognitive Linguistics. But this work is mainly oriented to simulating, on a highly restricted scale, the ability of the human to derive meaning on the basis of the correlation between thought and everyday experience (e.g. embodied reasoning) (cf. Bergen's *Embodied Construction Grammar* or ECG). Our goal is far more ambitious. By making use of the redeveloped architecture of FunGramKB, we intend to endow the computer with the ability to produce rich conceptual representations of natural language input and to process such input in a way that is as close to natural language processing (including the derivation of meaning nuances and controlled inferential activity) as computational requirements will allow it to be. It goes without saying that our perspective on computational implementation will be critical. We work under the assumption that, at the present stage of development, it is not possible to implement every single aspect of a linguistic model; but we also work with

the goal in mind of endowing the computer with as much capacity as is feasible to construct and process meaning in the same way as a natural language user.

On a different note, it must be observed that our approach, although not psycholinguistic, is nonetheless intended to be compatible with empirical evidence from research within this field and hopefully amenable – at least in relevant areas– to future empirical validation. We thus follow Gibbs (2006a: 148) in not assuming that our analyses necessarily involve mental representations and in making sure, through careful consideration of possible alternative hypotheses in our line of argumentation, that our own hypotheses can resist a falsifiability test. In this respect, the reader may wonder if the computational implementation of parts of the present research adds or not to the possible psychological validity of our postulates. However tempting it might be to answer positively, it must be acknowledged, contrary to what some computational linguists, like Veale (2006), argue, that the computational tractability of a model does not involve its validation as a fully explanatory model, much less –we may add– as a psycho-linguistically valid one. This is so because the architectures of the mind and of a computer are completely different. While the mind consists of billions of neural networks which work through co-activation (Lakoff 2008), which permits the simultaneous access to disparate information, a computer works through sequential access to information. Furthermore, a computer-based reasoning system is less flexible than the mind. This is the reason why, despite their

grater storage capacity and processing speed, computers can simulate, but not emulate mental reasoning. In recent times, some scholars, like Bergen (2012) have simulated experience-based metaphorical reasoning successfully. This does not mean, however, that the computer is absolutely able to think like the mind. It can be programmed, through complex algorithms, to create matches between simulated motor programs and concepts, as the human mind does when connecting the notion of ‘grasping’ to a specific way of holding with the hand, but this does not mean that the algorithms (i.e. the reasoning protocol) and the neural pathways activated for this task by humans are based on the same mechanisms.

We are also aware that many of the proposals in the present dissertation are tentative and that they may well need to be complemented with further insights from various other perspectives. However, we trust that our own insights, which are based on authentic data derived from corpus searches, have been reasonably argued and evince a satisfactory degree of reliability at least on linguistic grounds.

The structure of this dissertation is as follows. Chapter 2 is concerned with methodological considerations. We sketch some of the most prominent trends and present our own choice. In Chapter 3 we offer some theoretical considerations that frame our research. We tackle the issue of standards of adequacy in linguistic studies and present the Lexical Constructional Model (or LCM) as the most suitable framework for our investigation. The LCM has a comprehensive meaning-construction architecture that will serve as a backdrop for much of our subsequent discussion. It is not our purpose to discuss the LCM in all of its detail. Accordingly, we place special emphasis on the aspects of this model that are relevant for the development of our study. Chapter 4 deals with cognitive models. Here we take the taxonomies propounded by Ruiz de Mendoza (2007) and Ruiz de Mendoza (2011) as our starting point and shed new light on the matter by providing a unifying view and also putting forward complementary classificatory criteria. Chapter 5 is aimed to supplying an inventory of the cognitive operations that we have identified so far. We briefly list, define and exemplify each of these mechanisms, which will be further developed at a later stage. Also, we offer a detailed account of the ways in which some of these cognitive operations may interact and the principles that govern their activity. Chapter 6 outlines some of the most prominent accounts dealing with figures of speech. It follows from our discussion that the meaning effects related to each figure of speech are but the result of the activity of cognitive operations. We thus argue that cognitive operations lay at the basis of the interpretation not only

of literal language, but also of traditional figures of speech. In Chapter 7 we present a more exhaustive account of cognitive operations and discuss to what extent they are operational at the various levels of meaning description identified in the LCM. Furthermore, we explore the combination of cognitive operations in the creation of given meaning effects. Chapter 8 deals with the representation of constructional schemata in the FunGramKB Grammaticon. We provide an overview of the general functioning of ARTEMIS, and focus on the representation of some of the idiomatic constructions that have been the object of our study in the linguistic part of this dissertation. Chapter 9 summarizes the main findings of this study and outlines a prospect of future developments.

Chapter 2: Methodology

1. Introduction

Over the last decades, there has been a growing interest in the issue of methodological aspects of linguistic research. Much of the debate has revolved around the topic of what is the most appropriate methodology for the elicitation of data in linguistic research, with special emphasis on the adequacy of introspective data (examples that the linguist creates relying on his own intuition) as opposed to corpus data (examples taken from compilations of utterances produced by speakers in natural contexts). The advent of corpus linguistics posed a challenge to generative linguists, who argued that intuition and introspection were not only legitimate but also essential ways of dealing with the intricacies of language. By contrast, scholars that favored usage-based accounts pointed to the lack of empiricism and scientific rigor in introspection-based analyses.

In this dissertation, we have adopted a usage-based approach to language. In other words, we rely on the assumption that language should be studied as produced by speakers. However, we do not want to suggest that intuition and introspection are to be discarded. Rather, in the subsequent subsections we justify our choice and illustrate that the combination of different methods can in fact be fruitful. In short, although we advocate for a

usage-based approach, we still believe that introspection and intuition play an important role in data selection since they initially guide the researcher along potential lines that will later be tested through empirical validation, i.e. naturally-occurring data as found in corpora. In this respect, Willems (2012, p. 670) claims that “intuition should be regarded as a conceptual precondition of linguistic research in general”. It is necessary to note that with “empirical validation” we do not refer to studies that require a statistical apparatus whatsoever. In fact, given the nature of our investigation, statistical analyses have been discarded. Rather, we take the notion of empirical data in its broader sense, referring to data extracted from the compilation of utterances produced by native speakers of a language, either from standardized corpora, or from attested language-use occurrences in the media (e.g. television, radio, etc.)

2. In search of a suitable methodology

Linguistics is a very broad discipline that encompasses a wide range of phenomena that cannot be tackled by using the same analytical tools. For instance, we cannot expect scholars devoted to the study of language acquisition to use the same methods as those conducting cross-linguistic studies. Schalley (2012) claims that in the search of convincing evidence, the answer is not to be sought solely in the method, but also in the topic of

research. In this respect, there seems to be a consensus about the inexistence of a method that can satisfactorily account for all the facets of the study of language (Kertész et al. 2012).

There is a vast range of methods that are available to obtain and analyze linguistic data. One factor that has aroused the interest of linguists in different methods of research is the effort to empiricize linguistics in order to make it more objective and closer to the so-called “hard” sciences such as physics, chemistry, mathematics, etc. However, we should not forget that, even if language is a physical phenomenon that is produced and can be perceived through our senses, meaning is dynamic, changing, context-dependent, individual-dependent, and tied to mental mechanisms that cannot be easily examined. Making systematic searches of texts that call for non-literal (figurative) interpretation –that is, for interpretation that requires the activation of cognitive mechanisms that account for the derivation of adequate meaning implications– is extremely difficult, if not impossible. Researchers concerned with this kind of investigation need first to rely on their own intuitions, formulate a hypothesis, and then test the validity of such a hypothesis through the analysis of data elicited from reliable sources. In her exploration of the usefulness of corpus linguistics in the study of metaphor, Deignan (2005) argues that corpus linguistics is a powerful tool for the identification of erroneous intuitions. In much the same vein, Newman (2011, p. 524) argues that “exploring metaphorical usage in a corpus will require a good deal of inspection and decision-making by a

researcher”. We believe that introspection and intuition are the first steps in the process of linguistic investigation. The data then either corroborates or proves the researcher’s intuition false. We also want to contend that this kind of approach complies with objectivity standards even if its point of departure is tied to the subjectivity of the researcher. The outcome of this kind of investigation has undergone a process of hypothesis formulation and validation that yields legitimate results: “approaching a corpus in search of a specific type of result is entirely in line with the scientific method”. (McEnery and Hardie 2012, p. 16).

The elicitation of linguistic evidence can be framed within different taxonomic criteria. Dichotomies such as empirical vs. theoretical, introspective vs. spontaneous, or quantitative vs. qualitative approaches to language are generally acknowledged. Of course, we are aware that other variation dimensions may be taken into account. However, we want to reduce the scope of our analysis to those facets that are related more directly to our study. Naturally, a given methodology may be classified according to more than one of the taxonomic criterion mentioned above. That is, we may carry out linguistic investigation following a methodology that is theoretical, introspective and qualitative. However, we further argue that the apparently exclusive terms in each dichotomy can often be combined so the linguist can profit from their cooperation. Shalley (2012), who presents a compilation of works that deal with the issue of practice vs. theory in linguistic studies, argues that “[a]n interplay of different methodologies, coupled with a sound

theoretical backing for the creation of good elicitation tasks, will thus create the most comprehensive and convincing evidence” (Schalley 2012, p. 23).

Recent studies in the realm of Cognitive Linguistics are also in line with our contention. For instance, in their cross-linguistic approach to the study of metonymy, Brdar-Szabó and Brdar (2012, p. 729) argue that “the evidence that cognitive linguistics should rely on is not only introspective, but also includes more empirical evidence such as the results of psycholinguistic tests, language acquisition data, diachronic and synchronic data (either elicited from native speakers, or corpus data)”. Furthermore, some authors display a combination of methods and show how the interaction yields satisfactory results. In Deignan (2005), for instance, we can find a combination of theoretical discussions with empirical research. We contend that theory and data need to go hand in hand in order to achieve a quality piece of research. Our view is in full consonance with the following: “Even if we are working empirically this practice needs to be underpinned by theory (rendering theory practical), and, viceversa, that any theoretical work should strive for empirical grounding and testing”. (Shalley 2012, p. 28).

From its inception, Cognitive Linguistics, following a number of remarks made by Langacker (1987), has been a “usage-based” approach. This type of account focuses on the actual use of the linguistic system and on what speakers know about such use. In this connection, Geeraerts (2006, p. 29) claims that “the appeal of empirical methods within the cognitive approach is boosted by the growing tendency in Cognitive Linguistics to

stress its essential nature as a usage-based linguistics – a form of linguistic analysis, that is, that takes into account not just grammatical structure, but that sees this structure as arising from and interacting with *actual language use*” (emphasis added).

The immediate question at this point is what we regard as ‘actual language use’, and what the sources are from which we can draw this kind of data. In our view, any utterance produced by a native speaker is susceptible of being taken as valid data for linguistic analysis. This means that data excerpted from movies, situation comedies, and Internet searches (provided that we restrict our search to pages written by native speakers) are as suitable as the data extracted from standard, widely-recognized corpora such as the British National Corpus (BNC) and the Corpus of Contemporary American English (COCA). The flexibility of the notion of actual usage is also reflected in the following quote from Geeraerts (2006, p. 29): “[...] you cannot have a usage-based linguistics unless you study actual usage – as it appears in corpora in the form of spontaneous, non-elicited language data, or as it appears in an online and elicited form in experimental settings.”

An outline of the most relevant notions related to usage-based approaches to language can be found in Barlow and Kemmer (2000). Usage-based approaches to language can focus on frequency of use, on psycholinguistic experimentation that taps into cognitive process as they occur in speakers and hearers’ minds, on how language learning occurs in connection with experience, on the emergence of linguistic representations

on the basis of conceptual composition, on the importance of using actual contextualized data to draw adequate linguistic generalizations, on the relationship of usage to synchronic and diachronic variation, and on how the linguistic system is shaped in terms of general cognitive abilities. Usage-based accounts can thus make use of experimental, quantitative and qualitative methodologies. Typically, discussion of conceptual representation and cognitive processes will demand psycholinguistic experiments of the kind reported in Gibbs and Matlock (2008). Language variation and the contextualization of data usually require quantitative corpus analysis techniques as advocated by Geeraerts (2005). As we advanced, insights from different kinds of analytical techniques can be fruitfully combined as recently shown in Johansson Falck and Gibbs (2012), who combine psycholinguistic experimenting and corpus analysis to substantiate the claim that bodily experiences with objects constrains metaphorical understanding and the way people talk about abstract concepts. Quantitative analysis can also complement qualitative approaches. For example, in the context of what they call *collostructional analysis*, Gries and Stefanowitsch (2004) show that it is possible to measure the degree of attraction and repulsion that words have for constructions. This has consequences for the study of constructional alternations. When examining the to-dative/ditransitive alternation, one of the methodologies of collostructional analysis, called distinctive collexeme analysis, shows a very strong preference of *give* for the ditransitive construction, while the to-

dative attracts *bring* more than any other verb. Other verbs strongly attracted to the to-dative construction are *take* and *pass*. These verbs involve some distance between agent and patient that must be covered in order to complete the action. Commercial transaction verbs (*sell*, *supply*, *pay*) are generally distinctive to the to-dative, with the exception of *cost*. This finding is difficult to predict on the basis of a different kind of analysis, since these verbs typically involve a physical transfer of the commodity and of money between buyer and seller. Other verbs, by contrast, alternate quite freely between the to-dative and the ditransitive constructions, among them *lend*, *get* and *write*. These verbs involve both the physical transfer and the possession meanings correspondingly associated with the two constructions. These findings are consistent with the general constructionist trend within Cognitive Linguistics to consider alternations as epiphenomenal to lexical-constructional integration (see Ruiz de Mendoza and Mairal 2011). In such constructionist accounts of language, it is postulated that the semantic structure of lexical items can be built into the structure of argument-structure constructions, such as the dative, the ditransitive, the resultative, and others, provided that there is sufficient conceptual compatibility between the two. An argument structure construction pairs core-clausal structure with generic or high-level meaning configurations such as DO, CAUSE, MOVE, BECOME, HAVE, etc., plus their associated arguments. For a ditransitive sentence like *John gave Mary a book* we pair the syntactic string NPSubj-VP-NPObj₁-NPObj₂ with the semantic specification X CAUSES Y TO

RECEIVE Z (cf. Goldberg 1995, p. 142). If a verb is compatible with a constructional specification, then it follows that its integration into the construction is possible. However, conceptual compatibility predicts all possible cases of integration, but not the preference of a verb over others for a given construction. Of course, such preferences can be motivated once they are identified.

Within this context of “usage-based” accounts, our reliance on the LCM involves the use of introspection and argumentation based on a careful analysis of naturally occurring data. Thus, our approach, which is not quantitative, is also a “usage-based” one. In order to support our theoretical claims, we have drawn data from different sources. We now proceed to discuss corpus selection and data extraction within the context of qualitative exploitations of naturally-occurring linguistic data. In section 4 below, we detail the sources we have used in our investigation.

3. Corpus selection and data extraction

So-called corpus linguistics as we know it today bloomed in the 1980s with the development of computer-readable texts. Large amounts of words compiled in corpora readily available for linguistic investigation clearly challenged previous methods, especially those based on introspection and intuition.

Corpus linguistics is a heterogeneous field, but some generalizations can be made: (i) corpus linguistics deals with machine-readable texts that allow the study of specific research questions; (ii) corpora are exploited using tools that allow the user to search through them rapidly and reliably. Some of these tools are aimed to determine frequency and concordance. These tools exemplify quantitative and qualitative analyses respectively (McEnery and Hardie 2012, p. 2).

Another point of debate revolves around whether corpus linguistics is to be considered an autonomous discipline with theoretical status or a supporting aspect of different parts of linguistics. Tognini-Bonelli (2001) put forward the distinction between *corpus-based* and *corpus-driven* studies. The former make use of corpus data in order to corroborate/validate/refine pre-formulated hypotheses. Advocates of the latter do not regard corpus linguistics as a methodology; rather, they claim that the corpus itself has its own theoretical status. The investigation carried out in this dissertation is corpus-based, as we make use of corpora in order to corroborate previous hypotheses formulated within a theoretical framework.

Some authors reject the corpus-based/corpus-driven dichotomy on the basis of the unacceptability of acknowledging the theoretical autonomy of the corpus. For instance, McEnery and Hardie (2012) make the following claim:

“There is a very great degree of convergence between corpus linguistics and (...) other aspects of linguistics. Corpus techniques tend no longer to be the preserve of a clearly delimited field of specialists, but rather have become a critical resource across linguistics as a whole (and beyond). Thus, we might argue that the future of the field is in ‘corpus methods in linguistics’ rather than ‘corpus linguistics’ standing separately” (McEnery and Hardie 2012, pp. xiii-xiv).

The COCA and the BNC are examples of monitor corpora. Monitor corpora “seek to develop a dataset which grows in size over time and which contains a variety of materials” (McEnery and Hardie 2012, p. 6). Let us see each of them in turn.

3.1. The Contemporary Corpus of American English (COCA)

The Corpus of Contemporary American English (COCA) is the largest freely-available compilation of written and spoken American English that was explicitly conceived to be a monitor corpus. This corpus is designed in such a way that it keeps the same genre balance from year to year, which allows the measurement of current changes in English.

The corpus holds over 450 million words and it is updated regularly. The texts in the corpus are classified into spoken, fiction, popular

magazines, newspapers, and academic texts, which makes the corpus very manageable. Also, the COCA allows the user to carry out frequency comparisons between words, phrases and grammatical constructions, as well as searching for collocates.

3.2. The British National Corpus (BNC)

The British National Corpus (BNC) contains around 100 million words collected from both written (90%) and spoken (10%) texts. Written texts in this corpus were compiled from journals, newspapers, popular fiction, letters, essays, etc. The spoken part comes from the transcription of recorded spontaneous conversations and a variety of oral exchanges in a wide range of contexts excerpted from government meetings, radio shows, etc. Unlike the COCA, which is updated every year with more than 20 million words, the BNC comprises words that were compiled between 1991 and 1994. Therefore, users of both corpora may find that BNC is becoming outdated over time. In addition, the length of the COCA is another advantage, providing results for lower-frequency words that may not be found in the BNC.

3.3. *WebCorp*

Kilgarriff and Grefenstette (2003) put forward the idea of the Web as Corpus, which is similar to the concept of the monitor corpus (McEnery and Hardie 2012, p. 7). WebCorp was created by the Research and Development Unit for English Studies (RDUES) in order to make specific use of the web as a corpus (cf. Renouf 2003). However, many researchers simply make use of Google or other searching engines. In this respect, WebCorp is preferable since it allows users to make more refined searches given its broader range of searching possibilities.

One of the main problems with this corpus is its volatile nature. That is, a webpage that we consult today may not be available tomorrow. However, we do not see this point as an important disadvantage, as the researcher should be trusted that he obtained the example from a reliable source that has later disappeared.

We also need to bear in mind that WebCorp includes URLs from countries whose language is not English (Argentina, Italy, etc.), which may yield grammatically unacceptable utterances. Therefore, special caution is required when using this corpus.

One of the main advantages of this corpus when compared to others is that it gets updated every day, constituting an accurate reflection of the language that real people use in real contexts. It thus contains words and

expressions that will take a long time to appear in other corpora or dictionaries.

WebCorp works by extracting concordance lines from each of the pages that have been selected by the search engine as matching the target word or phrase. WebCorp presents a list of links to the pages that contain each of these concordance lines. Furthermore, concordance lines show the context in which the target word or phrase occurs.

4. Selection of data sources

The examples used in this dissertation have been mainly chosen from *ad hoc* Internet searches through Google and WebCorp. Our initial choice was to resort to well-established corpora like the British National Corpus (BNC) or the Contemporary Corpus of American English (COCA). However, our own experience with such corpora is that, however big, they are still an excessively limited resource to provide a broad picture of how conceptual representation and cognitive processes reveal themselves through language use. This will become evident to the reader as we proceed along our study. But for the sake of illustration, consider briefly the constructional framework *Don't X Me*, as in *Don't honey me!*, which we have related to a cognitive operation that we call *echoing* (see Chapter 7, section 4.3.1). Echoing involves the repetition of a thought, whether implicit or explicit in

the communicative situation. It has meaning implications that we will explore later. While it would be possible to make systematic searches in a corpus of the constructional framework, the only way to know whether such searches are instances of echoing is manual. And there is no way the corpus will yield instances of echoing with different uses of language. This means that if echoing is to be investigated, once it is detected, researchers can do nothing but trust their intuition and hypothesize, on the basis of its nature, where else it could be used productively by speakers of a language. This requires a flexible search tool that can have access to countless instances of language use in real communicative contexts. Google and WebCorp offer such a search tool, while the amount of manual work remains the same as with standard corpora. Very recently, some linguists have noted the advantages of using Internet as a source for the study of language, among them Kilgarriff and Grefenstette (2003), Renouf (2003), Bergh (2005), and Bergh and Zanchetta (2008). The main reason that they give for its use is its intrinsically huge and ever-growing size. Evidently, the greater the amount of material the greater the possibility of enabling researchers to check whether their intuitions as to what can be said are on the right path.

Another issue that needs to be borne in mind is the detection of potentially acceptable utterances that could lend support to a given theoretical point. The nature of our study makes this process extremely difficult. Many of our examples have been detected by examining movies and sitcom scripts. Our development of the cognitive operation of echoing

in relation to irony called for a kind of data that one cannot find readily in corpora. In this particular operation, sitcoms were especially useful, given the playfulness and jocularity of the language displayed in shows of this kind. Once we identified a potentially acceptable construction, we generalized over several occurrences in order to pin down new patterns and then test their validity against broader amounts of data. This way, the initial subjectivity of the example is then complemented and corroborated via empirical evidence. The example mentioned above, i.e. the *Don't X Me* construction, was first identified in the sitcom *Family Matters*, when Carl Winslow told his daughter *Don't daddy me!* in a context in which the daughter was trying to get permission to go to a concert by calling Carl 'daddy'. We figured out the kind of analysis that could explain the use of this constructional pattern in this situation. We then proceeded to search for this and similar examples in corpora that could corroborate the acceptability of such a pattern and the meaning effects that arise in given contexts. Of course, this kind of work can only be made manually, and needs to follow a previous process of introspection that provides the first hint as to the correct analysis.

Google and WebCorp are being updated every day by real language users in multiple contexts and situations. This allows the researcher to make sure that novel expressions (accepted by a speech community) are included, which is a great advantage in terms of a usage-based approach to language. There is another important benefit to using Google and WebCorp versus

standardized corpora. Thus, we have had the opportunity to check that the use of such corpora would have left out very illuminating examples for our research that are certainly acceptable. One of these examples is the expression *to fill someone with lead*. The first search was carried out in the BNC. We decided to make a broad search only including the words *with lead* so the search would not be restricted to given subject, object, tense, etc. We manually reviewed each result, but none of them matched the target expression. The same procedure was then carried out in COCA, from which we drew five eligible results: *The tendency of hunters to fill with lead any buck with big antlers that they spot* (COCA, 2010), *Just a precaution to keep you from filling my back with lead* (COCA, 2008), *The forceful sergeant fills the dog's head with lead* (COCA, 2008), *Keep quiet or I'll fill your executive belly with lead* (COCA, 2008), *When they are talking about filling people with lead, I don't take it as real* (COCA, 2006). Our following step was to make a search on the web. Given the vast amount of web pages, we decided that making such a broad search as *with lead* would yield too many undesirable results. Therefore, we narrowed down the search by writing the whole expression *fill you with lead* between inverted commas, which restricts the search to those result that match exactly the words and the order in which they are written. We obtained 220.000 results. In order to increase the reliability of the results, we searched for the same expression in Google Books, and obtained 486 results. In view of these figures, we claim that Google is a powerful tool that should be taken profit of by linguists who

search for instances of real language as used by real people in real circumstances.

CHAPTER 3: Theoretical framework

This Chapter aims to provide the reader with an overview of the theoretical background that underlies the development of this dissertation. We first address the question of the standards of adequacy for our account. Then we argue for the appropriateness of what Mairal and Ruiz de Mendoza (2009) have termed the Equipollence Hypothesis, which we will use as a methodological tool. We then proceed to sketch the main features of the Lexical Constructional Model as the explanatory framework that best suits our purposes and provides us with an encompassing meaning construction architecture besides a number of useful descriptive and explanatory tools. Lastly, this chapter offers an overview of the general architecture of FunGramKB, which is the computational system whose general architecture largely parallels that of the LCM. We will make use of this program in order to implement some of our linguistic proposals at a later stage.

1. In search of a unified framework of analysis: adequacy criteria and the Equipollence Hypothesis

This section will address the question of the standards of adequacy of linguistic accounts. That a linguistic account should be explanatorily adequate, i.e. that it should explicitly deal with all possible linguistic

phenomena on the basis of the simplest set of rules and/or principles, is probably not an issue for most linguists. What is problematic is to determine, for such a complex object of study as language, what is meant by “linguistic phenomena.” For example, linguists within the generative-transformational tradition will argue that only syntax is sensitive to the formulation of highly generic, in fact “universal” rules. This is so because in this tradition semantic and pragmatic phenomena are envisaged as language dependent, while syntax is abstract (i.e. formal) and is regulated by innate universal principles that are part and parcel of our human capacity to speak. This well-known thesis is based on the “poverty of the stimulus” hypothesis. According to this hypothesis, children are able to learn the grammar of language surprisingly fast and efficiently on the basis of a highly restricted input (Chomsky 1980) from which they only receive positive evidence about what can be said, but never negative evidence about what cannot be said. However, children learn to know what is not correct only on the basis of positive evidence. The only possible explanation for this learning behavior is to assume that the basic principles of grammar are innate. Given this assumption, it makes sense to look for universal rules only within grammar, but not within semantics and pragmatics, since these are not based on universal principles but are merely interpretive. By contrast, cognitive and functional linguists will argue that syntax is motivated by semantic and pragmatic phenomena, including sensory-motor and communicative issues.

This means that the complexities of meaning and of how meaning underlies form are also the object of the formulation of “adequate” generalizations.

Our discussion, in consonance with non-formalist approaches to language, (i.e. those that highlight cognition and communication as essential in order to understand linguistic structure), will take a broad stance on the notion of “adequacy”. However, our own approach will differ from the standard functional and cognitive positions since we will introduce a methodology-oriented standard of adequacy, which is instrumental to the search for adequate generalizations. That is, we will argue that in order for a linguistic account to match the data and to draw the highest-level generalizations that is possible, we need to know where and what to look for. Otherwise it will be impossible for generalizations to be strong and reliable.

Let us start our discussion with a quick overview of the development of the notion of adequacy from the early days of Chomskyan generative-transformational linguistics up until today. Then we will introduce the Equipollence Hypothesis, which was first formulated by Mairal and Ruiz de Mendoza (2009) as a working assumption according to which, once a principle has been attested in one area of linguistic enquiry, it is necessary to find out its full scope of application by exploring all its possible areas of activity. Apparently, the Equipollence Hypothesis is not much more than an exploration procedure. However, its systematic application to account for our data has revealed that this notion supplies one further standard of adequacy, of a methodological nature, for research in linguistics, while it

allows analysts to enhance their ability to achieve explanatory adequacy. For this reason, we will discuss the Equipollence Hypothesis in this section too.

1.1. *Standards of adequacy*

As has been mentioned above, the idea that linguistic accounts can achieve different standards of adequacy goes back to the Chomskyan revolution within linguistic theory. Chomsky's (1964) original discussion in this respect has been admittedly controversial (cf. Cook 1974) and, as some linguists have argued, it is not sufficiently comprehensive (cf. Butler 2009a). However, it has influenced linguistic research on the formalist, the functionalist (e.g. Dik 1989) and the cognitivist camps (e.g. Lakoff 1990; Goldberg 2002).

Since most readers are likely to be familiar with Chomsky's discussion of adequacy criteria, we only highlight what is of greater interest for our discussion. As is well known, Chomsky argued that the grammar of a language is *observationally adequate* if it correctly specifies which sentences are well formed from the semantic, syntactic, morphological and phonological perspectives. A grammar is *descriptively adequate* if it additionally describes the semantic, syntactic, morphological and phonological structure of a language in a way that matches native speaker's intuitions. Finally, a grammar is *explanatorily adequate* if it provides "a principled basis, independent of any particular language, for the selection of

the descriptively adequate grammar of each language” (Chomsky 1964, p. 63). The idea behind explanatory adequacy is that linguists should aim to formulate a maximally constrained set of principles for each language. While the early Chomsky assumed a deep-to-surface structure transformational apparatus as the way to endow grammar with explanatory power, other linguistic accounts (and more particularly functionalist and cognitivist approaches, which are typically monostratal), base their explanations on what Goldberg (2002, 2006) has termed *surface generalizations*, i.e. general laws or principles derived directly from observations on the formal/functional similarities and differences among language items. Goldberg argues extensively in favor of surface generalizations over derivational accounts to account for argument structure. A case in point is the benefactive/ditransitive syntactic alternation. For example, many generative theories derive ditransitive expressions like *John sent Mary a book* from input benefactive/dative expressions: *John sent a book for/to Mary*. However, there are many reasons why ditransitives pattern alike independently of their purported benefactive/dative alternate. Compare (1) and (2) below:

- (1) John sent a book to Mary/John sent a book for Mary/John sent Mary a book.
- (2) John sent a book to London/*John sent a book for London/*John sent London a book.

The ditransitive always conveys the idea of “giving”, which is the reason why **John sent a book for London* and **John sent London a book* are not possible, since London cannot be a recipient but a destination within a transfer frame. Note that while it is possible to say *John bought a book for Mary* and *John bought Mary a book*, the alternate **John bought a book to Mary* is very odd. The reason for this is that the verb *buy* favors integration into a “give” frame over a transfer one. This exceptionality strongly argues in favor of surface generalizations where so-called alternations have no room, i.e. where the benefactive (with *for*), dative (with *to*), and ditransitive (IO, DO) constructions are not organized in derivational terms but in usage patterns that arise from the way lexical structure is built into argument-structure constructions. Syntactic alternations, as discussed in the formalist literature (cf. Levin 1993, and Levin and Rappaport Hovav 2005), are epiphenomenal (cf. Ruiz de Mendoza and Mairal 2011), that is, they are a natural consequence of deeper phenomena.

Making correct surface generalizations is necessary to achieve what Chomsky (1964) termed explanatory adequacy. The problem with Chomsky’s proposal is, therefore, not to be found in the ultimate goal of endowing a linguistic account (which Chomsky restricted to the formal aspects of language, which he referred to as “grammar”) with a set of broad-ranging rules or principles capable of accounting for the maximum amount of variance in the data. The problem simply lies with the method to achieve this goal.

Cognitive and functional linguists go beyond formal linguists in the way they deal with explanatory adequacy by looking into the way linguistic form is motivated by factors that are, in principle, external to the linguistic system. The notion of motivation has been the object of a great deal of attention in various linguistic approaches. Different scholars have adopted different perspectives on this topic and have thus put forward different theories in their effort to specify and delimit the different types, role and explanatory power of motivation in different linguistic fields (cf. the papers in Radden and Panther 2004, and Panther and Radden (2011ab). For instance, Panther and Radden (2011a, p. 1) discuss motivation in language as “a special case of influence that one human system exerts upon another human system”. According to these authors, cognition is the most central human system that influences (and is in turn influenced by) more peripheral human systems such as emotion, perception, language, culture etc. Their account thus places special emphasis on the language-cognition relation and explores the different ways in which the two phenomena can motivate and influence each other.

Interesting as it is, the discussion on motivation is beyond the scope of this dissertation. For our current purposes, we make use of this notion in a broad sense as the factor that provides a plausible explanation for linguistic structure. In this respect, we take sides with those authors that advocate for the explanatory value of motivation in linguistics (cf. Panther and Radden 2011b).

By way of illustration of what is meant by motivation in the present research and how taking this notion into account becomes instrumental to going beyond descriptive adequacy into explanatory adequacy, we will examine the weaknesses of Dowty's (2001) well-known account of the locative-subject construction. We will argue that Dowty's account, although detailed, does not provide us with all relevant generalizations (i.e. it fails to achieve explanatory adequacy). The locative-subject construction uses a (semantically) locative element as a (syntactically) clausal subject. *The riverbank was swarming with insects*. This construction can be contrasted with its agent-subject counterpart, as in *Insects swarmed in the riverbank*. It is very productive with verbs denoting sound emission when a single sound results from the activity of a homogenous collection of entities: e.g. *The garden buzzed with bees*, *The place rumbled with crazy fans*, **The street honked with cars* (but cf. *Cars honked in the street*).

Scholars like Salkoff (1983) and Dowty (2001) have distinguished a number of properties of the locative-subject construction. Here are some of the most relevant ones:

- (i) The activity denoted by the verb affects the whole location. For example, it is not possible to say *#The riverbank was swarming with insects but only a small portion of it had insects*. By contrast, *Insects swarmed in the riverbank, but only in a small portion of it* makes sense.

- (ii) In relation to ‘a’, the *with* phrase is always an indefinite plural or a mass term: **The riverbank was swarming with one or two insects.*
- (iii) There is a tendency to use the locative-subject construction rather than the agent-subject one when motion is figurative (see also Dowty 2000, p.119): *His head swarmed with thoughts* is preferred to *Thoughts swarmed in his head*; in literal uses of the verb *dance* the locative-subject construction is not possible: **The stage danced with lovely couples* (cf. *Lovely couples danced on the stage*); however, compare *Visions of equations danced in his head* with *His head danced with visions of equations*, where the same verb is used figuratively.
- (iv) The events described by the verb in a locative-subject construction take place at the same time and repetitively all over a place. From a perceptual perspective, either all the space is filled by the entities, as in the case of *The riverbank was swarming with insects* in ‘a’ above, by the sound they produce (*The garden echoed with the sound of children at play*) or there is a visual illusion that it is filled on the basis of the repetition of movements (*The garden danced with fireflies*).

This account of the locative-subject construction, although not necessarily exhaustive, is enough to illustrate the nature of descriptive adequacy. The

account identifies formal and functional properties of this construction on the basis of a corpus of data and arranges them into meaningful patterns. However, the resulting generalizations are neither motivated nor do they relate to other phenomena, external to the construction, which may cast light on the properties identified at the descriptive level. For example, from an internal perspective, we may ask ourselves why the locative-subject construction is preferred in cases of figurative motion or why the event described affects the whole location. From an external perspective, we may wonder if there is a connection and, if so, of what kind between the locative-subject construction and other subject constructions where the subject is not the agent of the action. Some examples are the instrument-subject construction (*The stone broke the window*), the inchoative construction (*The door opened*) and the middle construction (*Your book sells very well*).

There is also a variant of the construction that makes use of a transitive verb in its passive form: *The courtroom was packed with relatives of the deceased and reporters* (cf. *Relatives of the deceased and reporters packed the courtroom*); *The beach was littered with plastic bottles* (cf. *Plastic bottles littered the beach*); *The street was crowded with people* (cf. *People crowded the street*). This constructional variant can be used figuratively too: *His head was packed with thoughts*. However, given its passive nature the subject acquires a certain object-like quality while still retaining its essentially locative nature: the relatives are in the courtroom, the bottles are in the beach, and the crowd is in the street. This object-like

quality of the locative element partially aligns this variant of the locative-subject construction with the rest of the constructions where the subject position is filled in by a non-agentive element, such as the conceptual object or the instrument, for re-construal purposes. For example, contrast *The beach was littered with plastic bottles* with *Plastic bottles littered the beach*. In both the beach has been covered with plastic-bottle litter by careless users. However, in the former the passive construction presents the beach, which is naturally a location, as an undergoer of the littering action where the plastic bottles are instruments. In the latter, the beach is also seen as an undergoer of the action, but the plastic bottles are endowed with an agent like nature that they do not actually have.

Other observations are of course possible, and the ability of linguists to address all of them in a way that is consistent with other related phenomena is what ultimately endows the linguistic account with explanatory adequacy, i.e. with the best-motivated and more powerfully predictive generalizations.

It goes without saying that explanatory adequacy is not an absolute concept. It comes in degrees. For example, we may note that the locative-subject construction makes use of a *with*-prepositional phrase. This type of phrase prototypically indicates company (*John came along with his friends*) and, by extension, instrument (*This time he did it with his friends* ‘with his friends’ help’). The motivation for the meaning extension from company to instrument is to be found in people’s construal of joint labor, where some

workers help others, thus becoming instrumental for a task to be successfully completed. In much the same way, workers use instruments to facilitate their work. In the case of ‘swarm with’, the verb indicates abundance or near completion, which allows it to make use of the instrumental preposition in the same way as *fill with* (e.g. *They filled up the baskets with leaves*; ‘They used leaves to fill up the basket’). This way of motivating the use of *with* adds a small degree of explanatory adequacy to our previous description of the locative-subject construction. However, it is still possible to achieve a greater degree of adequacy. Let us see how. First, we still have the unsolved problem of why the locative-subject construction is not possible in the case of **The stage danced with lovely couples*, which makes a literal use of the verb *dance*, while the same construction holds for a figurative use of the same verb, as in *His head danced with visions of equations*. Rosca (2012) has suggested that dancing involves a visually balanced distribution and coordination of motion, which has to be harmonious. Such coordination would be absent from the figurative uses (in our example, the head is filled with equations “skipping about” in it). This explanation captures the fact that the locative-subject construction is mostly used when there is unorganized motion that perceptually covers a whole region in space. If there is organized motion using up a whole place, then the inchoative construction is used, where manner of motion is not expressed in the verb slot but by means of a satellite: *The stage filled with*

*couples, some of them dancing with an almost neo-classical refinement*¹ (cf. *Couples filled the stage*). Rosca's explanation thus motivates the shift from the literal central meaning of 'dancing' as rhythmic motion to the less central (and still literal) use where 'dancing' involves moving around quickly in excitement (e.g. *He danced all around the place with joy*) in order to construct the figurative interpretation of 'locative subject + dance with'. If complemented with further observations on the inchoative construction, as we have made above, the overall account acquires greater explanatory adequacy, which, can of course be enhanced over and over again as new relevant observations are made part of the overall account. As with the rest of sciences, new observations allow linguists to improve existing accounts by including in their descriptions further related patterns of form and use, which, when adequately motivated, result in broader generalizations that give rise to higher degrees of explanatory adequacy.² The possibility also exists that the accumulation of descriptions that cannot be dealt with by what was taken as a highly explanatory account demand substantial revisions in it, which includes the possibility of a global change in the set of assumptions that were considered valid up to that moment. As is well known, when change is taken to an extreme, it gives rise to what Kuhn

¹ <http://www.ballet-dance.com/201105/McGregor17Nov2010.html>. Accessed on January 19, 2013.

² For readers interested in the full motivation of the locative-subject construction, Rosca (2012) has made explicit connections with other non-agent subject constructions such as the inchoative and the middle constructions.

(1962/1996) referred to as a *paradigm shift*, involving a new direction or “map” in a science (cf. Kuhn 1962/1996: 109).

Interestingly enough, the Chomskyan revolution, with its focus on explanatory adequacy, brought about such a substantial change in linguistics. By now readers will be aware that explanatory adequacy requires motivation that may be external to the formal aspects of language. This statement, which is in full accord with linguistic analysis within functionalism and cognitivism, involves a radical departure (in fact, a paradigm change) from the original Chomskyan position, which has always tried to find motivation for formal phenomena within the realm of form (generally, so-called universal principles). Functional and cognitive linguists postulate that many formal phenomena respond to interactional and psychological factors. In our discussion of the locative-subject construction, we have noted the likely involvement of perceptual issues. These naturally carry over into cognitive phenomena, i.e. into how the mind represents and construes the world. The standard use of the locative-subject construction represents what Halliday and Matthiessen (2004) have called a “non-congruent” grammatical realization. In this construction the location is non-congruently treated as a subject and the semantic agent (which is congruently the syntactic subject) is non-congruently treated as an instrument. That is, places do not “swarm”, “echo” or “dance”; rather, they are where these activities take place. “Being treated as” is another form of saying “being used figuratively”, which involves re-construing the event

structure that is conceptually associated with the construction. We will take up this issue again in connection with the notion of external constraints on lexical-constructional integration (cf. section 3.3 below). For the time being, suffice it to note that construal phenomena are essential to achieving high degrees of explanatory adequacy. This is not a new point at all. It explicitly lies at the basis of Talmy's Cognitive Semantics (e.g. Talmy 1988ab; 2000ab) and Langacker's Cognitive Grammar (e.g. Langacker 1987, 1991ab, 1995, 1999, 2001, 2008). Obviously, accounts like these go far beyond what a formal derivational account can reveal about language.

Cognitive linguists are aware that taking into account conceptual representation –which, according to Lakoff (1987a) takes the form of *idealized cognitive models* (see Chapter 3)– and construal phenomena (including perspectivization and conceptual prominence) is essential in order for the linguist to be able to produce sufficiently adequate linguistic generalizations. Lakoff (1990) did in fact make a distinction between what he called the *generalization commitment* and the *cognitive commitment* (see Evans 2011 for detailed discussion). The former is concerned with finding general principles that apply to a maximum number of phenomena, very much like the notion of explanatory adequacy; on the basis of the latter linguists seek to make generalizations that are compatible with empirical findings in the cognitive sciences. The cognitive commitment thus impinges on the generalization commitment.

Lakoff's cognitive commitment is very close to a slightly previous proposal made within the field of functional linguistics. In a groundbreaking discussion on standards of adequacy in his *Theory of Functional Grammar*, Dik (1989) puts forward psychological adequacy as one among several other standards. Psychological adequacy is certainly weaker than Lakoff's cognitive commitment. In Dik's proposal, a linguistic account should not make claims that are incompatible with findings in psychology. The cognitive commitment, on the other hand, requires more than just mere compatibility. According to Lakoff (1990) linguists should discard any postulate that has been empirically questioned on the basis of findings not only in cognitive psychology but also in any of the brain sciences. Lakoff's commitment led him to abandon his own previous work on generative semantics in the 1970s (cf. Lakoff 1971, 1976; Lakoff and Ross 1976), which was heavily influenced by formal logic postulates, in favor of a more reliable theory of reasoning based on prototype and basic-level categorization, as postulated by Rosch (1973, 1978), and on rich conceptual representations such as *schemas*, discussed in cognitive psychology (Rumelhart 1980) or *frames*, as discussed in Artificial Intelligence (Minsky 1975).

While cognitive linguists were more strongly committed to the cognitive sciences than functionalists, the latter seemed to take a broader stance on the areas of application of the notion of adequacy. Thus, Dik (1989) adds two other standards of adequacy, i.e. typological and pragmatic

adequacy, which have never been explicitly included among the commitments of cognitive-linguistic analyses. However, we must bear in mind that Cognitive Linguistics, starting with Talmy (1991, 2000ab), features typological concerns, and pragmatics (also discourse), as we noted above, is central to an important part of its literature (cf. Sweetser 1990; Langacker 2001).

The reason why linguistic typology and pragmatics have not given rise to specific commitments in Cognitive Linguistics is to be found in the implicit belief that the generalization and cognitive commitments actually encompass any typological and pragmatic concerns. Let us briefly illustrate how.

In our previous discussion of the locative-subject construction, we pointed out that, when there is organized motion, English does not make use of this construction. This is evidenced by the impossibility of the following example: **The place danced with multiple teenage couples*. By contrast, English prefers an inchoative formulation whose verb slot does not express manner of motion: *The place filled with multiple teenage couples dancing to the sound of strident music*. This is an interesting fact in terms of a typological feature of English that has been addressed first by Talmy (1991, 2000ab) and then by other linguists (e.g. Cadierno 2004, Cadierno and Ruiz 2006, Ibarretxe 2009) and even psychologists concerned with the conceptualization of motion events like Slobin (2004). According to Talmy (1991, 2000ab), languages across the world can be divided into two main

typological groups: *verb-framed* languages (e.g. Spanish, Japanese) and *satellite-framed* languages (e.g. English). Although there is some controversy as to the accuracy of such a strict dichotomy (e.g. Slobin and Hoiting 1994; Slobin 2004; Zlatev and Yangklang 2004), the basic aspects of the distinction prove very revealing. Verb-framed languages code the path of motion in the verb and manner of motion in a satellite, whereas satellite-framed languages code path of motion in a satellite and manner of motion in the verb. For example, in English it is awkward to say *He went into the heavy brush crawling* but not *He crawled into the heavy brush*, *He went past the door sliding* but not *He slid past the door*, *He went into the house staggering* but not *He staggered into the house*. This typological pattern would seem to block out a sentence like *The place filled with multiple teenage couples dancing to the sound of strident music* while allowing *The place danced with multiple teenage couples*. However, it is just the opposite, as noted above. The reason is that the locative-subject construction requires multiple entities moving quickly and rather chaotically in such a way that the place in question is “perceptually” seen as filled with them. Manner of motion is coded by the construction and not by the verb. If the verb and its arguments (i.e. the predication) do not comply with these constructional requirements, then use of the construction is discarded and a different option is chosen, such as the inchoative construction, which does not code motion (i.e. if motion or manner of motion is to be specified, it takes a satellite role). As the discussion above has made evident, typological

generalizations are ancillary to other language-specific factors, including those of a sensory-motor nature.

Let us now turn again to pragmatic adequacy. In principle, it is not hard to see the way in which this adequacy standard relates to the Lakoffian cognitive commitment. According to Dik (1989: 12) achieving pragmatic adequacy involves embedding a linguistic account “within a wider theory of verbal interaction.” Pragmatics is broadly concerned with how people put language to use with a communicative purpose in connection with a context. One of the main areas of pragmatics research is inferential pragmatics, of the kind arising from the seminal work carried out by Grice (1975), later on revisited and redeveloped by other scholars that produced different, and in fact opposing, proposals to account for man’s ability to draw inferences on the basis of what is said, such as the Principle of Relevance (Sperber and Wilson 1986, 1995) and Levinson’s “heuristics” for conversational implicature (Levinson 2000). Another major area is speech act theory, as originally devised by Austin (1962) and Searle (1969, 1979).

At this point it may be interesting to note that linguists, especially functionalists, have sometimes attempted to build pragmatic categories into their accounts of grammar. A well-known example is provided by Dik’s Functional Grammar (Dik 1989/1997a). This scholar argues that, while implicature is strictly an inferential issue, illocutionary meaning can sometimes be coded (i.e. conventionally captured by lexical and grammatical mechanisms) in natural languages. To the extent that this

happens, this meaning dimension is to be made part of a grammatical account. We will briefly outline how Dik fleshes out his proposal in this respect.

Dik's starting point is a typological observation made by Sadock and Zwicky (1985), according to which there are four basic speech acts that have been attested in most languages: statements, questions, commands, and exclamations. Each of the first three acts corresponds to one of the widely recognized sentence types: declarative, interrogative and imperative; the fourth makes use of any of these sentence types plus a special intonation contour. All languages directly code these basic acts through the different sentence types. Other acts may also be coded or, alternatively, they may be obtained through derivation. If such derivation is lexical or grammatical, then it falls within the scope of grammar; if derivation requires inferential activity, then it is a matter of pragmatics. Lexical conversion underlies the use of performative verbs, as in *You'll have a gold ring, I promise*. Grammatical conversion, in its turn, is the result of using such devices as illocutionary tags (e.g. *can/will you?*, *could/would you?*) and adverbs or satellital expressions with a mitigating function (e.g. *please, for me*). In *I'm thirsty, please*, the adverb converts a statement into a request for action (e.g. giving the speaker something to drink); in *Do that for me!* the beneficiary specification converts the command into a request (cf. the oddity of saying *#Do it right now for me*, which inadequately mingles the mitigating beneficiary satellite with an strengthening adverbial) (cf. Ruiz de Mendoza

1994); in *Just be here on time, can you/will you?*, the tag converts an order into a request. However, the interpretation of *I'm thirsty* without the adverb *please* as a request instead of a statement requires pragmatic conversion, which is outside the scope of grammar.

Like Dik in his theory of Functional Grammar, Halliday and Matthiessen (2004), in their update of classical Hallideian Systemic Functional Linguistics, have also made speech act meaning part of what they call the *interpersonal* dimension of grammar. More specifically, speech acts, which they call *speech functions*, are part of the “clause-as-exchange” subdimension within the interpersonal dimension of grammar, which also includes mood, polarity and modality. In this subdimension of grammar, language is used to “give” or to “demand” either “goods-and-services” or “information.” Four speech functions result from these interpersonal uses of language: *stating* (giving information), *offering* (giving goods and services), *questioning* (demanding information), *commanding* (demanding goods and services). Mairal and Ruiz de Mendoza (2009, pp. 171–172) are critical of this account for two reasons. One is that, while it is certainly possible to give and demand information and to demand goods and services through language, it is not possible “give” goods and services in the same way; at best what people can do by using language is to say that they have the desire to give goods and services but not to give them. There is thus a strange asymmetry in the speech function system described by Systemic Functional Grammar. Another reason is that Halliday and Matthiessen make no

provision for non-primary speech functions such as requesting, begging, promising, warning, threatening, condoling, and boasting, among many others, and how they relate to primary speech functions. There is evidence, however, that the grammars of natural languages have ways to deal with these other speech functions without making use of inference. For example, think of *You shall X* as a way of making a promise (*You shall have a bicycle*) or the widely recognized if-conditionals associated with warnings and threats (*If you touch that wire, you will get a shock; If you don't show up tonight, we are finished*). This points to the need to include non-primary speech functions (i.e. non-basic speech acts) in grammatical accounts.

By contrast, the existence of many non-primary speech functions (or speech acts) poses no challenge to Dik's Functional Grammar. This account postulates lexical, grammatical, and pragmatic conversion mechanisms that account for how grammar is equipped to deal with a wide array of speech act categories, which are divided into basic acts (roughly equivalent to Halliday and Matthiessen's primary speech functions) and derived acts (e.g. threats, promises, warnings, etc.). Postulating such mechanisms evidently makes Dik's account preferable to Halliday and Mathiessen's from the perspective of achieving greater explanatory adequacy. But there are still some illocutionary phenomena that cannot be dealt with in terms of basic and derived illocutionary meaning. These have been identified by Mairal and Ruiz de Mendoza (2009). As these authors note, the adverb *please* is more necessary to produce a request interpretation in *Can you drive, please?*

than in *Can you listen to what I'm saying (please)?* In addition, the same structural configuration (i.e. a *can you* question) may reject the use of *please*: *Can you (*please) see the Great Wall of China from space?* Besides, there are non-basic (or non-primary) illocutions that can be expressed directly, without the use of any conversion device: *You shall have everything that you require* (promise); *Won't you just leave?* (urging request); *Why not stay overnight?* (suggestion); *Shall I stay or shall I go?* (request for direction).

From this analysis it follows that what Dik calls “coded” illocution needs a different treatment. Ruiz de Mendoza and Baicchi (2007), Ruiz de Mendoza and Mairal (2008), Mairal and Ruiz de Mendoza (2009), and Baicchi and Ruiz de Mendoza (2010) have argued that the best explanation of illocution is one that recognizes the existence of *illocutionary constructions*. These authors postulate the existence of a broad range of such constructions for English (see also Del Campo 2011; Pérez and Ruiz de Mendoza 2011; Del Campo and Ruiz de Mendoza 2012; Pérez 2013) and claim that illocutionary constructions, like other kinds of construction, contain fixed and variable elements and are grouped in families. Each illocutionary construction designates a meaning region within the interactional dimension of language. Such a meaning region is profiled against the base of a cultural model called the Cost-Benefit Cognitive Model, as defined by Ruiz de Mendoza and Baicchi (2007). For example, think of different ways of conventionally expressing threats: *We'll be*

watching you; If you do that, you'll be in trouble; If you do that again, I'll kill you; If you are late just once, you will be fired; You will regret what you've done; You're going to regret holding me up; Surely you don't want to kiss my sister, do you? The Cost-Benefit Cognitive Model contains a number of stipulations (see Chapter 4, section 2.2.2.). One of them reads as follows:

- (i) If it is manifest to A that it is not manifest to B that a potential state of affairs is beneficial or harmful for B, A is expected to make this manifest to B.

This stipulation serves as the backdrop for the interpretation of different cases of advising (e.g. *This remedy will help you get over your flu; You will definitely benefit from our program*), and warning (e.g. *Electricity can be dangerous; Don't go out into the sun without after taking ibuprofen*). Threatening, on the other hand, requires the logical combination of the stipulation above with this other one:

- (ii) If it is manifest to A that a potential state of affairs is not beneficial to B, then A is not expected to bring it about.

Threats, like warnings, make other people aware that they can be harmed. This idea is captured by the stipulation in (i). However, warnings, unlike threats, do not contravene the stipulation in (ii).

As argued in Del Campo (2011), different speech act interpretations arise from highlighting and logically combining different parts of the (profiled or designated) stipulations. A highlighted portion of a stipulation comes close to what Langacker (2009) has termed an *active zone* in his discussion of the construal of objects. For Langacker the profile of a concept is its inherent content, whereas the base is the conceptual structure against which such a concept is profiled. Profiling a concept against one base or another gives rise to different ways of construal. For example, during a flight an airplane is construed differently when envisaged from the inside rather than from the outside. In the first case, such elements as the seats, the cabin crew, the pilots, the safety instructions, the windows, etc., will be relevant for interpretation (e.g. *Half of the cabin crew were involved in assisting the sick passenger*³); in the second case, it will be the external appearance of the aircraft (e.g. the wings, the flaps, the engines, etc.): *In cruise the flaps were retracted, reducing the wing area.*⁴ In a similar way, the stipulations of the Cost-Benefit Cognitive Model act as base domains against which the semantic pole of a family of illocutionary constructions can be profiled. As this process takes place the various speech act categories arise. Then, the actual meaning interpretation of each member of a family of constructions involves a different active zone.

³ http://elt.oup.com/elt/students/express/pdf/exp_01_aa_units_1-8.pdf. Accessed on January 25th, 2013.

⁴ http://en.wikipedia.org/wiki/Marsden_Gemini. Accessed on January 25th, 2013.

Interestingly, this account is compatible with other proposals in cognitive linguistics. For example, Panther and Thornburg (1998) and Panther (2005) have argued that non-conventional speech act meaning is obtained through the application of a metonymic inferential schema on an *illocutionary scenario*, which is a cognitive model that specifies conditions for a speech act category to be such. For directive acts, there are pre-conditions (ability and willingness), a core, and an after (the outcome). Activating a pre-condition affords access to the whole scenario, as in *Can you do that for me?* Ruiz de Mendoza and Baicchi (2007) provide the following related stipulation as part of the Cost-Benefit Cognitive Model:

If it is manifest to A that a particular state of affairs is not beneficial to B, and if A has the capacity to change that state of affairs, then A should do so.

The source domain for the metonymic inferential schema mentioned above is part of this precondition (A has the ability to change a state of affairs); the metonymic target is the instruction “then A should do so”.

Given these coincidences, there are two differences between Panther and Thornburg’s account of speech act meaning, based on illocutionary scenarios, and the one provided by Ruiz de Mendoza and Baicchi (2007). The first difference arises from the formulation of the Cost-Benefit Cognitive Model as underlying all illocutionary activity. Instead of postulating many different speech act categories, like most traditional

speech act theorists, and an illocutionary scenario for each speech act, the stipulations in the Cost-Benefit Cognitive Model provide a simpler, unified account that abstracts away conceptual material from the many different illocutionary scenarios. In this respect, it has a greater generalizing power. But the account is further refined through the application of such analytical tools as profile-base relations and the notion of active zones, endowing it with a higher degree of delicacy. In terms of explanatory adequacy, Ruiz de Mendoza and Baicchi's (2007) proposal is both simpler and at the same time capable of supplying finer-grained analyses of illocutionary activity.

The second difference is found in Ruiz de Mendoza and Baicchi's (2007) defense of the existence of families of conventional illocutionary constructions whose meaning impact arises from active zone-profile relationships in the context of a broader cultural construct called the Cost-Benefit Cognitive Model. The resulting account thus unifies the treatment of inferred and conventional illocution, which provides the linguistic account with even greater explanatory adequacy. We return to these issues in more detail in relation to cognitive models (section 4).

1.2. The Equipollence Hypothesis

We now turn our attention to the *Equipollence Hypothesis* (henceforth EH; Mairal and Ruiz de Mendoza 2009). As we have mentioned above, this hypothesis is a working assumption according to which linguistic processes

that have been attested in one domain of linguistic enquiry may also be active in varying degrees within other domains. The EH lies at the base of the postulation that there is metaphoric and metonymic activity beyond the level of lexical description as constraining factors in lexical-constructional interaction (cf. section 2.2 below). It has also led them to postulate the existence of two basic types of conceptual integration that range over various domains of linguistic description and explanation. These processes are regulated by similar constraints at all levels too (see section 2.1 below). In order to give readers a preliminary idea of how the EH can guide linguistic research, consider the case of the discovery of metaphorical activity in grammar. Metaphor has generally been treated as a lexical or predicational phenomenon. For example, it is easy to see that saying a person is in a “sea of grief” is close to saying that the person is “extremely sad”. Emotions can be seen as if they were liquids in which we can be immersed thereby being affected by their nature. So metaphor is a matter of finding correspondences between concepts; these correspondences allow us to reason about one concept in terms of the structure and logic of the other. The question we can ask ourselves in view of this well-known discovery is: can the human mind find correspondences between concepts of any kind and use the correspondences to reason in the same way as with the example above? We know that some concepts are more generic than others: they are created by finding elements that are common to other concepts. So, one legitimate question that follows from the previous one would be: can the

human mind find correspondences between abstract concepts that arise from generalizing over more specific ones? For example, is it possible to see an action type in terms of a different action type with which it may maintain a degree of conceptual, structural or logical resemblance? In order to answer this last question it is necessary to go through the different action types and find matches and mismatches that materialize into identifiable features of linguistic expressions. One case of such metaphors immediately surfaces from this exploration. It was first identified by Ruiz de Mendoza and Mairal (2007) and provisionally labeled AN EXPERIENTIAL ACTION FOR AN EFFECTUAL ACTION. It concerns target-oriented predicates such as *stare*, *laugh* and *smile*, which do not take a direct object but a prepositional one: *He stared/laughed/smiled at his neighbor's daughter*. Ruiz de Mendoza and Mairal (2007) observed that these predicates can be used in the caused-motion construction (whether used literally or figuratively) with a direct object: *He stared/laughed/smiled his neighbor's daughter out of the room/out of her wits*. Outside the context of this construction, the non-prepositional object is impossible: **He stared/laughed/smiled his neighbor's daughter*. In constructionist accounts of language (cf. Michaelis 2003), this phenomenon has been treated as a case of constructional coercion over lexical structure. But, as Ruiz de Mendoza and Mairal (2007, 2008, 2011) have argued, the notion of “coercion” is not by itself enough to explain what allows some verbal predicates, but not others, to be built into the caused-motion construction: **He studied/explored/sought her out of the room*. The

answer to this puzzle lies in the sensitivity of the event structure of some verbal predicates that can take an object to be “re-constructed” metaphorically (cf. Ruiz de Mendoza 2013b). This means that *stare*, *laugh* and *smile*, among other verbs, can be seen *as if* they had a physical impact on their target objects thus causing motion. Of course, the only impact that they can have is psychological or emotional, so that motion is not instigated by an external cause but by the reaction of the object. This is what Ruiz de Mendoza and Luzondo (2012, 2013) have called “self-instigated” motion.

This finding is significant by itself, since it enhances the explanatory adequacy of a linguistic account of constructional “coercion” in lexical-constructional integration by finding its motivation. But it does more than that since it gives the linguist a broader view of the scope of application of metaphorical activity in language. Metaphor stops being regarded as a mere lexical or predicational phenomenon to be seen as a pervasive factor in linguistic structure.

We now proceed to discuss the LCM. This discussion includes an overview of the different levels of meaning description in the LCM, an account of the processes of integration within and across levels (subsumption and amalgamation respectively) and an account of the mechanisms that regulate such processes. The purpose of this overview is not to go into the technical aspects of the LCM in detail, which the reader can find in Ruiz de Mendoza and Mairal (2008, 2011), Mairal and Ruiz de Mendoza (2009), Ruiz de Mendoza (2013b) and the references therein.

Rather, our goal is to present the reader with those aspects of the LCM that have a bearing on the basic assumptions of our account of the ubiquity of cognitive models and cognitive operations, i.e. of how cognitive modeling takes place across domains of linguistic research.

2. An overview of the Lexical Constructional Model

The LCM is a usage-based constructionist account of language (cf. Langacker 1999). This means that the LCM bases its descriptions and explanations on the careful examination of real contextualized data derived from corpora or other empirical studies. This position is quite close to the predominant one in Cognitive Linguistics, starting from Langacker's Cognitive Grammar (e.g. Langacker, 1987, 1999, 2005, 2008) and going into, especially, the latest developments of the Goldbergian strand of Construction Grammar (cf. Goldberg 2006). However, the LCM differs from these other usage-based approaches to language in a significant way. As its proponents have been very careful to emphasize, the LCM, which borrows analytical insights from cognitive and functional accounts of language, has developed its own explanatory tools in order to account for the broadest possible number of meaning construction processes (cf. Ruiz de Mendoza and Mairal 2008, 2011; Mairal and Ruiz de Mendoza 2009; Ruiz de Mendoza 2013b). The LCM thus integrates the pragmatic and discourse

dimensions of language use into its descriptive and explanatory apparatus. This is not new in linguistic theory. It has clear antecedents in major functionalist approaches such as Functional Grammar (Dik 1989/1997ab), Systemic Functional Linguistics (e.g. Halliday and Matthiessen 2004), Functional Discourse Grammar (e.g. Hengeveld and Mackenzie 2008), and Role and Reference Grammar (e.g. Van Valin and LaPolla 1997; Van Valin 2005). Reference to pragmatics and discourse is also common in some of the work within Cognitive linguistics; some examples are Liebert et al. (1997), Van Hoek (1999), Panther and Thornburg (2003), Steen (2005), and Oakley and Hougaard (2008). Langacker (2001) has explicitly addressed the integration of discourse factors into his Cognitive Grammar by viewing “linguistic structures as instructions for manipulating the current discourse space” (Langacker 2001, p. 163). This is certainly a correct view of the discourse potential of grammatical mechanisms, but it is still necessary to go beyond this position and study the way in which linguistic structure is sensitive to or modeled by specific pragmatic and discourse needs. It is also necessary to include in linguistic explanation an account of the way knowledge structures are called upon by linguistic expressions in order to construct communicatively coherent texts resulting from an equally consistent discourse flow. In this connection, the LCM distances itself clearly from previous approaches in its emphasis on cognitive modeling as being at the base of pragmatics and discourse in much the same way as it is at the base of lexical and grammatical structure.

Let us now first give an overview of the general architecture of the LCM. After that, we shall address the problem of lexical-constructional integration from the perspective of this approach.

2.1.Descriptive layers

The general architecture of the LCM distinguishes four layers, each of which is considered a descriptive level in terms of meaning construction:

- (i) **Level 1** or argument-structure layer. At this level we find both *lexical* and *argument-structure constructional templates*. The former are low-level propositional representations based on frame-like structure capturing so-called encyclopedic or world knowledge. In the LCM, unlike in Frame Semantics (Fillmore, Johnson and Petruck 2003), encyclopedic knowledge is explicitly bound to the event structure of verbs and other predicates. On the other hand, argument-structure constructions are high-level propositional representations specifying generic elements of structure common to whole classes of lower-level predicates. Some classical examples are the ditransitive, resultative, and caused-motion constructions, as described, for example, by Goldberg (1995, 2006).
- (ii) **Level 2** is based on so-called *implicational constructions*.

These constructions contain meaning implications that were originally derived through inferential mechanisms from the activation of relevant elements of low-level situational models. These inferences become stably associated with a fixed formal configuration through a process of frequent association, also known as *entrenchment* (cf. Langacker 1999). For example, we have a low-level situational model according to which we are not expected to use other people's possessions without permission. This model underlies the meaning implication that there is something wrong about the situation presupposed in the following sentences: *Who's been messing with my computer?*, *Who's been fiddling with my stamp collection?*, and *Who's been sleeping in my bed?* A similar low-level situational model is at work in the case of *What's the child doing in the kitchen?*, which presupposes that the child is doing something and at the same time strongly implies that whatever the child is doing is wrong. The origin of this implication is to be found in the oddity of the speaker asking the addressee to describe a situation that he knows the speaker is already aware of.

(iii) Level 3 is concerned with illocution. Illocutionary interpretation is based on providing access to high-level situational models, which, according to Ruiz de Mendoza and Baicchi (2007) and Baicchi and Ruiz de Mendoza (2011), can be identified with what Panther and Thornburg (1998) have called *illocutionary scenarios*. Such scenarios are built by making generalizations over everyday situations where people ask, beg,

offer, promise, thank, congratulate, express condolences, and so on. For example, the construction *You shall have X* (e.g. *You shall have what you wanted*) generally counts as a promise because it has conventionalized the culture-bound implication that stating that addressees will certainly have what they desire involves the speaker not only knowing but also making sure that this will happen. This implication is supported by the cultural convention according to which people are expected to do their best to satisfy other people's wishes provided these are not harmful to either speaker, hearer or a third party. Interpretation at level 3, just like at level 2, is not only inferential but it can rely on the degree of entrenchment between the form of a constructional pattern and a given interpretation.

(iv) **Level 4** is focused on defining the kinds of relation that can hold between clauses in discourse. Understanding the nature of these relations is essential to understand the “discourse flow”, that is, how connectivity is achieved thus giving rise to overall discourse structure. There are two ways in which connectivity can be created or enhanced: (i) through inferential mechanisms, which is roughly the same as classical *coherence*, and (ii) through constructional resources, which comes close to the also classical notion of *cohesion*.

The distinction between coherence and cohesion is a hallmark of discourse studies since it was first put forward by Halliday and Hasan (1976). However, the LCM makes different use of it, since it understands

that cohesion is a question of making connections between propositions independently of the syntactic realization of the connection. LCM proponents thus argue that, in terms of meaning construction, there is little difference between using conjunctions and discourse markers to determine meaning connections between propositions. For example, cause-consequence relations can be expressed lexically (*His memory deterioration is a consequence of his age*), grammatically (through a preposition, as in *Because of his age, his memory has deteriorated* or a conjunction *His memory has deteriorated because he is old*) or through discourse markers (*He is old; therefore his memory has deteriorated*).

Because of this differentiation between meaning construction and formal expression, Mairal and Ruiz de Mendoza (2009) find that semantic relations underlying discourse connectivity are not different from semantic relations underlying the clause complex. They thus make an initial inventory of semantic relations that closely follows the study provided by Halliday and Matthiessen (2004) on logical connections that manifest themselves in paratactic and hypotactic complex clauses, which fall into three broad areas: *elaboration, extension and enhancement*.⁵ According to Mairal and Ruiz de Mendoza (2009), these areas correspond to general semantic relations that are further subdivided into more specific semantic relations. For elaboration, the authors propose such relations as *restatement* (e.g. *X In Other Words Y*), *comment* (e.g. *X, Which Y*), *specification* (e.g. *X that Y*), and *exemplification*

⁵ For the sake of simplicity, we maintain Halliday and Matthiessen's (2004) terminology.

(e.g. *X, for instance Y*). For extension, we have relations like *addition* (e.g. *X and Y*), *exception* (e.g. *X except for Y*), and *alternation* (e.g. *Either X or Y*). Enhancement relations include *time* (e.g. *After/Before/During X, Y*), *location* (e.g. *X (Just/Exactly) Where Y*), *cause* (e.g. *X, Because Y*), and *condition* (e.g. *If X, Then Y*). As the authors themselves point out, the list they provide is by no means exhaustive. In fact, in this book we postulate three additional semantic relations between clauses: *evidentialization* (*X, As Is Evidenced By Y*), which is a matter of elaboration, *consecution* (*X, Therefore Y*), and *concession* (*Although X, Y*), which are framed within the semantic dimension of enhancement.

The output for each layer is based on the potential combination of meaning arising from constructional characterizations and guided inferential activity (*cued inferencing*). In other words, elements from each descriptive layer, which may vary in complexity and nature, either combine in principled ways or act as a cue for inferential processes, thus yielding fully worked-out meaning representations.

The meaning of an utterance may thus be obtained from the construction (when form and meaning are entrenched), via inferencing or a combination of both mechanisms. A clear example of meaning obtained constructionally can be found in the sentence *What are you doing in my room?*, which is an instantiation of the *What's X Doing Y?* construction. Through frequency of use, the implication that whatever X is doing bothers the speaker is associated to this construction. In other cases, meaning

implications as the one just described need to be worked out inferentially. Consider, for example, the sentence *You're not going anywhere tonight*, said by a mother to her daughter when the latter asked for permission to go out. In this case, the implication that the daughter is not allowed to go out cannot be derived constructionally, but rather through cued inference. The culturally-attributed authority of the mother over the daughter endows an initially affirmative statement with illocutionary force. The same meaning could be derived constructionally from the sentence *I forbid you to go out tonight*.

2.2. *Interaction within and across levels*

The LCM specifies the ways in which different conceptual patterns may interact in order to give rise to complex meaning representations. These mechanisms of interaction may operate either within or across descriptive levels. Level-internal integration processes are referred to as *amalgamation* processes, while integration across levels is termed *subsumption*. Let us discuss each of them in turn.

Amalgamation processes take place when two constructional configurations cooperate at any level of description (cf. Ruiz de Mendoza and González 2011). Consider, for instance, the following sentence at level 1 of the model: *Mary should find a job*. In this expression, the *X Should Y* construction combines with the transitive construction (i.e. *Mary finds a*

job). The two arguments (*Mary* and *a job*) and the predicate (*find*) of the argument structure construction (i.e. the transitive construction) fill in the X and the Y elements of the more abstract *X Should Y* construction, which contributes the subjective judgment on the part of the speaker towards the action denoted by the argument structure construction ('finding a job').

Another case of amalgamation is supplied by the *X About Y* construction. This is a level-1 topic construction, different from level-4 *About X, Y*, which is a discourse topicalization construction. Galera (2012) has argued that the *X About Y* construction has the function of adding a topic to the object of a communicative or a cognitive action, whether the object is explicit or implicit (through deprofiling; cf. Goldberg 2006). This means that the topic construction amalgamates with the transitive and intransitive constructions: *She talked (to me) (a lot) about the new finding*; *She didn't tell me about his early retirement*; *She knew (everything) about the meeting*, etc.

Subsumption processes consist in the combination of elements from different levels. A straightforward example of subsumption is the integration of lexical elements into constructional configurations at level 1. It should be borne in mind that, even if this integration takes place within the same level of meaning description, lexical templates are low-level constructs, while constructional templates are high-level configurations. Let us go back to the example of amalgam *Mary should find a job*. Previous to the amalgamation process, the verbal predicate *find* has been subsumed into the transitive

construction. Subsumption is also at work at other levels of meaning description. Constructional subsumption and cued inferencing (either by themselves or a combination of both) give rise to conceptual representations at levels 2 and 3. Consider the expression *What do you think you are doing?* This construction is a variant of the ‘What’s X doing Y’ construction (Kay and Fillmore 1999). The choice of this construction on the part of the speaker implicates that the speaker is bothered by the hearer’s behavior or attitude. In this case, the implication heavily relies on the *do you think* element (cf. *What are you doing?*). Note also that this element is highly productive, yielding similar meaning implications (e.g. *Who do you think you are talking to?* vs. *Who are you talking to?*; *Where do you think you are going?* vs. *Where are you going?*). However, this constructional mechanism does not account for the full array of meaning implications that we may derive from this sentence. The ‘What Do You Think You’re X?’ configuration also acts as a cue that activates the low-level scenario according to which the speaker, who perceives the hearer’s behavior as inappropriate, believes that he is entitled to, not only question, but also challenge this behavior. This special meaning implication, which is not part of the construction, may be obtained through an inferential processes cued by the context in which the sentence is uttered (a situation in which it is obvious what the hearer is doing). The speaker may also redevelop the message in order to explicitly state what is bothering him (e.g. *What do you think you are doing using my magazine as a fan?*). We may take one step

further by interpreting this sentence as an order (e.g. ‘Stop using my magazine as a fan’), which falls within the scope of level 3. In this case, the sentence activates a higher-level scenario according to which our social behavior should not be detrimental to other people and, if it is, these people have the right to take measures. The speech act value obtained through the activation of this scenario via cued inferencing may also be achieved constructionally: *I order you to stop using my magazine as a fan.*

Both amalgamation processes and subsumption are in line with the general principle of conceptual interaction put forward by Ruiz de Mendoza (1997a) according to which lower-level conceptual patterns tend to become part of higher-level patterns rather than the other way around (see also Ruiz de Mendoza and Díez 2002). For example, the path schema, which is an abstraction over low-level items such as roads, alleys, streets, passageways, etc., when used to construct the source domain of the metaphorical expression *He is moving fast on the road to success* incorporates such low-level elements as a runner or a driver in a vehicle traveling fast to its destination.

The scope of application of subsumption is determined by a number of regulating principles, namely external and internal constraints, which we proceed to examine.

2.3. *Constraints on subsumption*

Internal constraints relate to the conceptual compatibility between descriptive characterizations, while external constraints are based on construal phenomena (perspectivization processes through the application of high-level metaphor and metonymy). Changes in construal are often reflected in grammar in the form of shifts in the constructional ascription properties of predicates. For example, the inchoative use of verbs like *open* and *close* results from, first, seeing an action as if it were an agentless process by virtue of the metaphor AN ACTION IS AN AGENTLESS PROCESS. Then, once construed in this way, the metonymy PROCESS FOR ACTION licenses the process to stand for the underlying action, as in *The door opened/closed* (cf. Ruiz de Mendoza and Pérez 2001).

As regards conceptual compatibility (internal constraints), consider the use of the verb *hammer* in the transitive and the resultative constructions, which is licensed by the coincidence between their event structure characterizations: *hammer* involves the specification of an agent, an object and, optionally, of a result, i.e. an entity causes another entity to change some property (cf. *He hammered the metal for hours/He hammered the metal flat/into the shape of a fish*). But the coincidence or compatibility between event structure characterizations does not account for all cases of lexical-constructional fusion. For example, the use of the verb *destroy* in the inchoative argument structure construction is not possible (e.g. **The city*

destroyed) despite its event structure similarity with *break*, which does take part in the construction (cf. *The vase broke*). This is due to the fact that, even though the two verbs involve a caused telic process (X CAUSES Y TO BECOME Z, where Z is ‘broken’ or ‘destroyed’), upon further analysis *break* belongs to the class of change of state verbs, while *destroy* is a cessation of existence predicate.⁶ We will come back to the issue of lexical-constructional fusion in relation to the cognitive operation of conceptual integration in Chapter 5, section 2.4.

3. The LCM in the context of Cognitive Semantics and Construction Grammar(s)

In the LCM, a constructional characterization is understood as a pairing of form and meaning where form affords access to meaning and meaning is realized by form to the extent that such processes have become entrenched in the speaker’s mind and are generally recognized by the speech community to be stably associated. For a construction to be such it needs to be potentially replicable by other speakers with minimal variation in its form and meaning. This formulation is generally compatible with the standard Construction Grammar understanding of a construction as a form-meaning

⁶ Note that other verbs that may also involve cessation of existence (e.g. *vanish*) can be used intransitively, but not in the inchoative sense: *The city vanished* does not alternate with **X vanished the city*.

(or function) pairing. It is not our purpose here to go into the subtleties of the different definitions, which have been studied in detail in González-García and Butler (2006) within the context of the relationships between cognitivism and functionalism. However, it must be noted that cognitive accounts of Construction Grammar usually highlight three aspects of constructions: (i) they can happen at any meaningful formal level thus ranging from morphemes, words and phrases to whole clauses and clause complexes; (ii) it is often the case that in a construction the meaning of the whole is larger than the (compositional) meaning of the parts; (iii) even if a form-meaning pairing is fully compositional, it can be considered a construction provided it is frequent (which is a symptom of its entrenchment in our cognitive systems) (cf. Goldberg 2006).

The LCM makes emphasis on other properties of constructions. First, it does not correlate the notion of entrenchment with frequency of occurrence. This correlation is in fact a rather poor criterion unless we can set up reliable frequency thresholds below which a meaning-form association cannot be regarded as constructional. Instead, the LCM sees entrenchment in terms of degree of conventionalization, i.e. it correlates this notion with the intersubjective perception that a form-meaning pairing is accepted by other speakers of the same speech community. This means of course that very frequent connections are for sure constructions, but also less frequent ones provided that speakers trust that they are conventional. It goes without saying that a speaker can be wrong about the conventional

status of a given connection. In such a situation, communicative misunderstanding may arise and repair strategies not very different from those postulated in conversation analysis may be needed (cf. Schegloff et al 1977; Schegloff 1987, 2000). The presence of cross-individual repair procedures in discourse production and comprehension may well be a pointer to the lack of conventionalization of some form-meaning associations; conversely the systematic occurrence of non-repaired associations in discourse argues for their conventional (i.e. shared) status within a given community of speakers.

Second, the LCM introduces the notion of replicability into its definition of construction in order to deal with cases of novel linguistic output that is not only meaningful but also acceptable and thus reproducible and linguistically exploitable in terms of competent native speaker's judgments. It may be objected that the old Chomskyan notions of linguistic competence and native speaker's judgment is at odds with the spirit of cognitivist constructionism and even with a more functionalist bias, which are "usage-based" approaches based on hard data obtained from corpora (cf. Tummers et al 2005). However, the use the LCM makes of these notions has little to do with Chomskyan postulates since it works under the assumption that acceptability has to be measured not in terms of an ideal speaker-hearer but of real speakers' linguistic performance as measured, for example, through psycholinguistic experimenting (e.g. Eddington and Ruiz de Mendoza 2010), reliable quantitative methods (e.g. Stefanowitsch 2010),

and qualitative analysis based on large samples of data from actual corpora in line with McEnery and Wilson (2001). These three sources of analysis and linguistic explanation can provide ample support to a linguist's insights into acceptability judgments.

Finally, the LCM makes explicit the nature of the connection between the form and meaning parts of a construction. Form is seen as realizational of meaning and meaning is seen as cued for by form. This explicitation is very important for a usage-based model of language, since the analyst is required to examine contexts of use to determine what aspects of a given conceptual configuration are being called upon when dealing with actual linguistic output. The analyst is also required to examine in what way form can actually convey intended meaning within its context of use. In sum, what these observations mean is that a construction is not just a pairing of form and meaning, but a cognitive construct that results from speakers within a speech community making meaning productively within specific communicative contexts.

4. FunGramKB: an overview

As we have already made explicit, the present dissertation aims to explore in detail the capacity of the LCM to explain meaning construction in two ways: (i) inferentially, and (ii) constructionally (which includes lexical structure).

In common everyday language use, these two ways alternate, and even cooperate for utterance production and interpretation in order to achieve the best possible balance between production/comprehension economy and meaning effects, in much the same way as described by relevance theorists (cf. Sperber and Wilson 1995).

In the past, scholars within the field of Artificial Intelligence have partially succeeded in the modelling of knowledge with computational purposes (Minsky 1975, Rumelhart 1975, Schank and Abelson 1977, Sanford and Garrod 1981, among others). Their objectives constitute a systematic attempt to endow a computational architecture with the ability of simulating the human capacity to produce and understand natural languages. Currently, there are a great number of computational projects in the field of Natural Language Processing (NLP). Most of these projects make use of statistic methods in order to determine which items of knowledge are likely to co-occur in a reasoning system. This branch of artificial intelligence covers only part of the needs of automatic processing to which computational systems are subjected nowadays (automatic translation, intelligent browsing, etc.). Even when computational systems are equipped with learning devices (the machine can learn from previous interaction with the user), the results are often far from being optimal. A case in point is provided by the following English-to-Spanish translations obtained from Google Translator:

She sneezed the powder all over the mirror⁷ > Estornudó el polvo todo el espejo.

Hamid Karzai was cross at the way the talks were announced⁸ > Hamid Karzai se cruzan en el camino de las conversaciones se dieron a conocer.

Google Translator has been unable to deal with the caused-motion construction of the first example. A correct translation would have been:

De un estornudo, cubrió de polvo todo el espejo (approx. ‘with a sneeze, she covered the whole mirror with powder’).

In the case of the second example, the expression *to be cross at* has been misinterpreted by the automatic translator, which should have rendered a translation along the following lines:

Hamid se sintió contrariado por la forma en que se anunciaron las conversaciones (approx. Hamid felt displeased with the way in which the talks were announced’).

⁷ <http://www.ozbird.net/lbbook/lbook9.htm>. Accessed on July 8, 2013.

⁸ <http://www.economist.com/news/world-week/21579887-politics-week>. Accessed on July 8, 2013.

Google translator, besides other mistakes, has erroneously interpreted that Hamid came in the way of the talks.

Artificial Intelligence theorists acknowledge that the only way to simulate the inferential capacities of human beings in language use is by providing the machine with sufficient knowledge organized in an architecture that captures as many elements as possible of those used in real inferential processes in the human mind. This kind of approach involves the manual introduction of information into the computational architecture.

FunGramKB⁹ is a computational program that has developed over the last ten years within this framework. Basically, FunGramKB has incorporated elements from different linguistic theories, especially Dik's Functional Grammar (FG) and Role and Reference Grammar (RRG), with the aim of equipping a computational program with linguistic content. In its most recent developments, it has also incorporated elements from the Lexical Constructional Model, among them the architecture of the grammaticon. Therefore, FunGramKB contains four levels of linguistic description, inherited from the four-level constructional apparatus that characterizes the LCM. These levels will be discussed in detail and further illustrated in this dissertation (Chapter 8).

FunGramKB is a lexical-conceptual knowledge base aimed at processing natural language. As one may infer from this description, FunGramKB stores both linguistic and conceptual information. Logically,

⁹ www.fungramkb.com

the former kind of information is language specific. In other words, the linguistic module of FunGramKB differs from language to language. On the other hand, the conceptual level is universal, and therefore shared by all languages.

The general distinction between linguistic and conceptual modules in FunGramKB is further subdivided in order to provide a finer-grained classification of the information contained within the knowledge base:

1. The linguistic module, which is different for each language, comprises the lexical and the grammatical level.

- (i) The lexical level is constituted by the *Lexicon* and the *Morphicon*. The former stores information about lexical units in each language: the Lexicon is concerned with both the morphosyntax and collocations of lexical units. In turn, the Morphicon provides the system with the necessary information to deal with cases of inflectional morphology.
- (ii) The grammatical level is the so-called *Grammaticon*. The structure of the Grammaticon resembles the architecture of the LCM to a large extent. The Grammaticon is made up of four different layers or Constructicons that correspond to the four levels of linguistic description in the LCM. The L1-Constructicon is concerned with argument-structure

constructions; the L2-Constructicon contains implicational constructions; illocutionary constructions are stored in the L3-Constructicon; the L4-Constructicon deals with discourse constructions.

2. The conceptual module, which is the same for different languages, contains the *Ontology*, the *Cognicon* and the *Onomasticon*.

- (i) The Ontology is a hierarchically organized inventory of universal concepts. Each concept in the ontology is linked to a number of lexica that belong to specific languages. The semantic information related to the concepts in the ontology is provided in the form of *thematic frames* and *meaning postulates*. Thematic frames specify event participants, while meaning postulates specify an event and a number of obligatory and optional arguments. These specifications are made in a machine-readable metalanguage called COREL (*Conceptual Representation Language*).
- (ii) The Cognicon encapsulates procedural knowledge of the kind captured in classical scripts (cf. Schank and Abelson 1977). This means that in the Cognicon we can find information related to temporally organized sequences of events that conform stereotypical actions (teaching a class, going to the

dentist, taking a taxi, etc.). These conceptual schemata correspond to low-level cognitive models in the LCM (cf. Garrido and Ruiz de Mendoza 2011; Ruiz de Mendoza 2013c).

- (iii) The Onomasticon contains conceptual information about actual entities and events of the world: Freddie Mercury, the Alhambra, 9/11, etc. Instances of the world may be portrayed either synchronically or diachronically. The schemata corresponding to the former instances are known as *snapshots* (Freddie Mercury as a singer), while the latter are *stories* (Freddie Mercury's life).

The information contained within the conceptual level may be further categorized in relation to two additional taxonomic criteria: temporality and prototypicality. Conceptual constructs that are presented within a temporal frame are called *macrostructures*. Stories, for instance, are macrostructures. In turn, *microstructures* are presented atemporally, as is the case of snapshots. As regards prototypicality, those concepts that represent prototypical information are *protostructures*, as opposed to *biostructures*, which carry non-prototypical information. An example of the former is the conceptual information related to the description of a mouse. An instance of biostructure is the information associated to Mickey Mouse. Figure 1

provides illustration of the different modules described above and the relations among them.

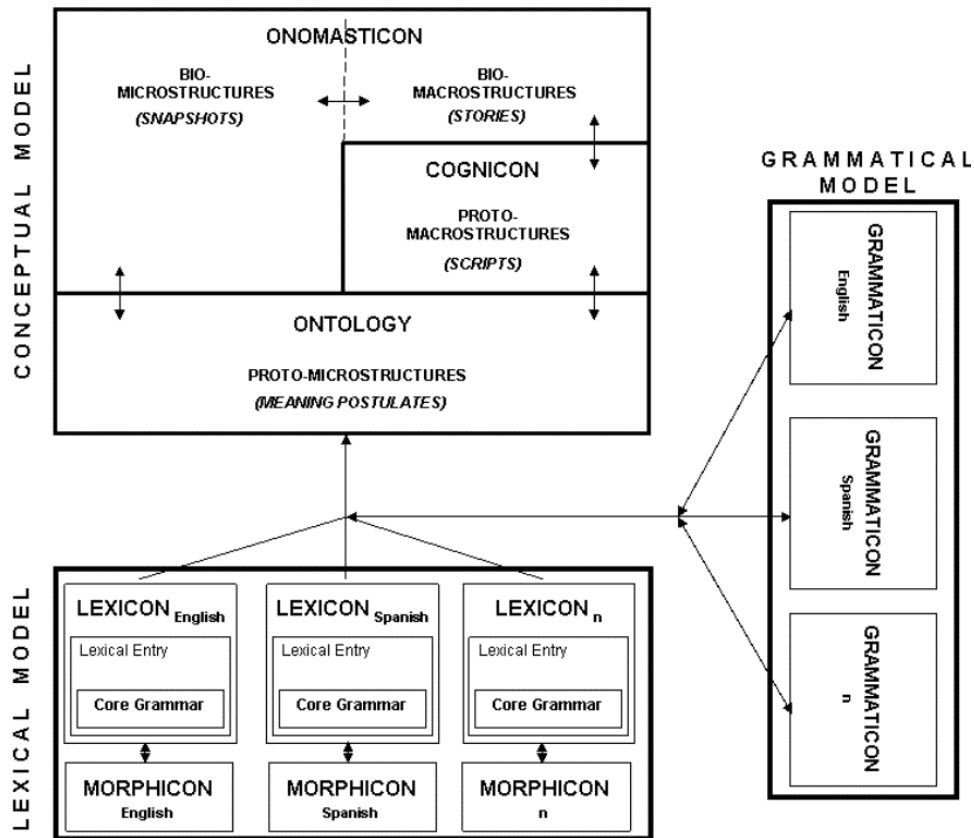


Figure 1. The architecture of FunGramKB

The lexico-syntactic linkage in FunGramKB is represented by *conceptual logical structures* (CLSs), which are syntactically-motivated semantic formalisms that capture the linguistic-conceptual connection. The CLS operates on the linguistic model, thus being oriented towards the interaction between the Lexicon and the Grammaticon. On the other hand, COREL schemata operate on the conceptual level, thereby serving as the input for

the reasoning engine. Therefore, two different metalanguages are used in FunGramKB: COREL and CLSs. See figure 2 below for an illustration of the relation between syntactic and conceptual representations:

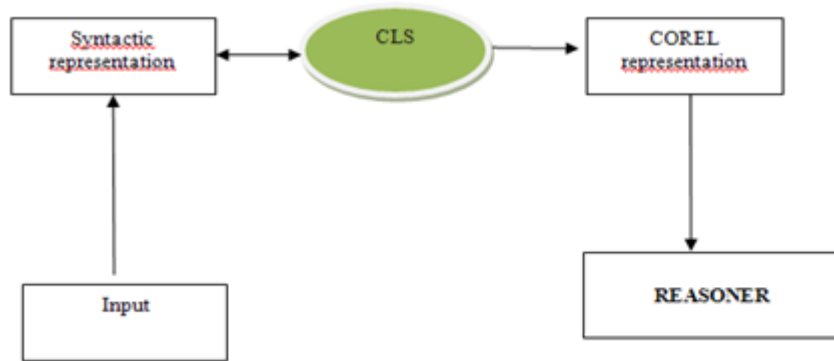
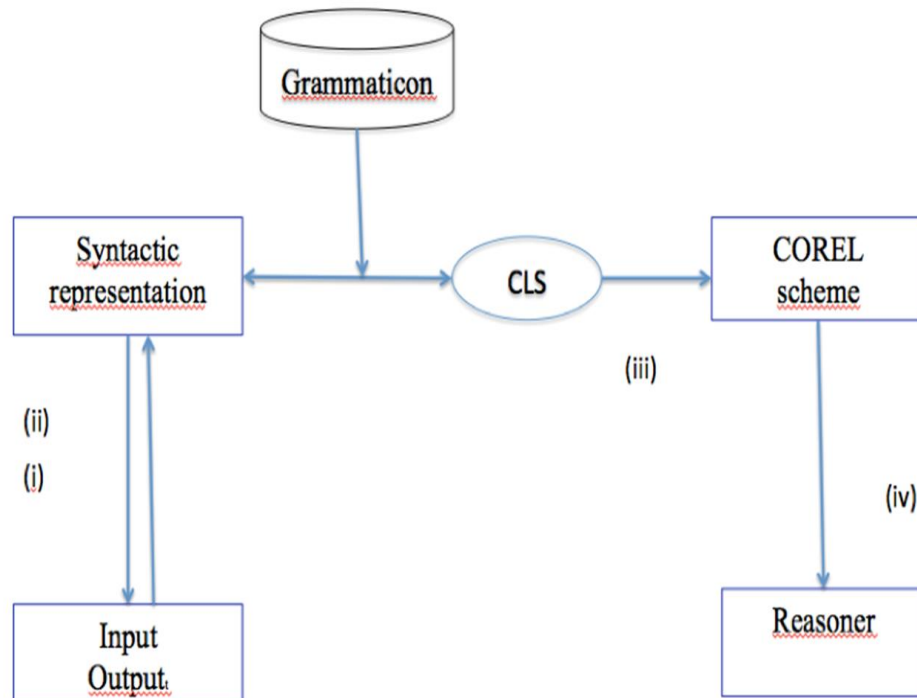


Figure 2. Linking syntactic and conceptual representation in FunGramKB

In this dissertation, we present some of the latest developments of FunGramKB. Our main purpose is to provide principled illustration of how constructions belonging to different levels of enquiry, as described in the LCM, can be represented and processed in FunGramKB. In order to achieve this goal, FunGramKB has recently been equipped with a processing unit that converts text into machine-readable language. *ARTEMIS (Automatically Representing Text Meaning via an Interlingua-based System)* is a prototype that automatically generates a CLS from text input. This process requires the retrieval of information from different modules of the knowledge base, namely the Lexicon, the Grammaticon and the Ontology. Then, the CLS is converted into a COREL proposition, which constitutes the input for the

reasoning engine, as shown in figure 3 below. The description and instantiation of this process constitute the bulk of the computational part of the present dissertation, and will be dealt with in detail in Chapter 8.



- (i) Recognition of lexical units
- (ii) Identification of syntactic template accordingly to the CLS
- (iii) Reconstruction of meaning
- (iv) Application of inferences

Figure 3. The role of the Grammaticon in FunGramKB.

CHAPTER 4: Cognitive models

1. Introduction

Lakoff (1987a) argued that we organize our knowledge of the world in terms of *idealized cognitive models* (ICMs), i.e. conceptual structures that capture and put into perspective what we know about the world. Lakoff (1987a) put forward four main types of ICM:

- (i) *Frames*, which are organized sets of predicate-argument relations, as originally proposed by Fillmore (1977, 1982) and subsequently developed into the now well-known Frame Semantics paradigm and the FrameNet lexicological project by Fillmore et al. (2003); see also Boas (2005).
- (ii) *Image schemas*, or primary topological configurations such as the notions of path, motion, and part-whole structure, first proposed by Johnson (1987) and subsequently studied in depth by linguists and psychologists alike (see Hampe 2005, Oakley 2007, Peña 2003, 2008, and the references therein).
- (iii) *Metaphor*, which is generally understood as a set of correspondences across conceptual domains where one domain, called the *source*, allows us to understand and reason about the other, called the *target*; cf. Lakoff (1987a, 1993); Lakoff and Johnson (1980, 1999).
- (iv) *Metonymy* (a domain-internal mapping where the source domain is used to provide access to the target, for which it stands; Kövecses and

Radden 1998; Ruiz de Mendoza 2000a; Barnden 2010 for critical revision).¹⁰

It must be noted that metaphor and metonymy are constructed on the basis of frames and image schemas, but not the other way around. For this reason, in the ensuing subsections, we discuss the nature of cognitive models like these. However, we supply different (but complementary) taxonomic criteria (cf. Chapter 4, section 2) that will prove useful for the development of this book. At a later stage (Chapter 7), we also deal with those cognitive models that make use of frames and image schemas –such as metaphor and metonymy– from the perspective of the specific cognitive operations that they involve: for example, correlation/resemblance for metaphor; domain expansion/reduction, for metonymy; strengthening/mitigation, for hyperbole; and so on. We discuss these and other operations in some more detail than in the previous literature and then explore their operational potential at different levels of the LCM.

2. Cognitive model types

The LCM follows the distinctions made in Ruiz de Mendoza (2007) between low-level, high-level and primary cognitive models, on the one

¹⁰ There is an ever-growing body of CL bibliography on metaphor and metonymy. For metaphor, some relevant studies, which include overviews, are found in Kövecses (2000, 2002, 2005, 2011), Gibbs (2011), Ruiz de Mendoza and Pérez (2011) and the collection of papers in González et al. (2011). For metonymy, see Barcelona (2000, 2002), Radden (2005) and the collection of papers in Benczes et al. (2011).

hand, and situational and non-situational models, on the other hand. The first of these two taxonomic criteria arises from ability that the human mind has to draw generalizations by finding elements that are common across less generic concepts. The second criterion is based on the ontological grounding of concepts. We here improve these taxonomic distinctions by introducing the notion of *scalar cognitive models* (section 2.3 below) and by bringing into the account a number of refinements in terms of subdivisions of the basic types identified above.

2.1. High-level, low-level and primary cognitive models

Following Ruiz de Mendoza (2007), we propose three levels of description for ICMs: primary, low and high. The notion of *primary* cognitive model stems from Grady's (1997ab, 1999) work on *primary metaphor*, which is contrasted with *compound* metaphor. A primary metaphor is a basic metaphor, directly grounded in sensorimotor experience, which can be combined with other primary metaphors thus giving rise to compound metaphors. For example, THEORIES ARE BUILDINGS is a compound metaphor that results from the combination of ORGANIZATION IS PHYSICAL STRUCTURE and PERSISTING IS REMAINING ERECT, which are primary metaphors grounded in our physical experience with upright physical structures. The notion of primary metaphor has been adopted and discussed in some detail by Lakoff and Johnson (1999).

In line with Grady's (1997) notion of primary metaphor and with subsequent work on primary scenes (cf. Grady and Johnson 2002), we argue

that all concepts that are directly grounded in our sensory experience, like the contrasting pairs *hot/cold*, *high/low*, *up/down*, *big/small* are primary cognitive models.

Low-level cognitive models (which cover frame-like configurations) consist in non-generic semantic structures that result from the principled linkage of elements that belong to our encyclopedic knowledge store. Scenarios such as calling a taxi, going to the dentist, buying tickets for a rock concert, traveling about selling wares, etc., and object-related concepts like table, mother, robin, sports-car, etc., fall within this category. The metaphor ARGUMENT IS WAR (e.g. *The Prosecution also fought the Defense's judicial economy argument*)¹¹ and the metonymy ARTIST FOR WORK (e.g. *You can find a small museum which has a Picasso and a few el Greco's*)¹² are constructed on the basis of low-level cognitive models.

High-level cognitive models result from processes of generalization by abstraction of the conceptual material shared by low-level cognitive models (see Chapter 5, section 2.3 for a description of abstraction as a formal cognitive operation). For example, from our observation of events such as running, swimming, eating, drinking, and so on, we can derive the higher-level notion of action, where an actor causes a dynamic, controlled state of affairs to hold. Other examples of high-level cognitive models are (i) world-related notions such as process, object, and control, (ii) notional pairs like evidence-conclusion, condition-consequence, and cause-effect, and (iii) social conventions that give rise to speech act meaning, such as the Cost-

¹¹<http://www.charlestaylortrial.org/2010/06/30/monthly-report-may-2010/>. Accessed on November 18, 2011.

¹²<http://www.cheapolidays.com/sitges/>. Accessed on November 18, 2011.

Benefit cognitive model put forward by Ruiz de Mendoza and Baicchi (2007). A detailed description of this model is provided in Chapter 4, section 2.2.2.

Event-structure metaphors are based on primary concepts, but also relate to high-level concepts. For example, states can be seen as locations and changes of state as changes of location, as exemplified by the expressions *She's in pain* and *She went from bad to worse* respectively (cf. Lakoff 1993). States and changes of state are high-level concepts; locations and changes of location are primary concepts. It is only natural that we see the former in terms of the latter since only the latter, like all primary concepts, are rooted in our everyday experience.

Metonymies motivating constructional behavior, such as EFFECT FOR CAUSE (e.g. *What's that noise?* 'What's the cause of that noise?'; cf. Panther and Thornburg 2000), GENERIC FOR SPECIFIC (e.g. *What's that bird* 'What kind of bird is that?'; cf. Panther and Thornburg 2000), and OBJECT FOR ACTION (*He began the beer* 'He began drinking/canning/selling the beer'; cf. Ruiz de Mendoza and Pérez 2001) are based on high-level cognitive models and their constituents. It should be noted that the question *What's that noise?* is incongruous if *what* is taken literally in its 'asking about identity' meaning. Compare the use of *what* in a simple informative question such as *What do you want to drink?* Here the speaker is asking the hearer to identify the kind of substance that the hearer wants to drink. In *What's that noise?* the question is not about the kind of noise, but about what has caused the noise that the speaker has heard. This interpretation requires a metonymic shift from the identification meaning of *what* questions to a causal meaning.

The metonymy, which works on the cause-effect high-level cognitive model, allows for the exchange in (1) to sound natural:

- (1) What's that noise?
It's a burglar.

In this exchange *It's a burglar* actually means 'A burglar has caused the noise' or 'The cause of the noise is a burglar doing something (e.g. trying to break into our house)'.

It must be additionally observed that *What's that N?* questions meaning 'What's the cause of that N?' have constructional status. There are several reasons why this is so: (i) the meaning of the whole goes beyond the sum of the meaning of the parts (i.e. the question is not about the identity of the noise but about its origin); (ii) the meaning-form association between *What's that N?* and 'What's the cause of that N' is conventional; (iii) the use of *What's that N?* with this metonymically motivated meaning is replicable, as evidenced by its productivity: *What's that smell/smoke/strange glow/horrible stench?* ('the cause of that smell/smoke/strange glow/horrible stench'). However, as also noted in Panther & Thornburg (2000), the formal string *What's that N?* can have a different constructional meaning. This happens when the N element of the construction is generic, as in *What's that bird?* or *What's that building?*, which actually mean 'What kind of bird is that?' and 'What's the name/role of that building'. In such cases the shifted meaning is a matter of the activity of the GENERIC FOR SPECIFIC metonymy. On the basis of this metonymy the hearer is required to identify the species for which he is given the type. Without the application of this metonymy the

question would be incongruous (it does not make sense to ask about the specific identity of a generic item).

Metonymic operations on high-level cognitive models are also at work in resolving the anomaly of using a noun as a complement of verbs such as *begin* and *enjoy*, which select for an action: *He began/enjoyed the beer* (i.e. ‘He began/enjoyed drinking the beer’). As noted in Ruiz de Mendoza & Pérez (2001), the beer in these examples stands for the kind of action that is performed in relation to the beer. This ‘stands for’ relation is a matter of the metonymy AN OBJECT FOR AN ACTION IN WHICH THE OBJECT IS INVOLVED (or OBJECT FOR ACTION for short), which can give rise to interpretations of the examples above such as ‘He began/enjoyed drinking/selling/distributing/canning, etc., the beer’. The rule is that verbs that select for an action can be used in a non-actional transitive construction if licensed by this metonymy in a way that is consistent with the context. The metonymies EFFECT FOR CAUSE, GENERIC FOR SPECIFIC, AND OBJECT FOR ACTION are cases of what we can call, following Ruiz de Mendoza & Mairal (2008), *high-level metonymy*. They are different from other cases of metonymy, whether lexical (e.g. HAND FOR WORKER, *We need a new hand on the farm*), predicational (e.g. *I’ll be brief*, where the speaker stands for what the speaker says), or illocutionary (e.g. *I’ll be there* ‘Be sure I’ll be there’). The difference is twofold: first, the conceptual domain framing the metonymic connection is a high-level construct, that is, a generic concept that is constructed by deriving common structure from lower-level concepts (e.g. the notion of ‘action’ is the result of abstracting away elements that specific actions such as killing, kissing, hitting, etc. have in common, viz. a

controlling agent, an instrument, and an object); second, the activity of such high-level shifts has consequences in terms of grammatical arrangement, as has been evidenced by our discussion, where constructional incongruity is resolved through metonymic operations.

2.2. *Situational vs. propositional cognitive models*

Propositional cognitive models are those that designate entities, their properties and their relations in non-situational contexts. A propositional cognitive model can be *eventive* when the relations between entities are dynamic (e.g. ‘stealing’, as in *My neighbor is stealing my mail*). When entities are related non-dynamically (e.g. ‘ownership’, as in *My neighbor owns a beautiful fruit tree*) or they are only attributed properties (e.g. ‘being insane’, as in *My neighbor is insane*) the propositional cognitive model is *non-eventive*. Eventive cognitive models can be further subdivided into *causal* (e.g. ‘killing’, ‘breaking’, ‘kissing’) and *non-causal* (e.g. ‘dying’, ‘flowing’, ‘sliding’) depending respectively on whether the event is conceived as being brought about by one of its participant entities or not. In turn, non-eventive cognitive models can be *relational* or *non-relational*. The latter take account of physical (‘tree’, ‘house’, ‘rock’) and non-physical entities (‘soul’, ‘life’, ‘dream’) plus their non-dynamic properties, including primary topological (i.e. image-schematic) structure. The former capture logical connections or natural associations between non-relational cognitive models.

Situational cognitive models are conventional series of events (i.e. dynamic states of affairs) that are coherently related to one another. As such, they are constructed on the basis of propositional cognitive models that combine to create more complex scenarios (cf. Ruiz de Mendoza 2007, for a detailed analysis of this division). For instance, a situational cognitive model such as attending a birthday party is the result of combining a host of low-level propositional cognitive models including characters (e.g. friends), objects (e.g. cakes, presents) and actions (playing games, singing songs, etc.). What we call situational cognitive models were studied between the mid 1970s and mid 1980s by pioneering Artificial Intelligence theorists interested in endowing computer programs with the ability to make intelligent, human-like inferences. Such theorists used labels such as *scripts* (Schank and Abelson 1977), *frames* (Minsky 1975), *schemas* (Rumelhart, 1975), and *scenarios* (Sanford and Garrod 1981) to designate stereotyped series of events. A well-known example is the restaurant script, which was described by Schank and Abelson (1977) as consisting of basic actions such as entering into the restaurant, finding a seat, calling the waiter, reading the menu, ordering a meal, paying, giving a gratuity and leaving the restaurant.

We want to argue that situational and propositional cognitive models can be categorized as either high-level or low-level cognitive models. In fact, each descriptive layer of the LCM is based on different kinds of cognitive models that may be propositional or situational in nature, and additionally be categorized as high or low level: lexical templates at level 1 make use of low-level propositional (non-situational) cognitive models. Constructional templates at level 1 make use of primary and high-level

propositional cognitive models. Levels 2 and 3 are respectively based on low-level and high-level situational cognitive models. Finally, level 4 exploits primary and logically, conceptually or temporally connected high-level cognitive models (cf. Ruiz de Mendoza 2012). We devote the following subsections to the discussion and exemplification of high and low-level propositional models (section 2.2.1.), and high and low-level situational models (section 2.2.2.). Our account of situational models also addresses the Cost-Benefit Cognitive Model as a representative instance of high-level situational model.

2.2.1. High and low-level propositional models

As with situational cognitive models, high-level propositional cognitive models are constructed by abstracting structure away from lower-level cognitive models. However, such models refer to world entities and their properties and relations independently of how socio-cultural conventions determine their behavior. For example, the high-level propositional model ‘physical entity’ is the result of the abstraction of a number of such low-level propositional models as tree, rock, dog, man, woman, table, pen, car, etc.

Other high-level propositional models result from generalizations over specific (low-level) actions (dynamic controlled events) and processes (dynamic uncontrolled events). Some actions, like hitting, killing, kicking, pushing, etc., have a resultative component; these give rise to what we can call, following Ruiz de Mendoza and Mairal (2008) *effectual actions*, i.e. those that have a visible physical impact on the object (a visible change of

state or a change of location). Other actions have no such impact, but they still range over an object (e.g. *touch, smell, see*); these are *non-effectual actions*. Finally, it is possible to have actions that have no object (e.g. *running, swimming, fighting*); these can be referred to as *activities*. In turn, processes can be seen as occurring spontaneously, which we shall term *natural processes* (e.g. a person dreaming, lava flowing, animals and plants living), or non-spontaneously, which we shall call *instigated processes* (e.g. a house burning on account of someone setting it on fire, a person agonizing under torture, a student panicking in an exam). Some processes can be seen as either natural or instigated, depending on the overall situation in which they are framed. For example, a person can be dying a natural death (e.g. of causes incident to age) or the dying process can be the result of murder or suicide, which makes it a non-spontaneous, instigated process, that is, one arising from causal action.

2.2.2. *High and low-level situational models*

Going to a birthday party is a low-level situational cognitive model. In the same way, related acts of requesting (asking a friend for a loan, begging in the streets, a child asking for his allowance, etc.) are also low-level situational cognitive models. However, the speech act of requesting, which is obtained through the abstraction of conceptual material shared by the most general low-level scenarios, is a high-level situational cognitive model (Ruiz de Mendoza and Baicchi 2007; Baicchi and Ruiz de Mendoza 2010). High-level situational models can be said to be abstractions over socio-cultural conventions that regulate everyday interaction among people. In

combination with other social cognitive models that capture power relationships and other social relations and expectations, high-level situational models lie at the basis of illocutionary meaning.

The idea that illocutionary meaning is associated with the activation of high-level situational knowledge is not new. Panther and Thornburg (1998) argued for the existence of *illocutionary scenarios*, which were structured, very much like the well-known Searlean conditions for speech acts, into three components: a “before”, a “core”, and an “after”. For the case of requests, Panther and Thornburg (1998, p. 759) posit the following structure:

- a. Before component: the hearer (H) can do the action (A). The speaker (S) wants H to do A.
- b. Core component: S puts H under a (more or less strong) obligation to do A. H is under an obligation to do A (H must/should/ought to do A).
- c. After component: H will do A. S has emotional response.

Any of the components can metonymically stand for the whole speech act. Language has conventional ways to activate each of them. For example, a *Can You* question is based on the “before” part of a directive scenario (*Can you open the window?*), an imperative on its “core” (*Open the window*), and a *Will You* question on its “after”.

This proposal has been revised by Pérez and Ruiz de Mendoza (2002, 2011) and Ruiz de Mendoza and Baicchi (2007), who claim that, besides the three components specified above, illocutionary scenarios need

to contemplate a number of socio-cultural variables, such as the power relationship between interlocutors, as well as the amount of optionality, indirectness, and cost or benefit to speaker and addressee involved in the utterance. For example, an imperative sentence may be inappropriate in a context in which the speaker is not hierarchically above the hearer. In such a situation, the instruction to open the window would require a lot of tentativeness, which makes *Would you open the window?* preferable to *Open the window* and *Can you open the window?*

The amount of cost involved is also important. It is related to the power relationship: when the speaker has no power over the hearer, requesting a very costly action (whether in social or physical terms) is generally unacceptable, even if the speaker uses tentative language. Imagine an employee telling his boss to buy him something to eat while he keeps working: *Would you mind buying me something to eat or I won't be able to focus on what I'm doing?* The *would you* form is useful to make the act polite, but it is not enough to make the act acceptable given the breach of the power relationship conventions.

The cost-benefit variable is also a relevant part of illocutionary scenarios. Speakers are not supposed to direct their interlocutors to perform actions that are too costly, unless they are in a position of power to do so. However, self-imposed cost, as in promises and offers, is acceptable, especially if the addressee is going to receive some benefit. Leech (1983) made cost-benefit balance one of the central aspects of the Principle of Politeness. The reason behind this is that polite behavior is behavior that is considerate of others. It follows that acts that are costly to others, since they

are inconsiderate, are regarded as less socially acceptable than acts that are costly to self.

Ruiz de Mendoza and Baicchi (2007) have postulated a number of generalizations based on cost-benefit relations. These generalizations, which together are called the Cost-Benefit Cognitive Model, take the form of stipulations that capture high-level situational meaning at a more generic level than illocutionary scenarios and can interact with power, indirectness and optionality variables (which are themselves modeled in terms of social conventions). Table 1 provides a description with examples of some of the most common stipulations of Cost-Benefit Cognitive Model.

Table 1. The Cost-Benefit Cognitive Model

(a) If it is manifest to A that a particular state of affairs is not beneficial to B, and if A has the capacity to change that state of affairs, then A should do so.	<i>You should have helped your poor sister. Why didn't you help your poor sister? Help your poor sister, can't you? Can't you just help your poor sister? I think you can help your poor sister</i>
(b) If it is manifest to A that a potential state of affairs is not beneficial to B, then A is not expected to bring it about.	<i>Why did you hit your little sister? You shouldn't have hit your little sister. You did harm to her; did you know that? You may think she's bulletproof, but she's not.</i>
(c) If it is manifest to A that a potential state of affairs is beneficial to B, then A is expected to bring it about.	<i>Sorry, I didn't know you needed another towel. I shall buy you a new car. Have some more biscuit, if you like them. Look what she's done for you. I hope you'll enjoy this dish I've cooked for you.</i>
(d) If it is manifest to A that it is not manifest to B that a potential state of affairs is (regarded as) beneficial for A, A is expected to make this manifest to B.	<i>You know, anything you can do will be good for us. You are probably not aware, but that would be very useful to me. That will help a lot.</i>
(e) If it is manifest to A that it is not manifest to B that a potential state of affairs is beneficial for B, A is expected to make this manifest to B.	<i>This plant extract will help you with your cold. If I were you I would invest in real estate. Stay around and you will be safe. You will definitely benefit from eating more fiber.</i>
(f) If it is manifest to A that a state of affairs is beneficial to B and B has brought it about, A should feel pleased about it and make this feeling manifest to B.	<i>It's so good to hear she'll get better. Congratulations! Good job! I'm so happy you made it! It's good news for all of us to hear you got your promotion.</i>
(g) If it is manifest to B that A has changed a state of affairs to B's benefit, B should feel grateful about A's action and make this feeling manifest to B.	<i>Thank you for all that you've done to help us! We really appreciate all your efforts. You are a real blessing in my life.</i>
(h) If it is manifest to A that A has not acted as directed by parts (a), (b), and (c) of the 'cost-benefit' model, A should feel regretful about this situation and make this feeling manifest to B.	<i>I'm (awfully) sorry, I didn't realize! I really regret all the harm I did to you. I feel bad about what I said. I won't do something like that to you again; you have my word.</i>
(i) If it is manifest to B that A has not acted as directed by parts (a), (b), and (c) of the 'cost-benefit' model and A has made his regret manifest to B, B should feel forgiveness for A's inaction and make this feeling manifest to A.	<i>No problem, really; don't think about it again. No offense taken, I guarantee. OK, you can forget about it. I'm sure it won't happen again. It's all right; I know you're really sorry. You're forgiven; just don't do it again.</i>
(j) If it is manifest to A and B that a particular state of affairs is not beneficial to B but A has no power to change it to B's benefit, still A should feel sympathy with B over the non-beneficial state of affairs and make this manifest to B.	<i>We know how you feel, but we did our best to help you. Sadly, there's nothing else we can do. I wish I could help you, but don't know how. It's such a difficult situation for all of you, we know. But what else can we do?</i>
(k) If it is manifest to A that A is responsible for a certain state of affairs to be to A's benefit, A may feel proud about this situation and make it manifest to B.	<i>I feel so good I could finish the marathon! I have passed all my exams, all of them! I can't believe I have beaten a record! I'm so excited!</i>

Some of these linguistic expressions are based on fairly fixed form-meaning pairings, i.e. they have constructional status, while others require different degrees of inference. A clear example of fixed illocutionary construction is

the *Can You Please VP* form, which is conventionally used to make requests, although further cognitive activity may cancel out the conventional meaning through context-based inferencing. Think of the sentence *Can you please kill me?* in a context in which it is evident to both speaker and addressee that the speaker does not actually want to be killed, but is reacting to a disturbing mistake that he or she has made. In this case (through inferencing), the request becomes an emotional expression of embarrassment about an event that the speaker wishes had never happened.

We have to be careful not to assume that there is a one-to-one relationship between a given formal resource and an illocutionary category. For example, expressions based on the form *I shall + VP* code strong statements conveying a high degree of speaker's involvement in carrying out the action denoted in the VP. For this reason that structure can easily be used to make promises and threats, depending on whether the verbal action is considered beneficial or harmful to the addressee. The *I Shall VP* configuration is the formal part of a construction for promises if the VP specifies a benefit for the addressee and the formal part of a construction for threats if the VP involves a potential harm to the addressee.

It must be noted that the stipulations of the Cost-Benefit Cognitive Model cut across illocutionary categories, i.e. a stipulation may underlie more than one category and a category can have elements from more than one stipulation. As an example of the first situation, consider (a) in Table 1, which underlies both various kinds of request and reprimands. But reprimands can also be based on (b), while (c), which is grounds for commissive speech acts such as offers and promises, can also underlie

expressions of pride or satisfaction (*I hope you'll enjoy this dish I've cooked for you*) and directives intended to raise addressees' awareness on how others have acted to their benefit (*Look what she's done for you*). As an example of the second situation, take apologizing and forgiving, which are primarily based on (h) and (i) respectively but also exploit (a), (b), and (c).

Finally, observe that the stipulations of the Cost-Benefit Cognitive Model can be overridden by other socio-cultural factors, such as power relations. Apologies, for example, may be unnecessary in contexts where the speaker is in a position of extreme authority over the addressee (think of army ranks), while the need to show appreciation increases the lower the position of the speaker with respect to the hearer.

2.3. Scalar versus non-scalar cognitive models

We propose scalarity as an additional criterion to classify non-situational cognitive models. The notion of 'scale' has been amply studied within accounts of pragmatic inferencing following Horn's (1972) initial work on semantic scales (cf. Fauconnier 1975ab, Fillmore et al. 1998, Israel 1997, 2004, Levinson 2000, among others). These authors approach inferencing as a process that can be captured within the structure of a scalar model. Israel (2004, p. 704) defines a scalar model as consisting of "a set of propositions ordered in a way that supports inferences. The model is built from a propositional function with one or more variables, each of which is associated with a conceptual scale of some sort". Also, the study of scales

has often been related to polarity (Horn 2002; Israel 1997, 2001, 2004, 2011).

Cognitive linguists have also devoted some attention to scales. For instance, Lakoff (1993) proposed the conceptualization of scales in terms of a path (LINEAR SCALES ARE PATHS). Narayanan (2013) defines scales as “orderings that reflect the extent to which a property (or propositional function) is realized”.

Our account of scalarity is not meant to develop previous accounts in the domain of pragmatic inferencing. Rather, we explore a different (yet complementary) dimension of scales by proposing scalarity as a classificatory criterion of cognitive models. We want to argue that the scalar vs. non-scalar nature of a cognitive model has consequences in terms of the different kinds of meaning effect that can be derived from it when we perform the same cognitive operation. Chapter 6, section 3.2, for instance, illustrates how the meaning implications that result from the application of the operation of comparison by contrast on cognitive models significantly varies depending on whether such a cognitive model is scalar or non-scalar.

We here understand a scale as a system of ordered marks at fixed intervals that can be used as a reference standard in measurement. Scales thus originate in our experience with physical entities and their (subjectively or objectively) measurable properties. We thus have scalar concepts in such domains as size (*big, medium, small*), temperature (*hot, warm, tepid, cold*), speed (*fast, slow*), weight (*heavy, light*), quantity (*much, little, many, few*), quality (*good, bad*), and strength (*strong, weak*). Other such concepts are related to our experience with events, such as frequency (*always, often,*

sometimes, never) and probability (*certain, likely, unlikely, impossible*). However, others have to do with the intensity of our emotional reactions to entities and events. It should be noted that the expression of degrees of emotion is usually based on primary metaphor. Thus, the intensity of feelings such as anger, love, and joy is generally expressed on the basis of quantity: *She has little/ a lot of love for you; Their wedding day was filled with lots of joy; He has a lot of anger.*

All scalar concepts are primary, that is, they arise directly from our sensorimotor experience and associated emotional reactions. However, not all primary concepts are scalar. A case in point is provided by the primary concept of shape and by some image schemas (e.g. container, part-whole, path) and their components (in, out, source, destination, landmarks), which, although measurable, are not intrinsically scalar, since they refer to structural or configurational properties of objects.

Table 2 offers an overview and provides exemplification of the different taxonomic criteria that have been object of discussion throughout this chapter.

Table 2. Taxonomy of cognitive models

	Situational	Non-situational (propositional)						Scalar
		Non-scalar						
		Eventive		Non-eventive		Non-relational		
Causal	Non-causal	Controlled	Relational	Non-controlled	Non-relational			
Primary-level	---	Caused motion, force, counter-force	Motion, change	Have	Be, belong	Shape, container-content, whole, part-path, control	Size, heat, speed, weight, quantity, quality, frequency, probability, anger, love	
Low-level	Going to a party, reading a magazine, flying a kite	Kill, kiss	Die, slide, describe	Own, stand, sit, squat, sprawl	Win	Tree, dog, picture, car	---	
High-level	Begging, promising, thanking	(Effectual) action	(Natural/self-occurring) process or activity	Reason-result, cause-consequence, possession	Happen	(Physical/non-physical) entity, state, circumstance	---	

3. Cognitive models and a typology of states of affairs

In this section, we mainly refer to Dik's (1989) typology of states of affairs, which is inspired in the famous lexical aspect (i.e. action types or Aktionsart) distinctions made by Vendler (1957), which we will correlate with the eventive and the non-eventive relational parts of our taxonomy of cognitive models.

While states of affairs are understood as whatever is the case in the world, cognitive models are mental representations of such states of affairs. Language is the interface between states of affairs and their mental representations: first, it provides speakers with a sophisticated range of instruments to make meaningful reference to the world; second, it supplies hearers with interpretive tools to reconstruct the closest possible version of the mental representations speakers want them to build in their minds. For example, saying *He killed the chickens* denotes a causal action whereby someone has caused a number of chickens to die. This is an observation about the world. But we can also have a mental representation of such an action, which we will likely associate with a background scenario (what we call a low-level situational model). This scenario could be, for example, what we think is the regular activity of a slaughterhouse. To the extent that the actual state of affairs matches our expectations about the killing action, different meaning implications will come about. Imagine, for the same context, the sentence *The slaughterer's five-year old daughter killed the chicken*. This sentence is striking because our knowledge of the world does not include the possibility of a slaughterer allowing a child to do his job. In

order to solve the anomaly, we would have to explore possible alternatives that would require importing conceptual structure from other domains of our experience. For example, we could think of the slaughterer's daughter accidentally pressing a button that electrocuted the chicken while visiting her dad's workplace. However, this possibility would still be culturally shocking: a slaughterhouse may not be the best place for a child to visit even if her father works there. In any event, what actually matters for our discussion is the realization that meaning implications do not originate in the denotational aspects of language, i.e. our ability to link linguistic expressions with states of affairs. Meaning arises from our additional ability to compare and contrast states of affairs (perceived reality) with our previous experience and its cultural associations, all of which takes the form of cognitive models.

Lexical aspect is determined by how lexical meaning relates to the structure of events. From this perspective, verbs like *eat* and *drink* differ from others like *stand* and *sit* in that the former set have a natural endpoint (i.e. they are *telic*), whereas the latter can go on and on until the subject deliberately stops. For this reason it makes sense to say *He finished eating/drinking* but not *He finished standing/sitting*.

Vendler distinguished four different Aktionsart categories: states, achievements, activities, and accomplishments. States are no-dynamic states of affairs, as captured by such predicates as *love*, *see*, *live*, *sit*, *contain*; achievements are dynamic states of affairs whose duration cannot be conceived (*notice*, *find*, *arrive*), which makes them resist the progressive use (*#I was finding the book*); activities are durative and atelic, that is, sustained

over time and without a natural endpoint (*talk, watch, hunt*), which makes them amenable to be found in the progressive and with durative expressions (*He kept talking for hours*); finally accomplishments are dynamic, telic and durative (*They built a house, He painted a portrait*).

Vendler's proposal has been the object of much attention in the linguistic community, to such an extent that different modified versions of it have made their way into grammatical theories such as Role and Reference Grammar (RRG; Van Valin and LaPolla 1997; Van Valin 2005) and Functional Grammar (FG; Dik 1989/1997ab), although in different ways. While RRG argues that Aktionsart distinctions are lexical, FG determines them on the basis of the denotational capacity of the predication, i.e. the combination of a predicate and its arguments. RRG further claims that Aktionsart characterizations determine the logical and argument structure of lexical items. It makes the following classification of action types, which both refines and expands Vendler's:

- a. States (e.g. *see*): **predicate'** (x) or (x, y); e.g. *see'* (x,y)
- b. Activities (e.g. *run*): **do'** (x, [**predicate'** (x) or (x, y)]); e.g. **do'** (x, [*run'* (x)])
- c. Achievements (e.g. *pop*): INGR **predicate'** (x) or (x, y) or INGR **do'** (x, [**predicate'** (x) or (x, y)]); e.g. INGR **popped'** (x)
- d. Semelfactive (e.g. *glimpse, cough*): SEML **predicate'** (x) or (x, y) SEML **do'** (x, [**predicate'** (x) or (x, y)]); e.g. SEML *see'* (x, y); SEML **do'** (x, [**cough'** (x) or (x, y)])

- e. Accomplishment (e.g. *receive*): BECOME **predicate'** (x) or (x, y) e.g. BECOME **have'** (x, y)
- f. Active accomplishment (e.g. *drink*): **do'** (x, [**predicate1'** (x, (y))]) & BECOME **predicate2'** (z, x) or (y); e.g. **do'** (x, [drink' (x, y)]) & BECOME **consumed'** (y)
- g. Causative accomplishment (e.g. *kill*): α CAUSES β , where α , β are LS of any type; e.g. [do' (x, \emptyset)] CAUSE [BECOME [dead' (y)]]

This approach is decompositional, that is, it correlates the different properties of Aktionsart categories with semantic primitives such as those indicating cause and result, which are very close to what we have called high-level propositional models. There is, however, a difference between primitives and high-level cognitive models. While the former are postulated as basic, atomic semantic units that have basic predicates and predications (i.e. content units) within their scope (e.g. 'die' is 'become dead' and 'kill' is 'cause to become dead'), high-level cognitive models are recognized as generalizations over primary and low-level cognitive models whose function is ubiquitous in linguistic systems. As RRG claims, they have a role in determining the type of basic relations that hold between a predicate and its arguments, at lexical level and at the level of argument-structure constructions like the transitive, ditransitive, dative, caused-motion, resultative, etc. (cf. Goldberg 1995). Their role is not, therefore, as much to "decompose" the meaning of a lexical item, thus helping to create a logical structure, as it is to set up basic meaning relations that can be enriched through a process that we call parametrization (see sections 4.3 and 6.6).

Thus, the high-level characterization ‘x acts on y in such a way that x causes y to become dead’ is not a decomposition of the concept ‘kill’ (or its corresponding lexical predicate in English), but a skeletal conceptual structure that can be parametrized differently depending on the manner of action, the instrument used, as well as the nature of the object and of the result (for example, intentionally killing a person is called *murder* and, if the person thus killed is a prominent one, it is called *assassination*). Such parametrization is carried out on the basis of world knowledge in a way that shows consistency with the context of use of the linguistic expression that exploits the predicate-argument structure in question. This position is consistent with developments of the RRG approach to lexical description that bind “logical” structures to richer meaning descriptions based on lexical class ascription and world knowledge (e.g. Mairal and Faber 2007). It is also the position adopted in the Lexical Constructional Model (see especially Ruiz de Mendoza and Mairal 2008 for this issue), which we use herein as a guide for our explorations on cognitive modeling.

Dik’s FG takes a different approach to Aktionsart characterizations, which we will favor for our correlations with the taxonomy of cognitive models. First, FG bases its account on what the whole predication, i.e. the combination of a predicate and its arguments, denotes. Second, to the three Vendlerian parameters of duration, telicity, and dynamism, FG adds the parameter of control, which, as will be seen below, is of outmost importance in cognitive terms. This parameter is absent from the RRG proposal.

Let us start with the lexical versus predication approaches to Aktionsart distinctions. There are two reasons why we prefer the latter. One

reason is found in the problem of lexical senses. Verbs have more than one sense and different related senses may involve different kinds of aspect. For example, the verb *open* in *The wind opened the door* qualifies as a causative accomplishment (i.e. there was an action instigated by a force or doer of the action such that a door changed its state from not open to open). However, the same verb in *The store opens on Thanksgiving Day* means ‘begins/carries out business or operation’. There is no causal element here but just the description of the beginning of commercial activity (opening is in fact metonymic for this target meaning). From an Aktionsart perspective, this non-causative sense of *open* is an accomplishment (there is a change of state but not a doer of the action, much less a causer of the change). The second reason is that, by itself, verbal structure can be denotationally incomplete. Compare *John is painting* with *John painted a portrait*. The same verb, with the same meaning, can denote either an atelic or a telic state of affairs. It denotes an activity in the first use but an active accomplishment in the second.

Then, we have the question of parameters. Telicity, duration and dynamism are without question in the literature. Telicity and duration concern dynamic states of affairs, i.e. those where there are changes of state or location. If there is dynamism or change, there can be an endpoint, which makes telicity relevant (cf. *He was running for hours* vs. *He ran the marathon*). In the same way, if there is dynamism or change, a state of affairs can be seen either as taking place over time or as being momentaneous or punctual (cf. *They built a fortress, which took quite a long time* vs. *The bomb exploded, *which took quite a long time*). On the basis of

dynamism, we can have a basic distinction between dynamic (e.g. *John ran*) and non-dynamic (or static) (e.g. *John is crazy*) states of affairs.

Dynamism is experienced through our senses and also through our own motor programs. It is related to image-schematic thinking, i.e. to our observation of objects moving in space. The same can be said about change and the result of change, which conflates in our minds with motion and the destination of motion, as evidenced by the figurative use of (caused-) motion constructions to express changes of state (e.g. *The vase broke into tiny little fragments*). Through dynamism, telicity and duration are grounded in our bodily experience too. Dynamic states of affairs may or may not be perceived as having a natural endpoint and they may be seen in progress (unbounded) or as finished (bounded).

In Dik's typology, control holds for both dynamic and non-dynamic states of affairs and is very useful to make a further distinction between *actions* and *processes*, on the one hand, and between *positions* and *states*, on the other hand. Actions are dynamic and controlled (*John ran*), while processes are dynamic and uncontrolled (*The wind blew*); positions are static and controlled (*John owns two cars*), while states are static and uncontrolled (*John is crazy*). Like the other parameters, the notion of control is also grounded in bodily experience, which explains why it underlies the broad-scale Aktionsart distinctions cited above. The notion of control arises from our need to keep balance and our ability to hold (and therefore manipulate) physical entities that are within reach. It is therefore related to image-schematic thinking.

Two interesting examples of the way the notion of control has made its way deep into language is provided by its ability to yield non-denotational meaning effects related to metaphor (cf. Ruiz de Mendoza 1998) and to so-called appreciative suffixation, i.e. diminutives and augmentatives (Ruiz de Mendoza 2008). Let us start with the DIVIDED SELF metaphor (Lakoff 1996). This metaphor has the following general correspondences:

1. A person is an ensemble (the subject plus a self).
2. The experiencing consciousness is the subject.
3. The bodily and functional aspects of a person constitute a self.
4. The relationship between subject and self is spatial.

There are many metaphors based on this system: the loss of self (*He lost himself in reading*), the split self (*I hate myself*), the scattered self (*He's all over the place*), the true self (e.g. *I am not myself today*), the absent subject (*I am beside myself*), etc. Many of these metaphors exploit the notion of control. This is a natural consequence of the fact that physical separation can create conditions for lack of control. The loss of self, scattered self, absent subject metaphors provide clear examples:

- a. LOSS OF SELF (involving the lack of control of the subject over some aspect of the self through physical separation and/or the loss of possession of the self): *He lost himself in daydreaming; His emotions took over and he*

got carried away; He regained consciousness; He lost his mind over her; She won my heart; He let himself go and gained 30 pounds.

b. SCATTERED SELF (incompatible aspects of the self are seen in terms of physical separation; lack of control arises from the subject being unable to be in the same physical location as all aspects of the self): *He can no longer write well because he is too scattered; After her husband died, she couldn't put herself together; He's all over the place.*

c. ABSENT SUBJECT (lack of control is seen as the subject being outside the self): *She's not in her right mind; She's really into that novel; He's off his head; During the lecture, he drifted off to sleep several times.*

Like motion and change, control is a cognitive model in its own right. A provisional description of relevant elements of this model is found in Ruiz de Mendoza (1998, p. 265):

THE COGNITIVE MODEL OF 'CONTROL'

(a) A person controls an entity or a set of entities when it is within that person's power to decide on the way the entity or the set of entities will behave.

(b) A person controls a state of affairs when it is within that person's power to decide whether the state of affairs will obtain.

(c) Control generally decreases in proportion to physical distance.

(d) Maximum control of an entity, a set of entities, or a state of affairs is desirable/ Minimum control is undesirable.

Evidently, control is not image-schematic, but it is a consequence of physical distance and human motor programs. That is, it has a resultative, non-dynamic nature. This makes it qualify as a primary, non-eventive, non-relational cognitive model. In addition, the model of control has offshoots into the domain of axiology, which is scalar, since humans generally perceive their ability to exercise control as positive from the perspective of the controller and negative from the perspective of the controlled.

This observation takes us into the domain of appreciative suffixes such as augmentatives and diminutives, which are very common in Romance languages such as Spanish, Portuguese, Italian, French, and Romanian, but can also be found, with different degrees of productivity, in many other Indo-European languages and also in Dravidian, Semitic, Sino-Tibetan, Turkic and Uralic languages (cf. Dressler and Merlini 1994). Ruiz de Mendoza (1997b, 2000b, 2008) has discussed Spanish augmentatives and diminutives extensively and has argued that their apparently arbitrary value is actually motivated and can be traced to how they exploit the different elements of the cognitive model of ‘size’ (which in our taxonomy is a primary scalar model), which we expand from Ruiz de Mendoza (1997b):

THE COGNITIVE MODEL OF ‘SIZE’

- (a) Entities range in size from very small ones to very large ones.
- (b) A small entity is often more manageable than a bigger one.
- (c) A small entity is often less harmful than a bigger one.

From (b) and (c), we derive two opposed emotional reactions:

- (d) Small entities are likable; big entities are dislikable.

(e) Small entities are unimportant; big entities are imposing.

In our everyday experience the bigger an entity the more difficult it is to exercise control over it; conversely, the smaller an entity, the easier to manipulate it. Of course, this is only a naïve generalization based on basic motor programs designed for human interaction with objects, plants and animals: extremely small entities can elude human control and humans have devised (artificial) ways to come to terms with even the biggest objects in the world. The question is that the much of the appreciative value of diminutives and augmentatives are rooted in the emotional reactions that interacting with small or big entities may trigger. For example, in Spanish *un perrazo* ‘a big dog’ is less likable than *un perrito* ‘a small dog, a doggie’. On the other hand, *un hombretón* ‘a sizeable, stout man’ is more likeable than *un hombrecillo* ‘a little, insignificant man’. In this connection, it is interesting to note that parts (b) and (c) of the cognitive model of ‘size’ are directly related to how control can be bidirectional in the way entities interact with us, i.e. either entities control us or we control them. Since in naïve perception we are more likely to control small entities than they are likely to control us, it follows that we tend to feel better about them than we feel about big entities, which we tend to think are less amenable to us controlling them, while we can be more easily controlled by them (think of a high wind or a big mammal).

In view of the discussion above, it is clear that Dik’s distinction of four basic types of state of affairs has relevant correlates in those parts of our taxonomy of cognitive models that do not designate entities but rather

relations between entities. On the one hand, eventive causal cognitive models are the conceptual correlate of actions and eventive non-causal models correspond to processes. On the other hand, positions and states correspond to non-eventive relational controlled and uncontrolled cognitive models.

CHAPTER 5: Cognitive operations

1. Introduction

Cognitive operations are an essential part of our mental equipment. They are mechanisms that our minds use in order to store and retrieve information, and also to make mental representations. This dissertation is not concerned with operations such as memory storage and retrieval, recognition, and the like, but rather with those operations that have a direct relationship with the mind's ability to construe, represent and reason about the world.

Such operations, though essentially cognitive, have a communicative aspect to them which has been partially dealt with by some pragmaticists, such as Bach (1994), Recanati (2004), and Sperber and Wilson (1995) in their discussions of the differences between classical implicature and other modes of inferencing. For example, Sperber and Wilson (1995) make a distinction between *implicature* and *explicature*. Implicature is calculated by making use of a premise-conclusion reasoning schema, while explicature merely requires adaptation to the context of what is said through basic “pragmatic tasks” such as fixation of reference (e.g. *I* is explicated into ‘the speaker’), completion (e.g. *Mary's ready* is developed into ‘Mary is ready for the party’) and strengthening (*some time* is often interpreted as ‘a lot of time’, as in *It may take some time*). In what follows, we will argue that such “tasks” are in fact part of a broader set of cognitive operations working on various kinds of cognitive model, with their subsequent meaning effects.

In preliminary discussions, Ruiz de Mendoza (2011) and Ruiz de Mendoza and Peña (2005) make a distinction between two kinds of such operations: *formal* and *content* cognitive operations (see also Ruiz de Mendoza and Santibáñez 2003). The former generally provide the groundwork for the latter to be active, but not the other way around; that is, formal cognitive operations can stand by themselves, whereas content operations cannot. In language-based meaning construction, a formal cognitive operation is a mental mechanism that allows language users to variously access, select, abstract, and integrate conceptual structure as needed for production and interpretation purposes. Content operations, by contrast, license processes of inferential activity on the basis of the initial conceptual representations supplied by the activity of formal cognitive operations.

Starting from Ruiz de Mendoza's (2011) typology of formal and content operations, we present an overview of the most relevant properties of the former, as a preliminary step for a more detailed discussion of the latter. Given the generally preparatory nature of formal operations, an exhaustive analysis of content operations will necessarily reveal the activity of the formal operations underlying them. For this reason, we devote our efforts to the detailed discussion of content operations and to analyzing the levels and domains of linguistic enquiry in which these operations are active.

This chapter provides an overview of both formal and content operations. Furthermore, the ways in which these operations may combine

and the constraining factors that regulate their activity are addressed in detail.

2. Formal operations

We distinguish four formal operations: *cueing*, *selection*, *abstraction* and *integration*. Reference to these operations is scattered over the CL literature, especially in *blending* theory (Fauconnier and Turner 2002). However, the ties among the four kinds of formal operation as well as between these and what we refer to as content cognitive operations is to be made explicit. In what follows, we provide a brief description of the four kinds in question and their connections.

2.1. Cueing

Cueing is regarded as the most basic operation of the four. It consists in providing access to the most relevant aspects of a concept on the basis of textual information. Contrast the use of *mother* in examples (1) and (2) below:

(1) My mother breastfed most of her children.¹³

(2) The little spaceship returns to the mother spaceship safely.¹⁴

¹³<http://www.islamqa.com/en/ref/104397>. Accessed on October 5, 2011.

¹⁴<http://waystosaveenergy-net.saxxom.com/saxmachine05/qwalleq-the-movie.html>. Accessed on October 5, 2011.

The process of cueing, based on the information supplied by the linguistic context surrounding the word *mother*, allows us to highlight the most relevant aspects of the concept ‘mother’. Sentences in (1) and (2) are respectively a person that nurtures the children that she has given birth to and the construal of a mother as a supplier, which is necessary to construct a metaphor that maps this highlighted information onto the idea of a spaceship providing supplies to other smaller spacecraft.

Compare now *shark-safe beach* with *dolphin-safe tuna* (Fauconnier and Turner 1996), which can be paraphrased respectively as ‘a beach that is safe (from sharks)’ and ‘tuna fish that has been harvested in a way that is safe for dolphins’. In the first example, *beach* acts as cue for the activation, through metonymy, of a beach scenario with people sunbathing, swimming, etc.; since people are to be protected from sharks, *shark-safe*, in order to be consistent with this scenario, has to be interpreted as ‘safe from sharks’. In the second example, *tuna* serves as cue, through metonymy, for the activation of the scenario of tuna harvesting practices, which according to today’s international regulations, require not doing subsidiary harm to dolphins. In this scenario, *dolphin-safe* has to be interpreted as ‘safe for dolphins’.

2.2.Selection

Selection operations are intimately related to cueing in that this process allows the speaker to pick out relevant information from the conceptual

package that gets activated by linguistic information. Nevertheless, selection is also aided by contextual and personal information related to the speaker/hearer. Compare examples (3) and (4):

(3) There is a lot of America in everything she does.

(4) There is a lot of America in the exterior design of the new Hyundai i45.¹⁵

In example (3), ‘America’, which metonymically stands for the United States of America, is interpreted in terms of the behavioral attributes of American citizens. ‘America’ thus stands for ‘American (i.e. US) culture, lifestyle and values’ (cf. Ruiz de Mendoza and Pérez 2001). This interpretation is cued by the presence of the prepositional phrase “in everything she does”, which suggests behavior. In the case of example (4), what is at issue is the stereotype for American (i.e. US) car design, also as cued by the prepositional phrase “in the exterior design of the new Hyundai i45”. We must be careful to note that textual cues have the function of getting the interpretive process “on the road” in a given interpretive direction. But whatever information is brought to bear upon actual interpretation is a matter of other factors. Usually conventional world knowledge, which includes cultural stereotypes, plays a determining role. Compare the way cueing and selection work in the contrast between *eat* and *wear rabbit*. The verbs *eat* and *wear* act as textual cues for the activation of relevant information about rabbits, taken from our world knowledge repository. Evidently, *wear rabbit* usually refers to clothes made with

¹⁵http://www.carsguide.com.au/search//HYUNDAI?N=1z13px9ZdjandNo=75andNs=pRSS_SortDate|1andtype=news-and-reviews. Accessed on November 24, 2011.

rabbit's fur, because it would be extremely odd to think of other parts of a rabbit that can be used to make clothes (of course, one could wear a necklace made of rabbit's teeth and that would count as *wear rabbit* in the appropriate context). The selection of rabbit parts that can be "worn" depends on contextual factors that go beyond the cueing potential of the verb *wear*. In a similar way, *eat* in *eat rabbit* cues for an interpretation of *rabbit* in terms of its edibility. The most common interpretation will be 'rabbit's meat', but other parts of the rabbit (the bones, the eyes, the paws, etc.) are possible candidates.

Selection can be exploited in humor. Consider the question in (5), which is part of a popular joke:

(5) What's that fly doing in my soup?

This question can be interpreted as an example of the well-known *What's X Doing Y?* construction, discussed at length by Kay and Fillmore (1999). This construction conveys the idea that the situation that the speaker asks about actually bothers him. Another reading, which is humorous, takes place in the context of a waiter-customer conversational exchange. Here the waiter takes (or pretends to take) the sentence as a literal question about what the fly is actually doing in the customer's soup. In the joke, the funny answer is usually: *That's the backstroke, sir*. It is obvious that the *What's X Doing Y?* construction plays an overwhelmingly strong cueing role that leads hearers to call upon a situation that obeys two requirements: (i) it is conceptually consistent with the in-built description provided by the question; (ii) whatever is described bothers the speaker. This involves a selection of

conceptual structure such that the protagonist of the described situation is not necessarily “doing” anything. Because of the strong cueing role of the construction, the default interpretation of the sentence is that of a complaint by the customer. However, in the joke, this default reading is cancelled out by another textual cue, i.e. the waiter’s response, which, by describing an absurd situation (the fly performing the backstroke), gives rise to the activation of a standard *Wh-* interrogative construction where “doing” necessarily points to an action. This requires a different selection of conceptual material that is consistent with a question about a third party’s actions. The humorous effect thus arises from the fact that the new textual cue provided by the waiter ignores the customer’s complaint on the basis of an absurd description of what goes on.

2.3. *Abstraction*

Abstraction consists in deriving common structure from a number of cognitive models. It underlies the creation of all high-level cognitive models. For example, we get the high-level cognitive model of REQUESTING from the abstraction of related low-level cognitive models such as asking for a loan at the bank, begging in the streets, asking a mother for an allowance, etc. The models thus become available for further cognitive processes, such as metaphor and metonymy.

Abstraction operations also act as a requirement for low-level metaphor based on resemblance and for simile. In this case, this cognitive operation works by singling out common conceptual material from the

source and target domains thereby licensing cross-domain correspondences. For example, common expressions such as *pie-eyed*, *wavy hair*, and *hooked nose*, which are evidently metaphorical, are interpreted on the basis of shared physical structure which is abstracted away from the metaphorical source and target domains. *Pie-eyed* ('drunk') is thus based on the physical similarity between the pupils of the eyes, which go very wide when intoxicated, and the round shape and (usually) big size of a pie. *Wavy hair* exploits the resemblance between the shape of waves and the undulations of hair. Finally, a *hooked nose* is curved like an eagle's beak.

2.4. Integration

Conceptual integration consists in the guided combination of selected conceptual structure. It thus relies on previous cueing and selection operations as described above. In line with previous work by Peña (2003), Ruiz de Mendoza (2011) further recognizes two kinds of conceptual integration: integration by *combination* and by *enrichment*. The former kind refers to cases in which the concepts to be combined are independent of each other. Find examples of each kind of integration in examples (6) and (7) below:

(6) The inability to get rid of this infirmity drove me into desperation.¹⁶

(7) Well, it just filled me up with doubt.¹⁷

¹⁶http://www.godembassy.org/en/news/news_publ.php?showdetail=970.

Accessed on October 5, 2011.

¹⁷books.google.es/books?isbn=1416564136. Rabe, D. (2008). *Dinosaurs on the Roof: a Novel*. Accessed on October 5, 2011.

The interpretation of the sentence in (6) involves the container schema (invoked by the use of the preposition *in*), which is incorporated into the end-of-path slot of the path image schema (invoked by the preposition *to*). Neither of these two image schemas is inherently subsidiary to the other. By contrast, integration by enrichment is defined as the combination of two or more conceptual structures in which some of these structures are subsidiary to others. This is in part the case of example (7), in which the verb *fill up* cues for the activation of selected structure from a number of schemas which are subsidiary to the logic of the container schema: full-empty and motion along a vertical path (thus also involving verticality). These schemas are not necessarily active every time we make use of the container schema. However, *fill up* cues for their activation in this example. There are subsidiarity relationships among these schemas too: motion is inherently subsidiary to path, and verticality, which can be independent of the container schema, becomes necessary in this expression in order to understand the idea of completion through the rising of levels inside the container.

In these two examples, the combination of conceptual structure is used to construct the source domain of a metaphor, which, as we show in section 3 below, is based on content operations. It must be noted that, while cueing, selection and abstraction are universal pre-requisites for all metaphors, conceptual integration is only necessary when we have composite source domain structures.

Conceptual integration underlies the notion of *subsumption*, which, as noted in Chapter 3 (section 2.2), is used in the LCM and, in general, in constructionist accounts of language –although under other labels (e.g. fusion, integration) – to describe how verbal structure is incorporated into argument-structure constructions. We already explained in that section why the verb *break* but not *destroy*, despite their semantic similarity, can be incorporated into the inchoative construction on the basis of the lexical-class constraint. Other factors may play a role in licensing fusion. For example, the caused-motion construction, which takes the form X CAUSES Y TO MOVE Z (e.g. *The player kicked the ball into the net*), can take in caused-motion verbs such as *kick*, *push*, *hit* and *strike* because these verbs share their event structure with this construction. In this process, the construction takes in the conceptual structure of the verb and not the other way around. Evidence that fusion happens this way is found in the phenomenon of so-called constructional *coercion* (Michaelis 2003). Coercion takes place when there is a mismatch between the event structure of the verb and of the construction, which, in principle, would be an obstacle to fusion. For example, the verb *laugh* is not a caused-motion predicate but, given certain conditions, it can be integrated into the caused-motion construction, as in the sentence *The audience laughed the actor off the stage*. Here, the construction “coerces” the verb *laugh* in such a way that it acquires a caused-motion sense. According to the LCM, this coercion process is licensed by a high-level (i.e. non-lexical) metaphor according to which one kind of goal-oriented action (one that has emotional impact on its target) is seen as if it were another kind of goal-oriented action (one that has direct

physical impact on its object). As is evident, this constrained lexical-constructural fusion process is one of integration by combination, since lexical structure is not inherently subsidiary to constructional structure.

2.5. Substitution

Substitution takes place when either partial conceptual structure or a whole cognitive model is replaced either by related partial conceptual structure or by a different cognitive model in its entirety. Substitution is a pre-requisite for metonymy to be possible. For example, consider the use of the word *window* (the metonymic source) instead of ‘window pane’ (the metonymic target) in *He knew it was wrong not to have admitted he broke the window.*¹⁸

The source, which designates a whole entity, substitutes for the target, which is part of the source. Using the concept of window in this way directs our attention to the fact that damaging the window pane disrupts the functionality of the whole window. This means that the meaning impact of the metonymy goes beyond what the substitution operation can do. We address this question in Chapter 7 (section 1), when we discuss the two content operations associated with metonymy, i.e. domain expansion and domain reduction.

Substitution also underlies euphemism. In euphemism an offensive expression is replaced by another expression with which it shares enough content to make it possible for the two expressions to designate the same entity, collection of entities or state of affairs. For example, ‘a girl in

¹⁸<http://www.dailynews.lk/2012/08/16/fea21.asp>. Accessed on November 14th, 2012.

trouble' is used to refer to a pregnant girl because teenage pregnancy is generally understood to bring about medical and social problems; but using the expression *be in trouble* for 'being pregnant' is more polite on account of its greater indirectness. Note that this example of euphemism is in fact based on a metonymy whereby the consequences of being pregnant stand for being pregnant. But euphemistic substitution is not necessarily metonymic. It can be based on near-synonymy, as in the use of the word *ample* to mean 'fat' (*ample* means 'of large or great size' and 'fat' people have greater size than the average person) or on metaphor, as in *drain the main vein* for 'urinate'.

3. Content operations: a preliminary exploration

In our view, content operations fall within two broad categories, which can be schematically represented as A IS B and A FOR B. In other words, content cognitive operations may be grouped according to two basic relations, namely the "identity" and the "stands for" relations. As will become evident in our discussion below, expansion and reduction operations, parametrization, and saturation basically fall within the A FOR B category, whereas comparison (including resemblance and contrasting operations), strengthening/mitigation, and echoing are different developments of the A IS B relation. Correlation, in its turn, is a special case that can give rise to either A IS B or A FOR B relations. Let us briefly address each operation in turn.

3.1. *Expansion and reduction*

Expansion and *reduction* are reverse cognitive operations. The former consists in broadening the amount of conceptual material that we associate with the initial point of access to a concept, which is intrinsically prominent. The latter is the result of giving conceptual prominence to part of a concept or of a conceptual complex, as is the case of a whole proposition or a group of propositions in discourse, which are not intrinsically prominent. The activity of these operations is generally associated to metonymic stands-for relations, namely part-for-whole metonymies in the case of expansion and whole-for-part metonymies in the case of reduction, also termed *source-in-target* and *target-in-source* metonymies respectively (cf. Ruiz de Mendoza 2000a).

3.2. *Correlation*

The term *correlation* is used in Cognitive Linguistics (cf. Grady 1999; Lakoff and Johnson 1999) to discuss metaphors that are directly grounded in bodily experience rather than in the search for shared properties of objects or situations in the world, which give rise to metaphors based on resemblance. More recently, this proposal has been developed in such a way that metaphor interpretation is now seen as involving *embodied simulation*, i.e. the actual use of bodily experience when understanding abstract concepts (Gibbs 2006bc; see also Gibbs et al 2004). Johansson Falck and

Gibbs (2012) make use of survey and corpora studies to support the idea that the choice between the concepts ‘road’ and ‘path’ to speak and reason about a metaphorical journey is heavily influenced by the mental representation process that the speakers/hearers perform about each concept, which is, in turn, motivated by their interaction with the world.

For a correlation metaphor to take place, the events described in the source and in the target must frequently co-occur in experience. A clear example of correlation metaphor is ANGER IS HEAT (e.g. *Then Moses, hot with anger, left Pharaoh*¹⁹), which is grounded in the following combination of experiences: whenever we get angry, the body temperature of our body surface rises (especially such parts of the head as the neck and cheeks); cf. Kövecses (2000).

3.3. Comparison

This cognitive operation is broadly understood here as the process by virtue of which we pin down either similarities or differences across concepts. Comparison operations may be further subdivided depending on the aspects of the comparison that we wish to focalize. If the focus of the comparison is placed on the similarities across concepts, we have a case of *comparison by resemblance*. On the other hand, if the focus is on the discrepancies, we have a situation of *comparison by contrast*. Interestingly enough, comparison by contrast does never take part in metaphoric operations. This is so because of the intrinsic nature of metaphor. Metaphor may either work

¹⁹<http://bible.cc/exodus/11-8.htm>. Accessed on October 5, 2011.

on the basis of experiential correlation, as originally discussed by Grady (1999), or on the basis of perceived similarities between two entities (resemblance), but never on the basis of discrepancies.

3.4. *Echoing*

The notion of “echoing” was proposed by Sperber and Wilson (1995) as a cognitive-pragmatic explanation for irony within Relevance Theory. They argued that the communicative impact of irony arises from echoing a state of affairs or a thought representing a state of affairs. For example, imagine that someone claims that his little daughter is “an angel” (i.e. her behavior is exemplary), but then his daughter behaves in an exceedingly mischievous way. In this context, someone else’s remark *She is an angel*, which counts as ironical, stems from an echo of the naïve parent’s beliefs about his daughter in combination with the fact that the echoed belief is cancelled out by the actual state of affairs.

3.5. *Strengthening and mitigation*

These opposite cognitive operations work on the basis of scalar concepts (e.g. distance, weight, height, etc; cf. Chapter 4, section 2.3) and have the function of placing the concept at some point of the continuum above the lowest and below the highest ends of the scale. As is well known, linguistic systems are equipped with lexical and grammatical mechanisms that are used to express intensification or mitigation in various degrees. A

straightforward example of such lexical mechanisms is the adverb *very*, which is used to upscale the meaning of gradable adjectives (e.g. *good, bad, tall, short*) and adverbs (e.g. *often, far, near*), and the adjective *little*, which is used to downscale the magnitudes involved in some nouns (e.g. *money, time, hope*, for quantity).

3.6. *Parametrization*

This cognitive mechanism is often the outcome of the application of the high-level metonymy GENERIC FOR SPECIFIC. This operation has the ability to make generic structure stand for more specific configurations. The natural side effect of the application of this metonymy is the adjustment of conceptual representations to textual and contextual requirements. The reason for its application is usually one of cognitive economy on the part of the speaker to the extent that the speaker places the burden of adjustment on the hearer's shoulders. In Chapter 7, section 6, we propose generalization as the opposite cognitive operation to parametrization, being the former subsidiary to the latter.

3.7. *Saturation*

This cognitive operation constitutes the process by virtue of which we complete constructionally underdetermined expressions and minor clauses. An example of the former can be found in the sentence (8) below:

(8) Josh, I'm leaving for church in two minutes. Are you ready?²⁰

The expression *Are you ready?* needs to be completed by taking into account both contextual and grammatical information, that is, we need to bear in mind not only the information provided by surrounding sentences but also the constructional requirements of the statement. This is evidenced by the incorrectness of **Are you ready for having gone to church?*, since the construction requires a to-infinitival clause; cf. *Are you ready to go to church?*). Therefore, saturation processes involve the elaboration of a sentence in both syntactically and semantically coherent ways. As regards minor clauses (or subsentential utterances), we refer to colloquial expressions that are usually shortened in everyday language use, as is the case of *Morning!* (for *Good morning!*), *You alright?* (*Are you alright?*), etc.

4. Patterns of combination of cognitive operations

4.1. Metaphoric complexes

The term *metaphoric complex* is understood here as a broad notion that covers any kind of combination between two or more metaphors. Depending on the nature of the interaction process, we may distinguish between *metaphoric amalgams* (section 4.1.1) and *metaphoric chains* (section 4.1.2). The former require some kind of conceptual integration of the internal makeup of the metaphors involved in the interaction, while the latter are

²⁰<http://home.mchsi.com/~wallestadn/bottle.htm>. Accessed on October 24, 2011.

arranged in a sequence of consecutive metaphorical mappings in which the target domain of the first metaphor constitutes the source domain of a the next. Let us discuss each interaction pattern in turn.

4.1.1. *Metaphoric amalgams*

This type of metaphoric interaction was initially put forward by Ruiz de Mendoza (2008) and was further developed by Ruiz de Mendoza and Mairal (2011). According to these authors, metaphors may amalgamate in two different ways that we proceed to describe and exemplify in 4.1.1.1 and 4.1.1.2 respectively.

4.4.1.1. *Single-source metaphoric amalgams.* This metaphoric combination consists in the incorporation of one of the metaphors in a complex into the internal conceptual configuration of the other, thereby complementing the mapping system of the latter. The metaphoric expressions in (9), (10), (11), and (12) are examples of single-source metaphoric amalgam:

- (9) My ex-husband is a pig.
- (10) They traced the symptoms back to the licorice.²¹
- (11) If your memory is like a sieve, you may be lacking this mineral (COCA, 1996).
- (12) He can't control what I say and do so he has to hit me into submission.²²

The main metaphor operating in the interpretation of (9) is PEOPLE ARE PIGS, as a specification of the more general metaphor PEOPLE ARE ANIMALS. This metaphor accounts for the creation of metaphoric expressions such as *My*

²¹<http://www.healthcentral.com/drdean/408/23013.html>. Accessed on June 26, 2012.

²²<http://answers.yahoo.com/question/index?qid=20100307080838AAR4zSS>. Accessed on June 14, 2012.

ex-husband eats like a pig. In this metaphor, the way in which pigs ingest large amounts of food is mapped onto the way in which a person eats. However, the metaphor PEOPLE ARE PIGS needs to be conceptually enriched in order to explain why we attribute despicable behavior to a person who is said to be (or behave like) a pig, because this kind of behavior is not inherent to the nature of pigs. This meaning effect is achieved through the application of the metaphor MORALITY IS CLEANLINESS (cf. Lakoff 2003, p. 98). From this metaphor, LACK OF MORALITY IS FILTHINESS follows logically (cf. Galera-Masegosa 2010). Moreover, the metaphorical expression *X is a pig* may be used to convey the attribution of other behavioral patterns such as abusiveness, chauvinism, etc. We may thus broaden the scope of the latter metaphor by postulating the more general metaphor SOCIALLY UNACCEPTABLE BEHAVIOR IS FILTH (cf. Galera-Masegosa and Iza 2012), which combines into a single-source metaphoric amalgam with PEOPLE ARE PIGS. Table 1 schematizes this combination of metaphors.

Table 1. Single-source metaphoric amalgam in *My ex-husband is a pig*

SOURCE →	TARGET
Pigs	People
SOURCE →	TARGET
Lack of cleanliness (‘filth’)	Lack of morality

The analysis of example (10) follows the same interactional pattern. In order to interpret this sentence, we need to conceptualize an illness as an object that moves along a path by virtue of the metaphor A DISEASE IS A MOVING OBJECT. This general metaphor needs to be enriched by the subsidiary

metaphor EXPLAINING THE CAUSE OF A DISEASE IS RETRACING A MOVING OBJECT, which contributes additional correspondences related to the process of motion: the object moving along a path leaves a trail that may be retraced by an external observer in order to determine the point from which motion started. Table 2 illustrates the metaphoric process that underlies the expression *They traced the symptoms back to the licorice*.

Table 2. Single-source metaphoric amalgam in *They traced the symptoms back to the licorice*

SOURCE →	TARGET
Moving object	Disease
Motion of object	Progress of disease
Source of motion	Cause of disease (licorice)
Destination of motion	Outcome of disease
Observer of motion of object (tracer)	Monitor of progress of disease(e.g. physician)
Traces left by moving object	Symptoms of disease
Retracing a moving object	Explaining the cause of disease

The metaphors involved in a single-source metaphoric amalgam may also work on the basis of image schemas, as in example (11). This sentence makes use of a metaphor according to which human memory can be seen as a container of ideas (or memories, thoughts, etc.). So, we have a metaphorical complex that amalgamates the metaphor IDEAS ARE OBJECTS with HUMAN MEMORY IS A CONTAINER. This amalgam allows us to see fleeting memories as objects that seep through the wholes in a container. This metaphoric amalgam is represented in table 3.

Table 3. Single-source metaphoric amalgam in *Your memory is like a sieve*

SOURCE →	TARGET
Container	Memory
SOURCE →	TARGET
Objects in the container	Ideas in memory
Objects easily escape the container through physical holes	Memories easily leave someone's memory

The analysis of this example raises the question of whether a metaphor can be considered to be purely imagistic in nature (as opposed to conceptual), in the sense of Lakoff's *one-shot* image metaphors (e.g. *My horse whose tail is like a trailing black cloud*; Lakoff 1987b, p. 221). In this respect, Caballero (2003, 2006) claims that drawing a dividing line between image and conceptual metaphors is an oversimplification, since there is always a certain degree of inference and conceptual knowledge associated to image metaphors. Along similar lines, Deignan (2007) puts forward a number of metaphors—which she calls *metaphoremes*—which display features that make them qualify for both categories. Galera-Masegosa (2010b) argues for an intermediate solution by postulating the existence of a continuum that ranges from purely imagistic metaphors to conceptual metaphors. We take sides with this latter stance, which is in fact compatible with Lakoff's proposal in that he acknowledges the existence of metaphors that combine an imagistic source domain and a conceptual target domain (e.g. *whose thoughts are summer lightning*; Lakoff 1987b, p. 222). This is also the case of example (11) *Your memory is like a sieve*. We have a clear image of the source domain, i.e. a container full of holes and liquid coming out through them. However, we do not have a conventional image of memories.

Single-source metaphoric amalgams may also involve the interaction of high-level metaphors. Let us take example (12) in this respect. The interpretation of the last part of the sentence (*He has to hit me into submission*) requires the collaboration of two high-level metaphors: (CAUSED) CHANGE IS (CAUSED) MOTION and STATES ARE LOCATIONS, from which we derive the metaphor A CHANGE OF STATE IS A CHANGE OF LOCATION. The conceptual architecture of the first metaphor is enriched by the second. The activation of the metaphor A CHANGE OF STATE IS A CHANGE OF LOCATION arises as a requirement of the target domain, which specifies a resultant state (being submissive). The main metaphor allows us to conceptualize the psychological change caused to the person as if it were the result of a physical action that causes an object to move. In turn, the subsidiary metaphor sets the destination of motion and the final state in correspondence. Therefore, before the action of hitting takes place, the speaker is metaphorically located in the source of motion, which corresponds to the state of not being submissive. The action of hitting is seen as causing the speaker to move towards the destination of motion, namely the state of submission. See table 4 for schematization.

Table 4. Single-source metaphoric amalgam in *He has to hit me into submission*

SOURCE (MOTION CAUSED BY PHYSICAL IMPACT)→	TARGET (PSYCHOLOGICAL CHANGE)
Causer of motion ('hitter')	Causer of change
Object of motion ('hittee')	Object of change
Source (change of location)	Target (change of state)
Source of motion	Initial state
Destination of motion (= container)	Resultant state (submission)

4.1.1.2. *Double-source metaphoric amalgams*. This interactional pattern consists in the mapping of two different source domains onto the same target domain. The two source domains become complementary in the achievement of the meaning implications required by the conceptual structure of the target domain. Let us illustrate this pattern with the analysis of examples (13) to (16):

- (13) Between you and me, I think he's got bats in his belfry (COCA, 1992).
- (14) She's quite willing to beat knowledge into her students, if that's what it takes.²³
- (15) Sarah kicked some sense into me with a smile that clearly said, "watch this".²⁴
- (16) His story pushed me into a new investigative direction.²⁵

With respect with (13), Galera-Masegosa (2010b) argues that the interpretation of the expression *to have bats in one's belfry* ('to be crazy, eccentric'), a very common expression that seems to have originated in the early 20th Century American English, involves the combination of the metaphors THE HEAD IS A CONTAINER, IDEAS ARE OBJECTS, AND (LACK OF) ORGANIZATION IS (LACK OF) PHYSICAL STRUCTURE. This initial combination gives rise to an enriched metaphor in which the head is seen as container of objects that may or may not be arranged in a given way. Then, a second

²³<http://www.greatmirror.com/index.cfm?navid=421&picturesize=medium>. Accessed on June 19, 2012.

²⁴books.google.es/books?isbn=0595208525. Laine, J. (2001). *Corpus Christi*. Accessed on November 8, 2012.

²⁵<http://paranormalityuniverse.blogspot.com.es/2012/02/interview-with-fbi-special-agent-alan.html>. Accessed on June 26, 2012.

metaphoric mapping further enriches this combination by giving us access to the type of container (the belfry), the type of objects (bats), and the way they move (their erratic flight around and into and out of the belfry). Table 5 captures this analysis.

Table 5. Double-source metaphoric amalgam in *to have bats in one's belfry*

SOURCE→	TARGET	←SOURCE
Bats	Ideas	Objects
Flying around erratically	Lack of organization	Lack of physical structure
Belfry	Head (Mind)	Container

In our view, this analysis sheds some new light on the process of amalgamation. In the metaphoric target we have a situation in which a person has inconsistent and unpredictable ideas. English makes extensive use of the metaphor IDEAS ARE MOVING OBJECTS (e.g. *Did she catch the idea?*; *The idea flew over my head*; *The idea went ahead*), which easily combines with the complementary metaphor THE HEAD IS A CONTAINER (OF IDEAS) (e.g. *The idea came/got/popped into his head*). We can thus see ideas as if they were objects that move into and out of the head. This combination is used to talk about ideas that become mentally accessible and thus intellectually controllable. Conversely, we can also see ideas as objects that move around the head without going in, thus disallowing full mental control of them (e.g. *The idea was spinning around my head for about a month before it came altogether*).²⁶ The expression *to have bats in one's belfry*, by pointing to a specific piece of everyday experience, cues for this

²⁶<http://amwerner.hubpages.com/hub/Old-Man-and-the-Well>. Accessed on November 4, 2012.

combination of primary image-schematic metaphors that give rise to specific meaning implications about a person's lack of intellectual structure and mental grasp. Without the cueing elements provided by the bats-in-the-belfry scenario the metaphorical source where we see objects that move around, come in and go out of a container would have not been constructed. The belfry scenario, the first source domain in the amalgam, is thus a prerequisite for the activation of the second source domain with the moving objects. But it is this second source domain that provides the logical structure necessary for full exploration of the intended meaning effects signaled above.

High-level metaphors may also be combined into double-source metaphoric amalgams, as in the interpretation of the expression in (14). This sentence may be paraphrased as follows: 'She caused her students to acquire some knowledge by beating them'. From this paraphrase, we may claim that what causes the change (the acquisition of knowledge) is the action of beating the students, which is seen as a way of causing an object to move figuratively into the person. This is possible if we further think of the destination of motion as a container (through image-schematic enrichment). All this conceptual material structures only one metaphoric source, which is a composite structure that sees the destination of motion as a container that receives a moving object. This metaphoric mapping is an adaptation of (CAUSED) CHANGE IS (CAUSED) MOTION to the situation addressed by the metaphor. But there is one further metaphoric source at play. This second source is a logical development of the first: once figuratively inside the person, the moving object becomes within the control of the person and can

be further seen as a possessed object. This second mapping is based on DEVELOPING A NEW PROPERTY IS ACQUIRING AN OBJECT. Therefore, when we subsume the verb *beat* into the caused-motion construction, the intrinsic telicity of this verb is substituted by the telicity licensed by the metaphor A CHANGE OF STATE IS A CHANGE OF LOCATION ('becoming beaten' is seen as 'undergoing a change of location'). Table 6 outlines this amalgamation process.

Table 6. Double-source metaphoric amalgam in *She's quite willing to beat knowledge into her students*

Source → (motion caused by physical impact)	Target (change motivated by psychological impact)	← Source (possession)
Causer of motion	Causer of psychological change ('she')	Initial possessor of an object
Causing motion	Causing psychological change ('causing to acquire')	Transferring possession
Destination of motion = container	Psychologically affected entity ('her students')	New possessor of an object
Object of caused-motion (moving object)	New psychological property ('knowledge')	The possessed object
Reaching destination	Psychological change ('acquiring the new property of knowledge')	Gaining possession of an object
Manner of causing motion ('beating')	Manner of causing psychological change	Manner of transferring possession

Some remarks are in order. First, in this mapping system 'knowledge' is figuratively seen as an object that is transferred from one person to another. The manner of transferring the object is 'beating', i.e. a forceful way of compelling the students to learn. Since English is a satellite-framed

language (Talmy 2000), the verb slot of the caused motion construction can be used to specify manner of performing the action (cf. *The child kicked the ball into the net*, where ‘kicking’ is used to express the way in which the ball was caused to go into the net). Second, although physical transfer of possession of an object involves the loss of possession on the part of the giver, ‘beating knowledge into someone’, like giving an idea, a suggestion, etc., does not carry that logical implication. This happens by virtue of the target logic, where the focus of attention is on the students being forced to acquire knowledge that the teacher has and retains. The target logic, as Lakoff (1993) noted, can place restrictions on source logic (the so-called *target domain overrides*). Third, we also want to draw the reader’s attention to the fact that, apparently, the action of beating does not involve a proper change of state (cf. ‘becoming flat’, ‘becoming drunk’, etc.). That is, one may raise the question of whether ‘becoming beaten’ is or is not a change of state. This is a matter of how languages code information into lexical items. The verb *beat* codes a resultative value (note that this happens with every effectual predicate), which is the default assumption that when an object is beaten it becomes affected by the repeated blows. This generic value (its intrinsic telicity) can be parametrized further; for example, an object can be beaten out of shape, a person or an animal can be beaten into submission, or beaten unconscious, and so on. Sometimes a verb can code a highly parametrized result: *kill* always involves a “dead” object; *destroy* always involves cessation of existence of the object. Some languages, like Mandarin Chinese (cf. Li & Thompson 1989, p. 55) have such conceptual configurations as *hit broken* (dâ-pò) and *pull open* (lâ-kâi) coded into a

single resultative compound. In terms of the LCM, what Mandarin does by means of compounds is highly parametrize a given resultative value into a single conceptual unit.

Let us now examine example (15). The analysis of this sentence in terms of cognitive operations should be expected to follow the same pattern as the ‘beat knowledge into someone’ example. However, additional factors need to be taken into account. The sentence can be paraphrased as follows: ‘Mary caused me to have some sense by acting in a certain way, namely smiling’ (not by kicking me). Thus, *kicking*, which is a contact-by-impact predicate, is here used figuratively. This sentence strongly suggests that the speaker had previously had very little common sense or that he was even reluctant to act according to it. This figurative use of *kicking* takes place at the lexical level and it is based on the fact that contact-by-impact predicates create the strong expectation of a forceful change on the object of impact. The change can be physical or, when sentient entities are involved, it can either alternatively or additionally be psychological, emotional, behavioral, or any combination of these elements. Since physical and non-physical impact are often associated in this way, it follows that verbal predicates like ‘kicking’ can easily give rise to correlation metaphors based on the conflation of co-occurring experiences like the ones just mentioned. Examples of such metaphors are: *He kicked me unconscious/awake* (physical impact); *He kicked me back into reality* (psychological impact); *He kicked me into a frenzy, That kicked him into excitement mode* (psychological and/or emotional impact); *What he said kicked me into losing weight* (behavioral impact). In (15) above, the metaphor maps kicking onto

smiling, the kicker onto the person who smiles, and the kickee (i.e. the receiver of the kick) onto the addressee. The source of this lexical metaphor, which is a low-level one, is then built into the meaning component of the caused-motion construction, which is a high-level non-situational cognitive model, through regular subsumption. This happens naturally as a result of full matching between the meaning characterizations of *kick* as a contact-by-impact predicate that can cause motion and the caused-motion construction. However, note that the caused-motion construction is exploited figuratively to indicate result (i.e. there is no actual motion involved in the interpretation of ‘kicking some sense into me’). From here interpretation follows the same high-level interpretive pattern as the previous example *She’s quite willing to beat knowledge into her students, if that’s what it takes*, where “beating” is literal.

Low-level (lexical) metaphors may also cooperate with single-source metaphoric amalgams that involve a caused-motion element. A case in point is to be found in example (16): *His story pushed me into a new investigative direction.*²⁷ In this expression, the verb *push* fills in the verbal slot in the caused-motion construction thereby parametrizing the conceptual combination between caused motion and manner of motion. In ‘push into a new direction’, where ‘push’ is not literal, we have a combination of low-level and high-level metaphor. The low-level metaphor is used to reason about a non-motional causal action (target) as if it were a motional causal action (source). The source of this metaphor is then used to construct the

²⁷<http://paranormalityuniverse.blogspot.com.es/2012/02/interview-with-fbi-special-agent-alan.html>. Accessed on June 26, 2012.

source of a high-level metaphor that maps caused motion onto caused change. See table 7 for a schematic representation of this process.

Table 7. Single-source metaphoric amalgam in *His story pushed me into a new investigative direction*

SOURCE (MOTION CAUSED BY PHYSICAL IMPACT) →	TARGET (NON-MOTIONAL CHANGE)
Causer of motion ('pusher')	Causer of change
Object of motion ('pushee')	Object of change
Source (change of location)	Target (change of state)
Source of motion	Initial state
Destination of motion (= container)	Resultant state (new investigative direction)

4.1.2. *Metaphoric chains*

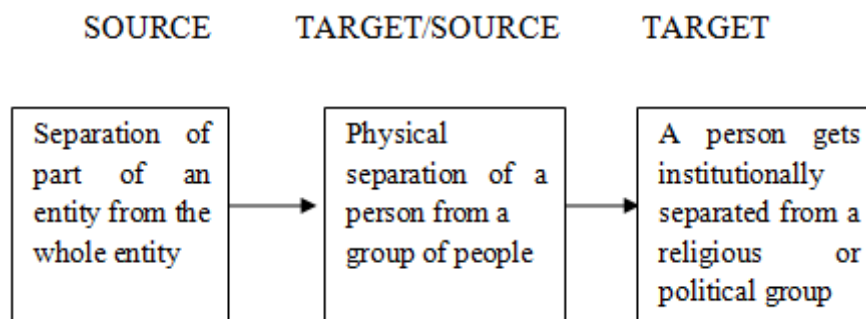
Two (or more) metaphors may combine in such a way that the target domain of the first constitutes the source domain of the following one. This interaction pattern has been identified in Ruiz de Mendoza and Galera-Masegosa (2011, 2012), in their analysis of the cognitive mechanisms that underlie the interpretation of phrasal verbs. Metaphoric chains underlie the interpretation of examples (17) to (19):

- (17) The Davidians split off from the Sabbath Day Adventist church in the nineteen thirties (BNC_HE3_31).
- (18) She got pretty harsh and said some things that yanked my chain.²⁸

²⁸ books.google.es/books?isbn=1418537608. Townsend, J. (2008). *Loving People: How to Love and Be Loved*. Accessed on November 14, 2012.

- (19) Obama wrapped his tentacles around everything from health care to automobiles.²⁹

Let us start with the analysis of example (17). The first metaphoric mapping allows us to conceptualize the physical separation of one or more individuals from a larger group of people in terms of the separation of part of an entity from the whole entity, for instance a branch/stem from a tree/plant (c.f. *During one of last weeks' storms a large branch split off of this tree*).³⁰ The target of this metaphoric mapping, namely the people who are physically apart from the initial group to which they belonged, constitutes the source domain of another metaphor, which finds its correspondence in people who are institutionally separated in the target. The second metaphoric mapping is based on common, everyday experience. When people get institutionally separated from a religious/political group, they are not expected to take part in any event in which they will gather and interact with other members of the group. This conventional implication licenses the conceptualization of institutional separation in terms of physical separation. Figure 1 represents this metaphoric chain.



²⁹ books.google.es/books?isbn=1439198446. Ingraham, L. (2010). *The Obama Diaries*. Accessed on November 13, 2012.

³⁰ <http://talesofhomeschool.blogspot.com.es/2011/06/that-business-with-tree-ive-been-going.html>. Accessed on June 18, 2012.

Figure 1. Metaphoric chain in *The Davidians split off from the Sabbath Day Adventist church in the nineteen thirties*

Preliminary work on metaphoric chains carried out by Ruiz de Mendoza and Galera (2011, 2012) relates this kind of metaphoric complex exclusively to the analysis of phrasal verbs. Here, we want to show that this conceptual pattern can be made extensive to the interpretation of other linguistic expressions that do not involve the presence of phrasal verbs. Consider, for instance, the sentence in (18). The cognitive analysis of this example finds its point of departure in a first metaphorical source domain that comprises a situation in which somebody tugs on a dog's leash. In ancient times slaves were kept on leashes; yanking on a dog's leash maps onto yanking on a slave's leash as if he were an animal. This situation then maps onto one where bondage and harassment are emotional. In this new mapping 'yanking', which involves a sudden, vigorous and consequently painful and even harmful pull, maps onto inflicting emotional pain or damage on the harassed person. In other words, causing someone to be in a difficult or compromised mental state is seen in terms of physical mistreatment by pressing on his or her neck, which is in turn seen as the pressure applied to a dog's neck when we yank its leash. This metaphorical process is schematized in figure 2.

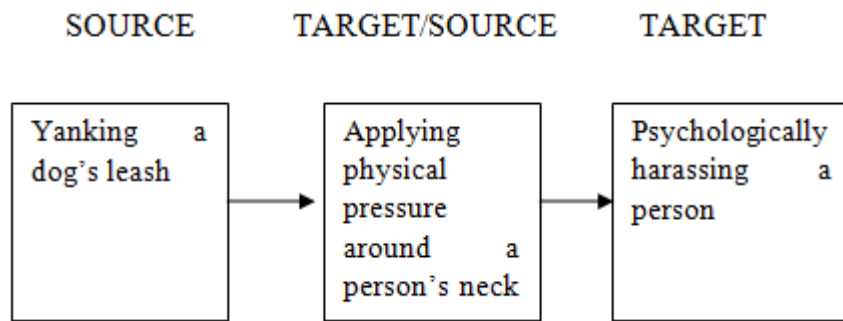


Figure 2. Metaphoric chain in *She got pretty harsh and said some things that yanked my chain*

Let us lastly consider example (19). In the first source domain, we have a tentacled animal (an octopus, for instance) wrapping its tentacles around an object, animal or person. This situation maps onto one where someone who wraps his arms or hands around an object. Then, by virtue of the metaphor GAINING POSSESSION OF AN OBJECT IS HAVING CONTROL OVER IT, we have the second metaphoric mapping, whose target domain is the (non-physical) control of the person over certain issues. See figure 3 for the schematization of this metaphoric chain.

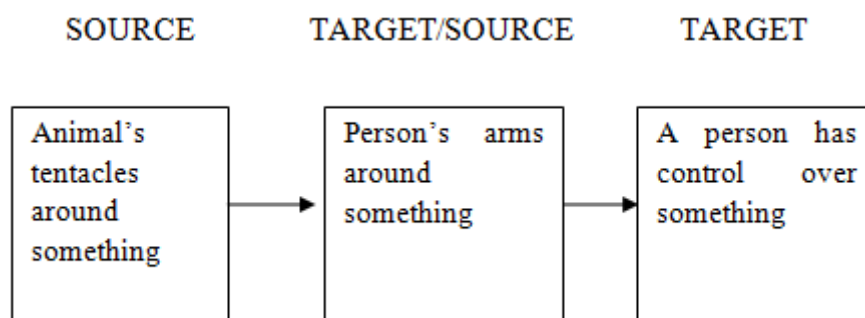


Figure 3. Metaphoric chain in *Obama wrapped his tentacles around everything from health care to automobiles*

Additionally, we need to point to the fact that “wrap” is also metaphorical at the lexical (conventionalized) meaning-extension level, from ‘arranging or

folding something about as cover or protection' to 'clasping, folding, or coiling about something'.

We also want to make reader aware of the meaning implications that have led the speaker to choose the tentacle and wrapping metaphors. Tentacles allow octopuses to clasp their prey rather tightly. In the example, Obama acts greedily, using his power to gain full control of a number of situations (the state of health care service and the ins and outs of automobile industry). The example suggests full control based on power to exercise greed, i.e. the excessive desire to acquire or possess more than what one should.

4.2. *Metaphonymy*

The term *metaphonymy* was initially put forward by Goossens (1990) to designate cases of interaction between metaphor and metonymy. His account includes the following interaction scenarios:

a. *Metaphor from metonymy*, where an original metonymy develops into a metaphor. For example, the expression *to beat one's breast* refers to the action of striking one's fist against one's breast as an expression of sorrow for one's feelings of guilt. The linguistic expression only makes explicit the breast-beating part of this scenario, which is to be accessed metonymically before it can be metaphorically applied to situations where there is no breast-beating but any other overt indication of sorrow over one's guilt.

b. *Metonymy within metaphor*, as in *to bite one's tongue*. This expression is often applied metaphorically to reason about situations in which people refrain from speaking their minds on a certain issue. Since the tongue stands for a person's ability to speak, Goossens argues that there is a metonymy inside the metaphor.

c. *Demetonymization inside a metaphor*, as in *to pay lip service*. In English slang 'lip' generally stands for 'dishonest, impudent talk' (e.g. *Don't give me any of your lip*). This metonymic meaning is lost in the metaphor *pay lip service* ('give insincere support'), where "lip service" simply means 'service as if with the lips only' (i.e. by using the lips to talk).

d. *Metaphor within metonymy*, which occurs when a metaphor is used in order to add expressiveness to a metonymy, as in *to be on one's hind legs*. Here, "hind" builds the metaphor PEOPLE ARE ANIMALS into the source of a metonymy that maps 'standing' onto 'standing up in order to defend one's views emphatically'.

More recent studies concerned with metaphor-metonymy interactions (cf. Ruiz de Mendoza, 1997a; Ruiz de Mendoza and Díez 2002) argue that Goossens' account, which was based on a very limited corpus of body-parts, sound items and violent action predicates, is in need of refinement. Ruiz de Mendoza and Díez (2002) claim that the four kinds of interaction proposed by Goossens are simply cases of *metonymic expansion of the metaphoric source domain* (see also Ruiz de Mendoza 2013a). In what follows, we present the interaction patterns put forward by Ruiz de Mendoza and Díez (2002), together with other combinations that have been identified later on

(cf. Galera-Masegosa 2010ab, Ruiz de Mendoza and Galera-Masegosa 2011, 2012). We provide different examples from those presented in these studies in order to lend further support to the authors' claim about the productivity of such patterns of interaction.

4.2.1. Metonymic expansion of the metaphoric source

This pattern of interaction usually involves situational metaphors, that is, those that operate upon low-level situational cognitive models or scenarios. In such metaphors, the conceptual material contained within the linguistic expression is part of a more complex conceptual domain. The speaker affords access to the whole situation through metonymic expansion. In this way, mentioning part of a scenario supplies a relevant point of access to the whole scenario. Once developed metonymically, this scenario is used as the source domain for a metaphoric mapping onto another domain that denotes the situation that the speaker wants to reason about. Consider example (20) below:

(20) He's a wolf in sheep's clothing

The expression "in sheep's clothing" suggests a wolf in disguise through the ANIMALS ARE PEOPLE metaphor, as if the wolf, rather than an instinctual predator, were a human "predator" trying to hide his evil intentions. Thus, the metaphorical source domain is initially constituted by a wolf that looks like a sheep and that has been figuratively attributed evil intentions. Once understood in this way, the metaphorical source is developed metonymically

to give access to a situation in which a wolf represents unrecognized danger to the herd, whose members may be misled into taking the wolf as one of them. This constructed situation is then metaphorically mapped onto any real-life one in which conniving people hides their dishonest intentions towards others so they can act by surprise. Figure 4 provides the schematization of the analysis of this expression.

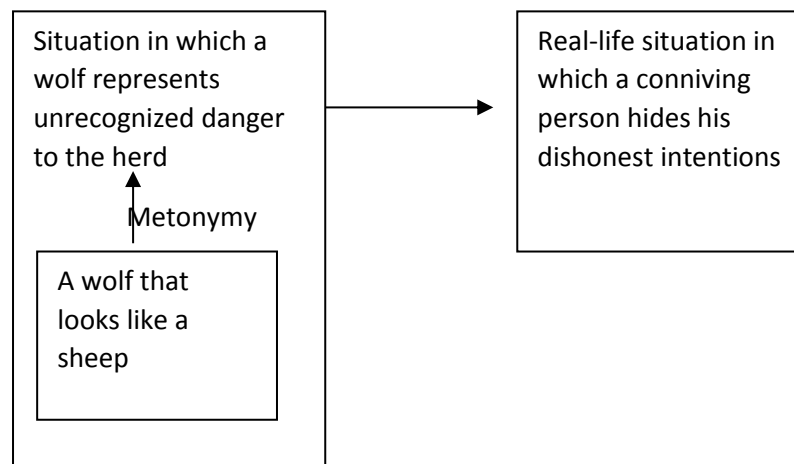


Figure 4. Metonymic expansion of the metaphoric source domain in *He's a wolf in sheep's clothing*

This interaction pattern achieves optimal balance between production economy and meaning effects, since the speaker only needs to mention part of a scenario to afford access to a whole range of implications about someone's behavior when in comparable situations. This kind of meaning-effects balance abides by the well-known Principle of Relevance postulated within inferential pragmatics by Sperber and Wilson (1995) (see Ruiz de Mendoza and Pérez 2003; Gibbs and Tendahl 2006, Tendahl and Gibbs 2008, Herrero 2009, and Tendahl 2009 for studies on the complementariness

between cognitive-inferential pragmatics and some of the postulates of Cognitive Semantics).

A subcase of this interactional pattern is that in which the metonymic development only affects one of the metaphoric correspondences in the source domain. In order to illustrate this subcase, see example (21):

(21) Not a particularly talkative chap, so we had to loosen his tongue a bit.³¹

The idea of “loosening someone’s tongue”, taken non-figuratively, invokes a scenario in which a person’s tongue muscle is too tight to allow him to speak. The tightening of the tongue may be caused by external factors (e.g. because of fear, shyness, or some other emotional factor) or by a personal choice (e.g. because the person does not want to disclose secret information). By implication, the loosening action should either allow the person to regain his ability to speak without fear or force him/her to do so (e.g. *If he persists in his wicked, traitorous, and foolish silence, we shall have to loosen his tongue by torture*).³² The tongue, which is itself metonymic for the ability to speak, is part of the source domain, so this would be a case of metonymic development through INSTRUMENT FOR ACTION of one of the elements of the metaphoric source. Figure 5 illustrates the interactional pattern that underlies the interpretation of these examples.

³¹ books.google.es/books?isbn=1572491612. Whitman Blair, M (1999). *House of spies: danger in Civel War Washington*.

³² books.google.es/books?id=af1bAAAAQAAJ. Baker Hopkins, John (1881). *Nihilism: or, The terror unmasked*. Accessed on November 26, 2012.

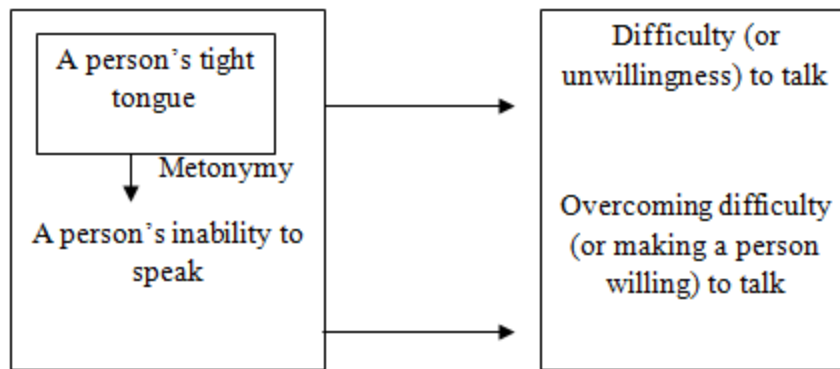


Figure 5. Metonymic expansion of one of the correspondences in the metaphoric source domain

The same metaphor-metonymy combination is at work in the interpretation of the expressions *Don't bite the hand that feeds you* and *To clip somebody's wings*. In the former, 'biting' is metaphorically mapped onto 'harming', 'feeding' onto 'carrying out beneficial actions' and 'hand', which metonymically stands for 'the feeding person', onto 'the person who carries out such beneficial actions'. In the latter, 'clipping' in the source metaphoric domain is made to correspond with 'depriving' in the target domain, while 'wings', which is made to stand for the 'ability to fly' through metonymic expansion, maps onto 'freedom' in the metaphorical target domain.

4.2.2. *Metonymic expansion of the metaphoric target*

This kind of metaphor-metonymy combination underlies the interpretation of example (22):

- (22) Jack Nardi should have known to zip his lip around federal agents.³³

In the source domain, we have an article of clothing (e.g. a pair of trousers) fastened with a zipper. The lips of the person in the target domain are seen as the fastened zipper: the person's lips are closed. A person with his lips kept closely together stands for a person who will not disclose secret information. The resulting pattern is one of metonymic expansion of the metaphorical target domain, as shown in figure 6.

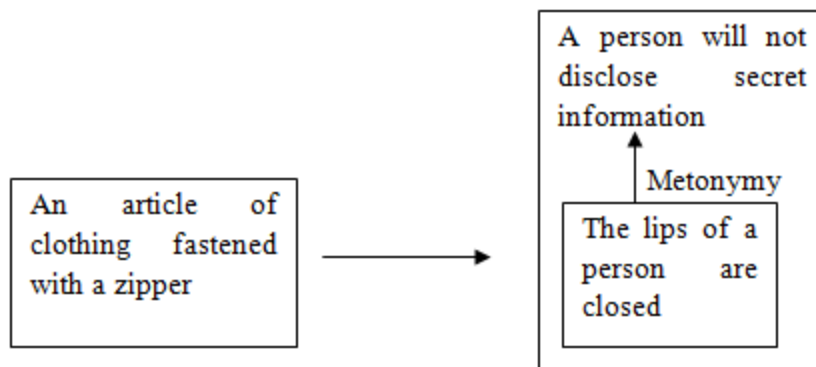


Figure 6. Metonymic expansion of the metaphoric target in *Jack Nardi should have known to zip his lip around federal agents*

As in the case of metonymic expansion of the metaphoric source, this interaction pattern is also intended to strike a balance between cognitive economy and meaning effects, again following relevance-theoretic criteria. The metonymy in the target develops partial conceptual material provided by the figurative interpretation of zipping one's lips, thus calling up a fully-fledged scenario where a person commits himself to keeping some

³³ books.google.es/books?isbn=044020755X. Neff, J. (1990). *Mobbed up*. Accessed on November 14, 2012.

information strictly confidential. The difference between the two metaphoric patterns is to be found in the relative weight of metaphorical reasoning, which is smaller for the case of metonymic development of the metaphoric target. In this pattern the metaphor is restricted to just one correspondence, thus giving metonymy a greater interpretive weight. In the previous pattern, the metaphor has greater weight than the metonymy, which simply has the role of preparing a source domain with sufficient conceptual material to map onto all relevant target elements.

4.2.3. *Metonymic reduction of the metaphoric source*

Let us now take the idiomatic expression in example (23):

(23) To have a nose for something

The nose of a person in the metaphorical source domain is made to stand for the sense of smell through an operation of metonymic reduction: from the many aspects related to the nose (its shape and color, its relation to the process of breathing, etc.), we need to highlight its instrumental role in smelling. We do so by virtue of the INSTRUMENT FOR FUNCTION target-in-source metonymy. A person's ability to smell is then mapped onto a person's intuition. This metaphoric connection arises from the fact that a keen sense of smell allows a person to track smelling objects, without seeing them. Along similar lines, intuition may lead a person to anticipate future prospects (e.g. *He has a nose for business/trouble*) or to identify intellectual, emotional or psychological aspects in other people (e.g. *She has a nose for*

talent/potential) without any objective perceptual evidence. Figure 7 provides an illustration of this process.

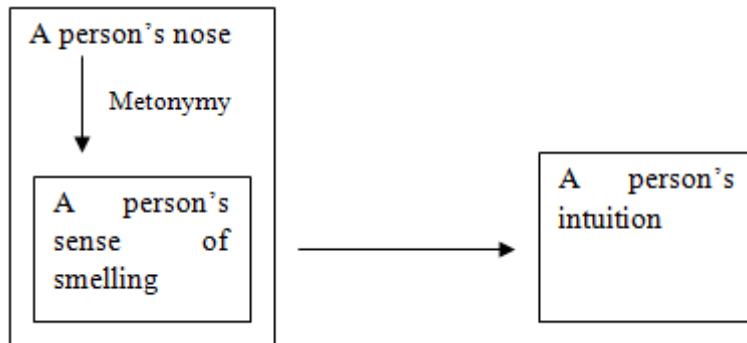


Figure 7. Metonymic reduction of the metaphoric source in *to have a nose for something*

This interactional pattern underlies the interpretation of paragons. A paragon can be defined as “a person or thing regarded as a perfect example of a particular quality” (The Oxford Dictionary). We now proceed to analyze two cases of paragon in sentences (24) and (25):

(24) Humboldt is the Shakespeare of travelers.

(25) Drogba brinda el ‘Maracanazo’ de Múnich (‘Drogba offered Munich’s ‘Maracaná Blow’).³⁴

Example (24) has been drawn from Brdar (2007, p. 111). Here, the concept of Shakespeare as the ideal poetry writer in the metaphorical source domain undergoes a process of metonymic reduction that serves to highlight those aspects of Shakespeare that are relevant for the metaphorical mapping (e.g. his superior ingenuity). Then, these highlighted aspects are set in

³⁴<http://www.elmundo.es/elmundodeporte/2012/05/19/futbol/1337449231.html>. Accessed on November 15, 2012.

metaphorical correspondence with Humboldt’s equally remarkable attributes in the realm of travelling. These cognitive mechanisms are schematized in figure 8.

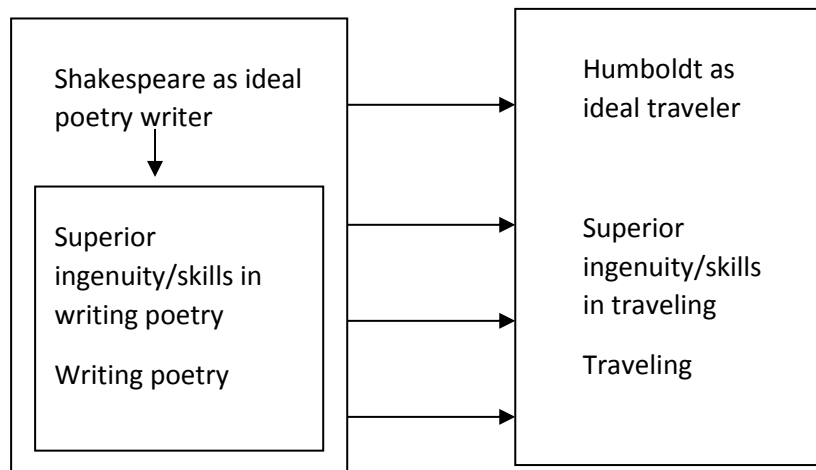


Figure 8. Metonymic reduction of the metaphoric source domain in *Shakespeare is the Humboldt of travelers*

Another interesting example is constituted by sentence (25), which has been drawn from Spanish sports news, and can be translated into English as ‘Drogba offered Munich’s ‘Maracaná Blow’. The use of the word ‘Maracanazo’ (‘Maracaná Blow’) dates back to a football match that took place in the Maracaná stadium in Rio de Janeiro (Brazil) in 1950. It was the World Cup final between Brazil and Uruguay. Being ahead in the general classification, Brazil just needed to avoid defeat to get the Cup. The match would be celebrated in their own stadium, and Brazil was clearly expected to win. Brazil supporters were celebrating Brazil’s victory even before the day of the match. However, rather unexpectedly, Uruguay won the match and consequently Brazil lost the World Cup. Brazil’s defeat has been regarded as one of the most disappointing defeats in the world of football.

This anecdote was named “Maracanazo”, based on the name of Rio de Janeiro’s stadium. The process of creation of this term involves a process of metonymic expansion in which the place where the event took place stands for the event itself. This metonymic shift is licensed by the LOCATION FOR EVENT metonymy. The suffix *-azo* is an augmentative conveying the idea that the event was a rather shocking one.³⁵ From that moment on, the term “Maracanazo” has been used to refer to an unexpected result in which the local team gets defeated despite being the clear favorite. For this reason, what happened in the Maracaná stadium in 1950 supplies a clear case of paragon. Thus, saying that Drogba provided the Maracanazo in Munich means that the local team, who was expected to win the match, eventually lost the game because Drogba (Chelsea’s player) scored a goal. In order to come to this interpretation, we first need an operation of metonymic expansion from the name of the stadium in which the event took place to the whole event. Note that this metonymic operation is the converse of the one performed in order to create the term. Then, in the metaphorical source domain we have the whole event in Maracaná. In order to reduce the amount of conceptual material to get only that information that is relevant for interpretation, we perform an operation of metonymic reduction: we highlight the fact that the local team was expected to win in combination with the disappointing defeat, etc. These elements are mapped onto the target domain, which contains information related to the unexpected defeat of Bayern Munich. We diagram this interaction in figure 9.

³⁵Ruiz de Mendoza (2000) has argued that augmentation and diminution, as captured by augmentative and diminutive suffixes, is a matter of image-schematic thinking, which endows them with an axiological value close the one found by Peña (2003, 2008) for the language of emotions, which is also essentially image-schematic. See also chapter 3, section 3 in relation to diminutives and the cognitive model of control.

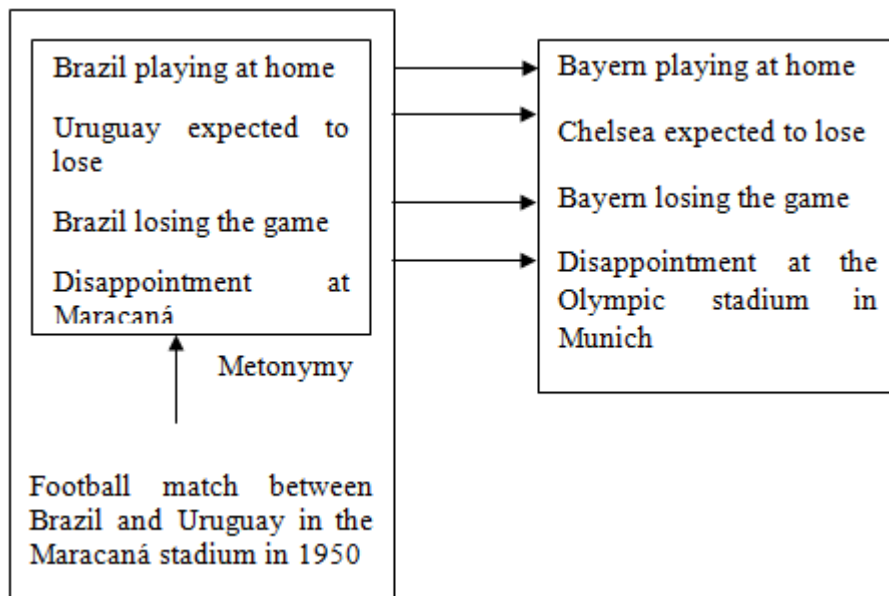


Figure 9. Metonymic reduction in the metaphoric source in *Drogba brinda el ‘Maracanazo’ de Múnich*

4.2.4. Metonymic reduction of one of the correspondences of the metaphoric target

This interactional pattern involves the highlighting of a relevant aspect of the metonymic matrix domain within the metaphorical target domain. That is why these are usually cases of metonymic reduction in the target domain of one of the metaphoric correspondences rather than the metonymic reduction of whole metaphorical target domain. This is the case of example (26):

(26) To win someone’s heart.

The analysis of this expression in terms of metaphor-metonymy interaction was initially proposed in Ruiz de Mendoza and Díez (2002). In the source

metaphoric domain we find a person that has won something. The target domain of this metaphor depicts a person that has obtained someone else’s “heart”. Therefore, the winner in the source is mapped onto the lover in the target, the action of winning onto the action of obtaining and the prize onto the heart. However, the heart is not what the person obtains. Rather, ‘heart’ is made to stand for a person’s feelings by virtue of an operation of metonymic reduction. This metonymy is grounded in cultural values, which consider the heart as the container of feelings (e.g. *Your heart is empty*, to mean that the person has no feelings). Note that the metonymy only affects the prize-heart correspondence. This is so because the expression places emphasis on this element which is more central and that produces the other meaning effects. See figure 10 for schematization.

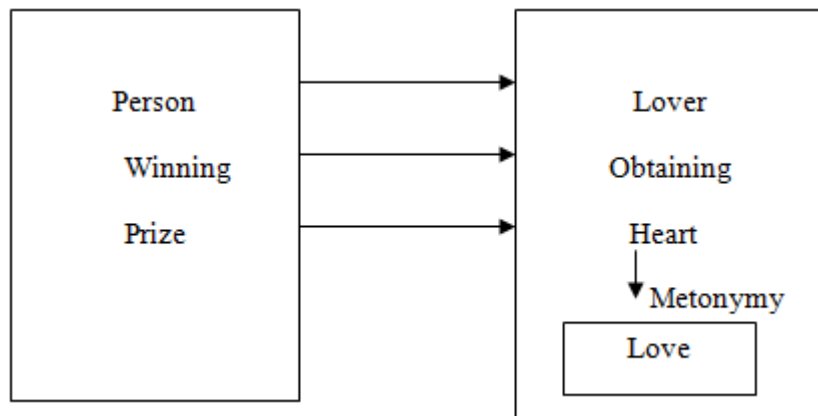


Figure 10. Metonymic reduction of one of the correspondences in the metaphorical target domain in *To win someone’s heart*

We have found that metonymic reduction may also operate on the whole target domain of the metaphoric mapping. Consider sentence (27) below:

(27) Jocelyn is my eyes and ears when she is at Tremorra Towers.³⁶

The final interpretation of this expression is that Jocelyn provides the speaker with all the information about what happens in Tremorra Towers. In order to achieve this interpretation, we need to establish a metaphoric connection by virtue of which we take Jocelyn as the speaker's eyes and ears, as given by the linguistic expression. In addition, we need to perform an operation of metonymic reduction that makes 'eyes and ears' stand for 'the information a person can obtain through his eyes and ears'. This situation is presented in figure 11.

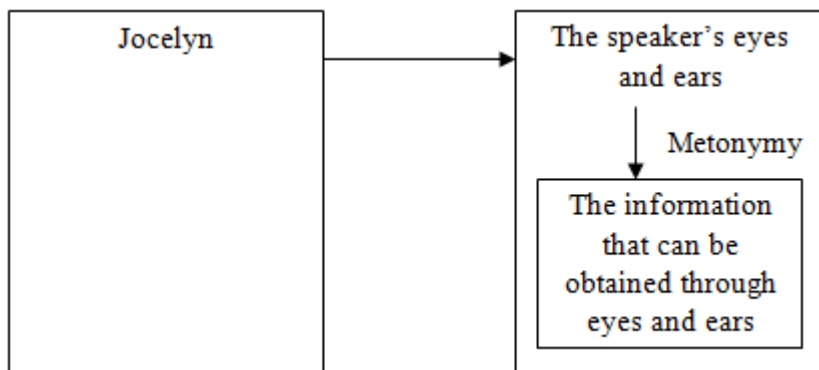


Figure 11. Metonymic reduction of the metaphoric target domain in *Jocelyn is my eyes and ears when she is at Tremorra Towers*

4.3. Metonymic complexes

Metonymic complexes are generally understood as the chained combination of two or more metonymies in which the expanded or reduced domain that results from a first metonymic operation constitutes the point of departure

³⁶ books.google.es/books?isbn=0385114176. York, H. (1976). *Tremorra Towers*. Accessed on December 10, 2012.

for another metonymic shift. We may also refer to this interactional pattern by the term *metonymic chain*.

Metonymic chains were initially put forward in Ruiz de Mendoza (2000a), and further developed in Ruiz de Mendoza and Pérez (2001), which explores the role of metonymy in grammar. In this section we provide an account of the different kinds of metonymic chain that have been identified so far. Our review also enriches already existing accounts of metonymic chains in that it reinforces this theoretical postulate with new examples drawn from naturally-occurring data. Furthermore, the analysis of new data has resulted in the emergence of broader implications that merit attention.

The combination of two (or more) lexical metonymies has been the object of study for several scholars (cf. Ruiz de Mendoza 2000a; Barcelona 2005; Brdar-Szabó and Brdar 2011; among others). Ruiz de Mendoza (2000a) put forward four patterns of metonymic interaction that are operational at the lexical level: (i) double metonymic expansion; (ii) double metonymic reduction; (iii) metonymic reduction plus metonymic expansion; (iv) metonymic expansion plus metonymic reduction. We address and exemplify the different kinds of metonymic chain that are operational at the lexical level (low-level metonymic chains) and further discuss the role of metonymic chains at the grammatical level (high-level metonymic chains). In addition, we propose that certain kinds of metonymic chain may involve the combination of low-level and high-level metonymies.

4.3.1. Double metonymic expansion

This kind of metonymic complex consists in two consecutive operations of domain expansion. In order to illustrate this metonymic combination, let us consider example (28), in the context of a concert of classical music:

- (28) The strings were far below full strength and the wind were out of tune.³⁷

The understanding of the two coordinated clauses that compose this complex sentence relies heavily on an adequate interpretation of the lexical items *strings* and *wind*. The cognitive processes involved in such a task are roughly the same for both nouns. However, there are subtle differences that are worth mentioning, so we analyze each item separately.

In this particular context, the concept ‘strings’ constitutes a relevant element within a broader domain, namely the instrument that has strings. Therefore, the first operation of domain expansion maps onto the instrument that has strings. The second operation of domain expansion affords access to the group of instruments that have strings (violins, cellos, guitars, etc.) and constitute one of the harmonic groups that compose an orchestra.

An important remark needs to be made. Even if this metonymic chain takes place at the lexical level, there are corresponding high-level metonymies that license these processes. In our example, the chain STRINGS FOR STRINGED MUSICAL INSTRUMENT FOR COLLECTION OF STRINGED MUSICAL INSTRUMENTS is licensed by the ascription of the two metonymies involved in the chain to the more generic configurations PART (OF AN OBJECT) FOR

³⁷ books.google.es/books?isbn=1843837188. MacDonald, H. (2012). *Music In 1853: The Biography of a Year*. Accessed on November 19, 2012.

WHOLE (OBJECT) and OBJECT FOR COLLECTION. See figure 12 for a schematization of this pattern.

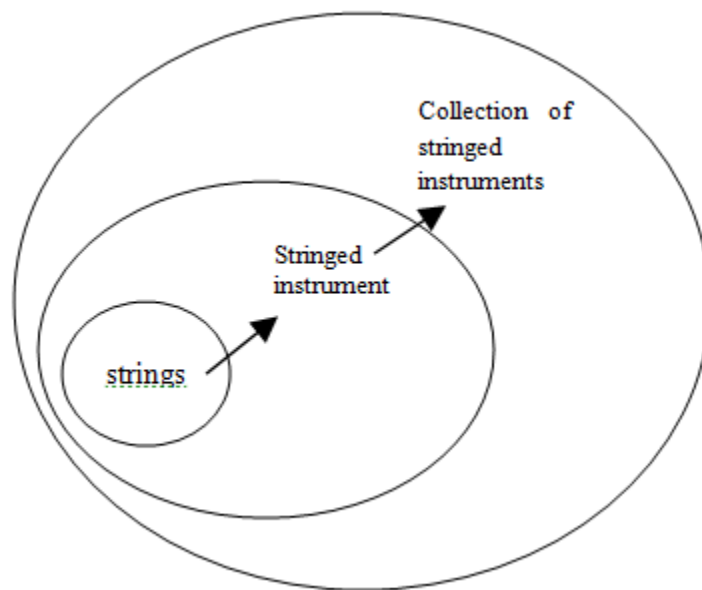


Figure 12. Double metonymic expansion in *The strings were far below full strength*

The interpretation of the second coordinate clause requires a different metonymic strategy. Here, as with the case of the “strings”, the “wind” stands for the brass and woodwinds section of an orchestra, which calls for the OBJECT FOR COLLECTION metonymy. However, “wind” is not part of a musical instrument, but the most prominent part of the means to produce sound with some musical instruments (so-called brass, such as the trumpet, the sax and the French horn, and woodwind instruments, like the oboe, the clarinet and the flute). So the connection between ‘wind’ and ‘instrument’ is based on a metonymic chain, i.e. MEANS FOR ACTION FOR INSTRUMENT (OF THE ACTION), which is then chained to OBJECT FOR COLLECTION. The first two metonymies in the chain are based on domain expansion and reduction respectively; the third metonymy also works on domain expansion.

Another example of double expansion at the lexical level can be found in the interpretation of the name of a social program originally developed in England during World War II, to provide food for people that had lost their homes during the sustained German bombing of the United Kingdom. “Meals on Wheels” is now a service of food delivery given to people that have some kind of disability that prevents them from purchasing or preparing their own meals. Obviously, the name Meals on Wheels makes a rhyme, but the conceptual complexity of the scenario thus invoked is what deserves careful analysis. The interpretation of ‘meals’ is literal, but understanding ‘wheels’ needs some elaboration. The PART FOR WHOLE metonymy licenses the shift from ‘wheels’ to ‘vehicle’. However, this elaboration is still insufficient. Further domain expansion is needed from ‘meals on a vehicle’ to ‘meal delivery by making use of a wheeled vehicle to those who are unable to purchase or prepare their own meals’. That is, part of a scenario (or low-level situational cognitive model) stands for the whole delivery scenario.

Double metonymic expansion may also involve the cooperation of low-level and high-level metonymies. Example (29) below illustrates this point:

- (29) Drew S. Days, who heads the Justice Department's Civil Rights Division.³⁸

The interpretation of ‘head’ takes two steps. First, the head as the uppermost part of the human body stands for a person that is in charge of leading a given organization. This initial metonymic operation, which involves

³⁸ books.google.es/books?isbn=0691025533. Ely, J. H. (1996). *On Constitutional Ground*. Accessed on December 17, 2012.

domain expansion, takes place at the lexical level. This metonymic shift is ultimately grounded in metaphor based on structural resemblance: from a functional perspective, the leader is to the organization as the head is to the body. The head is located above the chest, which gives it a visually prominent uppermost position with respect to the body. At the same time, the head contains the brain, which has the ability to think and to control the behavioral aspects of the human being, including bodily motion and posture. In the same way, a leader has a prominent position within social structure (e.g. an institution), which is represented visually in terms of the (likewise prominent) uppermost position in hierarchical tree structure. Additionally, leaders become such on the basis of their ability to influence other people. Such a correlation of functional and locational properties underlies the metonymic interpretation of ‘head’ as ‘leader’.

There is a second metonymic shift that licenses the process of categorial conversion from ‘head’ as a noun to ‘head’ as a verb. This is another domain-expansion metonymic operation; in it the leader as the agent that performs the action stands for the whole action of leading. As the reader may have noted, this process of categorial conversion takes place at the grammatical level, that is, the AGENT FOR ACTION metonymy is a high-level metonymy (cf. Ruiz de Mendoza and Pérez, 2001). Therefore, low-level and high-level metonymies intertwine in the interpretation of ‘head’ in this sentence, as shown, in figure 13 below.

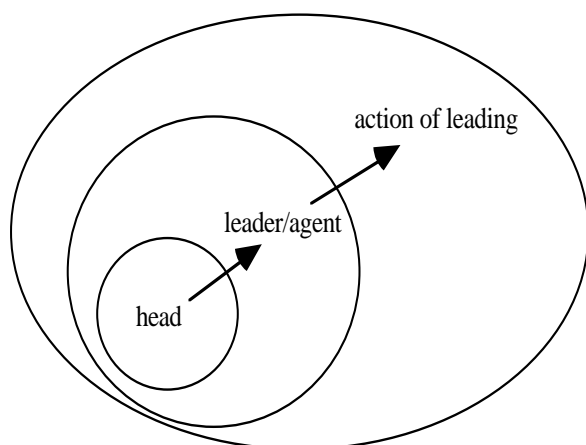


Figure 13. Low and high-level double metonymic expansion in ‘head’ as ‘leading’

4.3.2. Double metonymic reduction

This pattern of metonymic interaction involves two consecutive processes of domain highlighting through two consecutive operations of metonymic reduction. Ruiz de Mendoza (2000a) illustrates this metonymic combination with the expression *Wall Street is in panic*. The initial domain is ‘Wall Street’ as the well-known Lower Manhattan street which is home to the New York Stock Exchange. The first metonymic operation, which has given rise to a highly conventionalized metonymy, highlights the subdomain that is relevant for interpretation, in this case, the financial institution that is located in Wall Street. A second domain reduction operation from the institution to the people that use its services (e.g. stock brokers and traders) is then cued by the predicate ‘is in panic’ in order to endow the sentence with conceptual consistency. Figure 14 depicts the essential features of this metonymic chain.

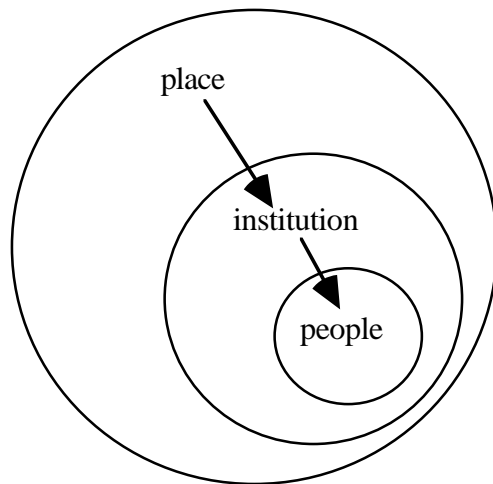


Figure 14. Double metonymic reduction in *Wall Street is in panic*

This metonymic interactional process takes place at the lexical level: PLACE FOR INSTITUTION and INSTITUTION FOR PEOPLE ASSOCIATED WITH THE INSTITUTION. The same can be said about the sentence in example (30):

(30) He was wearing levis [sic] and a red jacket.³⁹

In this case, the matrix domain is constituted by the short form of Levi Strauss, the founder of the first company to manufacture blue jeans. By virtue of an operation of metonymic reduction, we highlight the aspect of Mr. Strauss' life that is relevant for interpretation, that is, the fact that he founded the company that bears his name. The second process of metonymic reduction makes the company stand for the popular clothing item for which the company is best known. The metonymic chain is then FOUNDER FOR COMPANY and COMPANY FOR ARTICLE OF CLOTHING.

³⁹<http://law.justia.com/cases/california/calapp2d/270/817.html>. Accessed on November 23, 2012.

It should be noted that different linguistic contexts may call for slight modifications in the second shift. Let us consider, for instance, the sentence *usually wears Levis*. When we say that a person usually wears Levis, we are not referring to a particular garment, but rather to a whole range of articles of clothing produced by the Levi Strauss company (jeans, shirts, jackets, etc.). In any case, we want to suggest that present day speakers are not likely to activate the whole metonymic process for interpretation. In our view, it is only the second shift that remains active in most speakers' minds. Except for the case of knowledgeable speakers, the passing of time has erased the connection between the company and its founder. Therefore, we could talk about a single metonymic operation that initially constituted a metonymic chain together with a previous shift that is no longer part of most speaker's conceptual background. We have captured this process in figure 15. The shadowed part represents the part of the metonymic complex that gets activated by speakers in the interpretation of this expression.

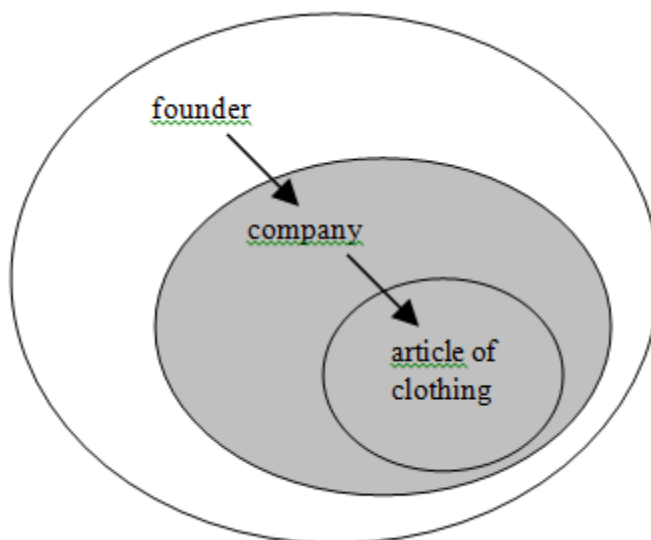


Figure 15. Metonymic complex in *He was wearing levis and a red jacket*

Our searches have revealed that there are many other cases in which the name of the founder of a given company is used to refer to the objects manufactured by such company. However, socio-cultural factors determine the pervasiveness of the activity of certain metonymic shifts over others. We have noted that in the case of prestigious fashion designers, language users seem to perform this cognitive operation in slightly different ways. In this respect, let us analyze example (31):

- (31) Diana, Princess of Wales wore Manolos to the Serpentine Gallery in 1994.⁴⁰

In this sentence, the word *Manolos* makes reference to the shoes sold by the company founded by Manolo Blahnik. Therefore, two reduction metonymies are required: FOUNDER FOR COMPANY and COMPANY FOR PRODUCT. However, speakers do not seem to acknowledge the company as the seller of the product. Rather, they directly associate the famous designer with the product they purchase. The same applies to other famous companies that have been founded by and take the name of a prestigious designer (i.e. Louis Vuitton, Chanel, Gianni Versace, Christian Dior, etc.). Thus, speakers seem to perform one single metonymic shift that makes the name of the designer stand for the designed article.

Similar considerations apply to some cases of lexical polysemy. Consider the use of the word *cotton* in the sentence *She wears cotton*. The original cognitive mechanism involved in the interpretation of this word in this particular linguistic context involves the cooperation of three

⁴⁰<http://www.telegraph.co.uk/news/features/9716072/Manolo-Blahnik-Raquel-Welch-presented-me-with-her-foot-on-a-plate.html>. Accessed on December 17, 2012.

metonymic operations: COTTON PLANT FOR COTTON WOOL (reduction), COTTON WOOL FOR COTTON CLOTH (expansion) and COTTON CLOTH FOR COTTON CLOTHING (expansion). However, as is evident from the lexicographical treatment of the word *cotton*, speakers are probably unaware of most of these metonymic extensions. Figure 16 captures this complex metonymic process.

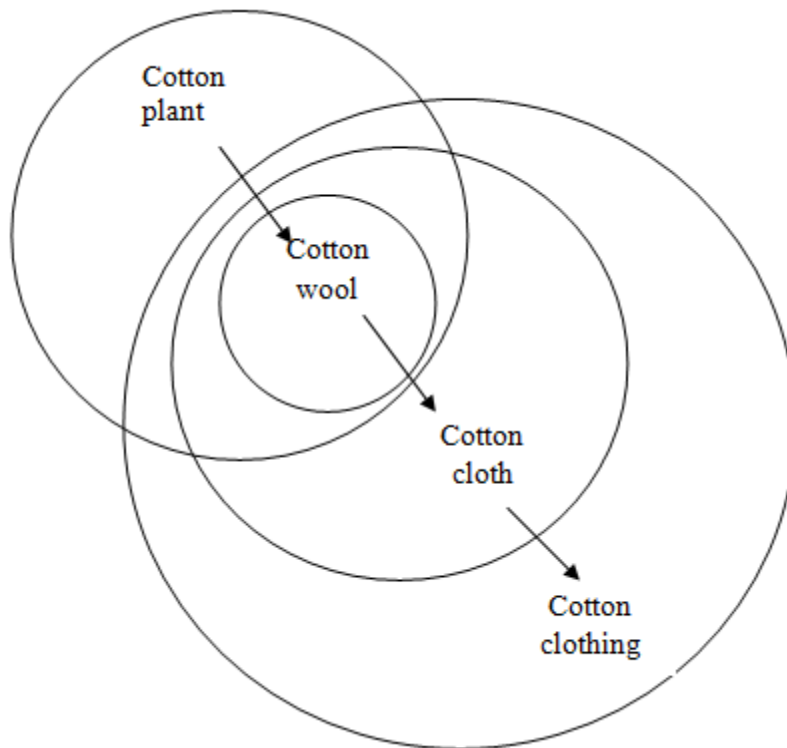


Figure 16. Metonymic chain in *She wears cotton*

4.3.3. Metonymic reduction plus metonymic expansion

This metonymic combination consists in highlighting one of the elements of a conceptual domain and subsequently expanding this highlighted part onto a different (yet related) broader domain. Therefore, two conceptual domains have some conceptual material in common, which allows us to first give

prominence to part of the initial domain to then expand it onto the final one.

A well-known exemplification of this pattern is provided by example (32):

(32) Shakespeare is on the top shelf.

The final interpretation of this statement needs two subsequent metonymic shifts. In the first, we need to make Shakespeare as a writer stand for the collection of poems and plays he wrote, that is, his work. This metonymic shift requires a reduction operation, that is, we need to highlight one aspect of our knowledge about Shakespeare, namely his writings, within the broader domain of his life. The second metonymic shift is triggered by the linguistic expression on the basis of a cueing operation. The sentence captures the indication of the particular location in which we can find whatever target item is related to 'Shakespeare'. A coherent option is a book (or any other physical medium of presentation) containing all or part of Shakespeare's literary work. We then need an operation of metonymic expansion that makes the works of Shakespeare stand for the book in which those poems or plays are collected. We want to draw the reader's attention to the fact that this metonymic shift finds its basis in a metaphor by virtue of which we see books as containers of ideas. This metaphoric motivation is a pre-requisite for the operation of metonymic expansion CONTENTS FOR CONTAINER. A different linguistic context like the one provided by the sentence *Shakespeare is easy to read*, would make the second metonymic shift pointless, because the property of being easy to read can only be

attributed to Shakespeare's work, not to a particular format nor other aspects of what we know about Shakespeare.

This pattern of metonymic combination that underlies the interpretation of the sentence *Shakespeare is on the top shelf* may be labeled AUTHOR FOR WORK FOR MEDIUM/FORMAT, and is illustrated in figure 17 below:

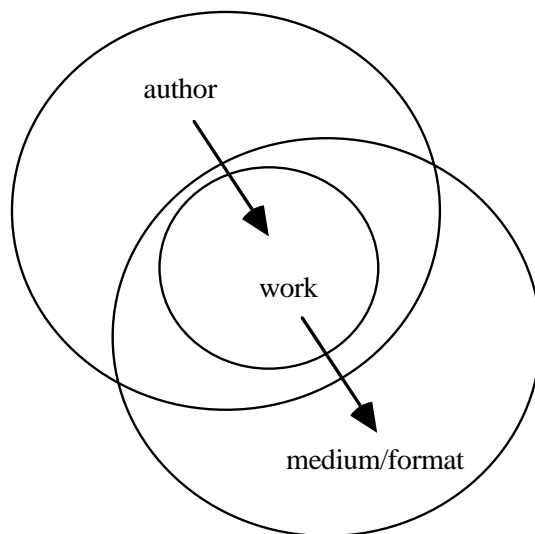


Figure 17. Metonymic reduction plus metonymic expansion in *Shakespeare is on the top shelf*

Before we deal with our next example in terms of metonymic chains, some preliminary discussion is needed in relation to the TIME IS SPACE metaphor. The understanding of time in terms of space discussed in Lakoff (1990) has been widely acknowledged by cognitive linguists (cf. Lakoff and Johnson 1999, Evans 2004).⁴¹ Expressions like *Christmas is approaching* or *Better days will come* are only two of a wide range of expressions that make reference to temporal events by using spatial notions. However, the

⁴¹ See also the controversy arising from empirical research in Boroditsky 2000, 2001; Casasanto and Boroditsky 2008, Boroditsky, Fuhrman, and McCormick 2011, and also in Chen 2007 and in Galton 2011).

existence of this conceptual metaphor has been put into question. For example, Boroditsky (2000) argues that, while it is true that we use the same metaphoric expressions to talk about time and space, their high frequency of occurrence has resulted in its fixed storage, thus preventing speakers from constructing the metaphor each time they need to reason and talk about time. Other psycholinguistic experiments have been conducted in this respect with similar conclusions in relation to the use of spatial and temporal prepositions (cf. Kemmerer 2005). Along these lines, Cappelle (2009) advocates for the lack of metaphorical links between aspectual and temporal meaning (on the one hand) and spatial meaning (on the other) in verbal particles with aspectual meaning. However, more recent research seems to support the initial assumption about the pervasiveness of spatial notions not only in ways of speaking, but also in reasoning about time. Bergen's (2012) standpoint supports this initial claim by providing a summary of Casasanto and Boroditsky's (2008) experiment, whose results show that people do use space to make judgments about time even when language is not involved. Pérez (2001) makes use of the concept "time" and different metaphors related to time (TIME IS SPACE, TIME IS AN OBJECT, TIME IS A CONTAINER, TIME IS A FORCE) in order to illustrate the existence of metaphorical cluster models, which complements and refines Lakoff's (1987a) initial notion of propositional cluster model. Her approach thus assumes the existence of the TIME IS SPACE metaphor and explores its participation in the metaphorical cluster model of time.

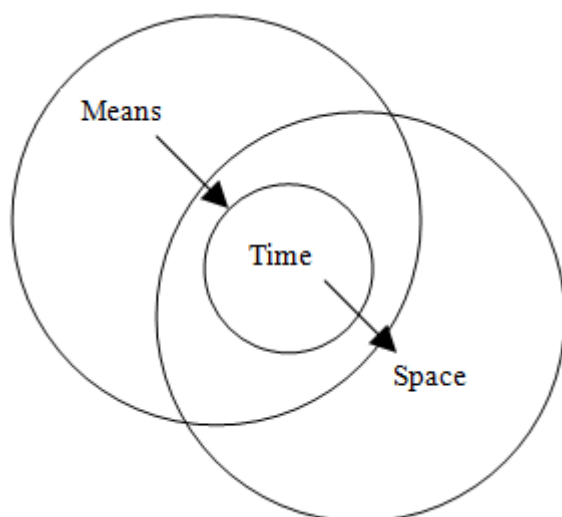
In his discussion about metaphorical language and understanding in relation to embodied simulation, Bergen (2012) not only supports the

validity of the TIME IS SPACE metaphor both at linguistic and conceptual levels, but also discards the existence of the converse SPACE IS TIME metaphor. Stockwell's (1999) revision of Lakoff's (1990) *Invariance Hypothesis* takes these two metaphors to illustrate his argument against the unidirectionality attributed to metaphors as a side effect of this hypothesis (we may reason about love in terms of a journey, but not the other way around). This author claims that the metaphor SPACE IS TIME holds for examples like *Liverpool is three days' sailing from here*, thus showing that a reversal of the initial conceptual metaphor is possible. Bergen's (2012) point of view in this regard is that most of the examples of this kind are meant to be literal, that is, they do not intend to provide information about distance. This author argues that, even if the meaning of a sentence of this kind is not literal, it would not be metaphorical either (Bergen 2012, p. 274, ft. 20). Our position parallels Bergen's claim in the analysis of examples such as *Madrid is four ours from here* and the like as non-metaphorical. Nevertheless, we also discard the option of taking the interpretation of this sentence as literal. It is our contention that, in this particular example, "four hours" stands for 'the distance that can be covered in four hours'. There is no indication that we are thinking of space as if it were time, but rather that we use time to afford access to distance. Therefore, we have an operation of metonymic expansion. This situation is different from the classical examples of TIME IS SPACE. If we say *Christmas is approaching* we are thinking of the Christmas time frame as if it were a moving object. If we say *We were right in time*, we think of time as three-dimensional space or a bounded region in space holding the protagonists in its interior; and so on.

Having cleared our position about the TIME IS SPACE metaphor and having put forward the possibility of a metonymic relation holding between space and time, let us pay attention to example (33):

- (33) I was a walk away from the gym, from my school and a train away from other cities and a plane away from other countries.⁴²

In our view, the interpretation of this sentence requires the combination of two consecutive processes of metonymic reduction and expansion. The operation of metonymic reduction underlies the shift from means of transport (walking, a train, a plane) to the time that it takes to reach destination by using such a means of transport. In turn, the operation of metonymic expansion maps time onto the space (or distance) that may be covered in that time. The high-level metonymies that underlie this cognitive process are MEANS FOR TIME and TIME FOR SPACE. See figure 18 for illustration of this metonymic combination.



⁴²<http://selflovewarrior.com/2012/08/16/stigmas-and-judgements/>. Accessed on November 26, 2012.

Figure 18. Metonymic reduction plus metonymic expansion in *I was a walk away from the gym*

4.3.4. Metonymic expansion plus metonymic reduction

Let us now consider the use of the word *glass* in example (34) below:

(34) After three glasses she was feeling slightly drunk.⁴³

Glass primarily refers to hard, more or less transparent material. The notion of ‘material’ is then metonymically expanded onto that of ‘an object made of glass’, which, in turn, stands for ‘the contents of such an object’. The first metonymic operation of expansion is then MATERIAL FOR OBJECT; the subsequent operation of metonymic domain reduction is CONTAINER FOR CONTENTS. See figure 19 for schematization.

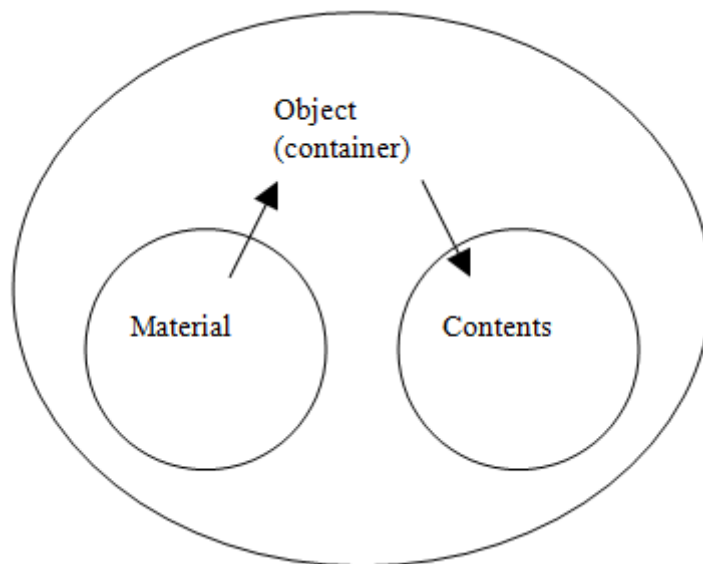


Figure 19. Metonymic expansion plus metonymic reduction in *glass*

⁴³ books.google.es/books?isbn=0843922680. Clarke, E. (1985). *Options*. Accessed on November 19, 2012.

Not all double-metonymies based on the word *glass* work in this way. For example, in the sentence *She wears glasses*, the second operation is not one of metonymic reduction but rather one of metonymic expansion. Once we have afforded access to the domain of glass as the lenses made of glass, we need another operation of metonymic expansion, namely the PART FOR WHOLE metonymy, because the two glasses are (together with the frame), part of the spectacles. Therefore, the analysis of *glass* in this sentence falls within the category of double metonymic expansion above.

Our next example has been extracted from the script of the movie *21 Jump Street*. We proceed to analyze the interpretation of ‘finger’ in the following sentence:

(35) Let’s just finger each other’s mouths

The metonymic chain that underlies the interpretation of example (35) involves the combination of low-level and high-level elements. In the first place, ‘finger’, which is a low-level concept, needs to be recognized as an instrument of the action of using one’s fingers in a certain way as defined by the scenario that it invokes (causing someone to puke by sticking one’s fingers into his mouth). So, we start off with a low-level scenario from which we draw high-level structure (the instrument-action relationship) in order to perform the categorial conversion of ‘finger’. Then, we have the implication that the person whose mouth is thus “fingered” will vomit. This implication arises from the low-level scenario. The situation is therefore as follows:

1. Invoke the low-level scenario where two people use their fingers to cause each other to vomit.
2. On the basis of (1) recognize the high-level structure of ‘finger’ as an instrument to cause another person to perform the action of vomiting.
3. Perform the high-level metonymic shift (INSTRUMENT FOR ACTION) that underlies the conversion from “finger” as noun to “finger” as verb.
4. On the basis of (1) again, through ACTION FOR RESULT, obtain the target meaning that the two people vomited.

Figure 20 sketches this process.

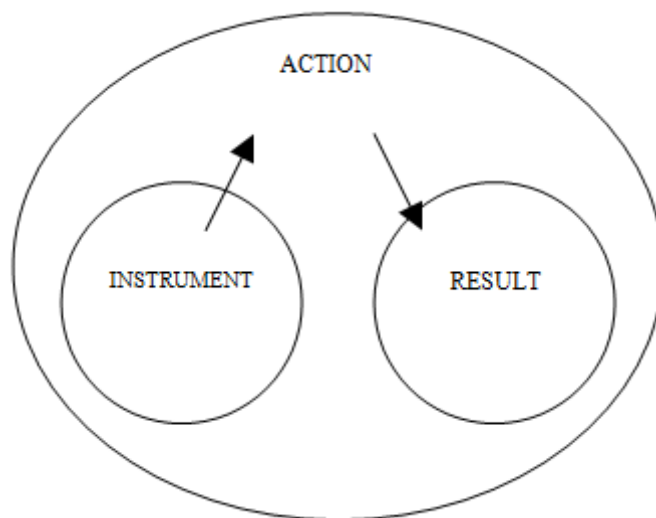


Figure 20. Metonymic expansion plus metonymic reduction in *Let’s just finger each other’s mouths*

The use of the word *mouth* in this sentence is also metonymic: what makes a person throw up is not the sticking of the finger into the mouth, but rather into the throat. It may be noted that in this example the throat is an active zone (i.e. the relevant facet of meaning in terms of a domain) of the profiled

(i.e. designated) concept ‘mouth’, following Langacker (1987, 2009). Since there is discrepancy between the profiled object and its active zone, we have the perfect conditions for metonymy: the notion of mouth becomes a reference point for its active zone.

We now proceed to analyze another example of metonymic expansion plus metonymic reduction in which low-level and high-level metonymies cooperate. We want to focus our attention on the concept “hold-ups” as used in example (36):

- (36) I don't like wearing hold-ups. My thighs splurge out where the hold-ups stop.⁴⁴

From the linguistic context and world knowledge, we assume that “hold-ups” are the kind of stockings that get stuck to the upper thighs by means of silicone bands so they will not fall down. The naming of this garment involves a double metonymy that we proceed to explain. The term *hold-ups* invokes a complex event that may be subdivided into two sub-events. Sub-event 1 involves the action of putting the stockings on. Sub-event 2 contains the action of holding the stocking up by whatever means (with the hands, with a garter belt, silicone bands, etc.). Sub-event 2 is explicit in the linguistic expression, and affords access to the whole macro-event by virtue of an expansion operation that results in a conceptual shift from the lexical level (‘holding something up’) to the high-level (the whole action that comprises sub-events 1 and 2). Once the macro-event of the complex action has been accessed, an operation of metonymic reduction is needed in order

⁴⁴ books.google.es/books?isbn=0330505475. Holmes, L.-A. (2009). *50 Ways to Find a Lover*. Accessed on December 3, 2012.

to comply with the necessary process of categorial conversion from verb to noun, thus making the action stand for the object. This process is represented in figure 21.

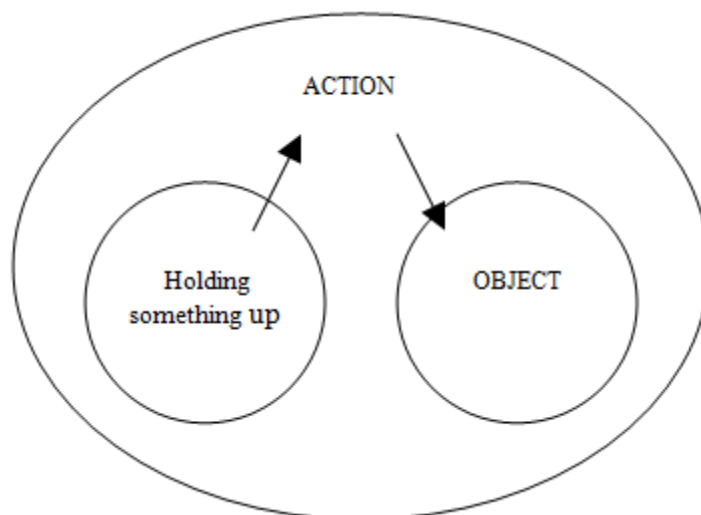


Figure 21. Metonymic expansion plus metonymic reduction in *hold-ups*

Our following example can be considered to be metonymic in two different ways. If someone comes up to us with the question *Have you got a light?*, our interpretation of this direct question must take into account both lexical and illocutionary factors (see Chapter 7, section 1 for an account of the role of metonymic chains at the implicational and illocutionary levels).

At the lexical level, the word *light* needs to undergo two consecutive metonymic shifts. The first one consists in an expansion operation by virtue of which the light stands for the fire that causes light to exist. This is the EFFECT FOR CAUSE metonymy. The following metonymic operation is one of domain reduction. On the basis of this operation, the fire comes to stand for the means by which we obtain fire (a lighter, a match, etc.). The metonymy underlying this shift may be labeled A (CHEMICAL) CHANGE FOR MEANS OF PRODUCING THE (CHEMICAL) CHANGE. This metonymic chain needs to be

complemented by another metonymy that licenses the treatment of ‘light’ as a countable noun. Although light is electromagnetic radiation, the human mind treats it in terms of the way in which it is perceived; for this reason light is metaphorically seen as a substance that covers objects as it illuminates them or that fills in empty space; e.g. *The whole tower was covered with light, Light filled the room for a few seconds*. So, light is treated metaphorically as a substance and then the metaphorical material of which this substance is “made” is further treated as an object. This metonymic sequence licenses the use of the “object” to stand for the ‘material’ that it is figuratively made of. The OBJECT FOR MATERIAL metonymy has been studied in Peña and Ruiz de Mendoza (2009).

We have found that this pattern of metonymic combination (expansion plus reduction) may also be at work purely at high levels of meaning representation. In other words, we have cases of two grammatical metonymies in interaction. The analysis of the cognitive mechanisms required for the interpretation of the middle and instrument-subject constructions illustrates this point (cf. Ruiz de Mendoza 2007, 2008). Different instantiations of this construction call for different variants of the same metonymic combination. Compare sentences (37) and (38) below:

(37) Does the bread cut well or does it cling to the blade?⁴⁵

(38) Persil washes whiter.⁴⁶

⁴⁵https://www.youtube.com/all_comments?v=lwtEE7N-Cik. Accessed on January 10, 2013.

⁴⁶This is a very popular 1970s TV commercial slogan that can still be accessed from many web sites (e.g. http://www.tellyads.com/show_movie_vintage.php?filename=VA0289). Accessed on January 10, 2013.

Example (37) is a straightforward example of middle construction. The middle construction has received much attention in formal and functional linguistics over the past three decades. The analyses vary but there are some points where linguists from different persuasions agree: middle constructions resemble passives (cf. *The bread was cut thin*) since the agent is not mentioned and the semantic object is placed in a prominent syntactic-subject position; they further focus on the ability of the semantic object to influence the occurrence of the process (cf. Heyvaert 2003, p. 132). Such ability can be evaluated, as in *Does the bread cut well*. The instrument-subject construction is very close to the middle construction, as can be seen from example (38): the agent is left implicit thus losing relevance, while a non-agentive element, in this case the instrument, is given a prominent syntactic-subject position. Then, as with the object of the middle construction, the instrument-subject construction draws our attention to the ability of the instrument to make the action possible. This ability can be evaluated too. The difference with the middle construction is found in the more active involvement of the instrument over the object in the action. This is due to the fact that since actions are performed with the help of instruments, our minds associate them more closely with the notion of agency, which makes them amenable to holding a subject-like role.

This succinct analysis of what is otherwise a complex phenomenon (see, for example, Kemmer 1993; Radden and Dirven 2007, pp. 289–291; Ruiz de Mendoza 2008) is enough to reveal the basic (and at the same time subtly complex) metonymic nature of the middle and instrument-subject constructions. In the case of the idea of ‘bread cutting well’, since bread

cannot perform the action of cutting, there is a discrepancy between the syntactic subject and the verb that needs to be solved; this discrepancy cues for a solution based on what we actually know about bread and cutting, i.e. one where bread is the object of cutting. In metonymic terms, the object stands for an action carried out by a real agent with an instrument, which can sometimes be made explicit if relevant from the perspective of information focalization needs (cf. *Does that bread cut better with the big or with the small knife?*). This metonymy involves domain expansion. But postulating one single metonymy does not differentiate between these and the inchoative construction, which is syntactically and semantically similar, e.g. *The bread wouldn't cut*, but whose result is not assessed (#*The bread wouldn't cut well*). The middle and instrument-subject constructions highlight the result of the action, which involves a second metonymic shift based on domain reduction: the action stands for the result of the action. Note that the evaluative element can instead apply to the action itself, as in *The bread cut easily*, which can be paraphrased as *It was easy to cut the bread*. The same kind of paraphrase cannot be made in the case of an assessed result: **It was well to cut the bread*. This difference is a matter of focal prominence on the process or the result part of the double metonymy, as illustrated in figure 22 below.

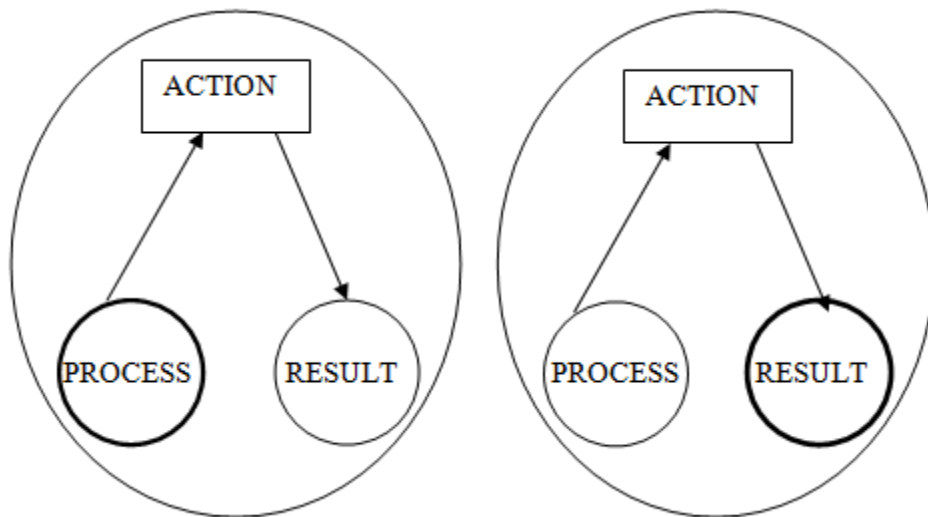


Figure 22. Highlighting in PROCESS FOR RESULT FOR ACTION

To conclude this section, we want to call for a word of caution when dealing with the thorny issue of metonymic chaining. Metonymic chains, like single metonymies, are a matter of perspective rather than reasoning. What may appear to be a case of double metonymy can, on closer inspection, be better explained in terms of a combination of metaphor and metonymy (cf. section 4.2 above). For example, upon examining metonymic chains in lexical meaning, Geeraerts (2002) suggests that it is possible to reverse the order in which two chained metonymies appear with no significant alteration in the final meaning. Geeraerts (2002) proposes the Dutch word *zultkop* as an illustration of such a claim. The literal meaning of this word is ‘head filled with brawn’. This expression is figuratively used to refer to stupid people (Geeraerts 2002, p. 461). This author proposes two routes to access this interpretation: (i) we first perform a metonymic shift from the literal meaning of the linguistic expression (‘head filled with brawn’) to ‘stupid head’ (a head that has brawn instead of a brain must be stupid: EFFECT-CAUSE metonymy); then, on the basis of the PART FOR WHOLE metonymy the

stupid head stands for the stupid person; (ii) the PART FOR WHOLE metonymy operates in the first place, thereby affording access to ‘a person with a head full of brawn’; a second metonymy then takes us from ‘a person with a head full of brawn’ to ‘a stupid person’. The problem with this account is that it does not explain why having a head “filled with brawn” is taken by speakers to stand for ‘being stupid’. The metonymic processes postulated above, by themselves, are insufficient to actually account for the meaning impact of the lexical item. However, if we postulate the existence of a metaphor from ‘brawn’ to ‘brain matter’, this problem is resolved. Since ‘brain’ stands for ‘intelligence’, having ‘brawn’ (which is matter physically resembling brain matter) instead of actual ‘brain matter’ is tantamount to having no intelligence.

4.4. Other patterns of metaphor-metonymy combinations

This section further illustrates the complexity of the interaction patterns involving metaphor and metonymy.

4.4.1. Metonymic chains within metaphoric mappings

4.4.1.1. Double metonymic reduction of the metaphorical source domain.

The patterns of interaction discussed in the previous sections can have subcases that arise from specific communicative needs. One subcase is exemplified in (39) below:

(39) Jan was the life and soul of the party.⁴⁷

The expression *life and soul* is used to refer to the type of person who enjoys social occasions and makes them more enjoyable to other people. Figure 23 below represents the interaction pattern underlying this sentence, which is an elaboration of the more basic case of metonymic domain reduction of the metaphoric source. In this elaboration, domain reduction takes place on two stages: the first stage maps a person's 'life and soul' onto the shared quintessential properties of these two conjoined concepts, i.e. their ability to make a person be and feel alive, which is stereotypically manifested in the person's lively behavior. This mapping is but an instantiation of the metonymy AN ENTITY FOR ONE OF ITS (HIGHLIGHTED) PROPERTIES (cf. 'America' for 'American lifestyle' in *There is a lot of America in what she does*)⁴⁸, or ENTITY FOR PROPERTY for short. However, the target domain of the metaphor, where we have a cheerful person that enjoys and makes others enjoy the party, requires one further element in the metaphoric source: this element can be obtained metonymically by further mapping the notion of lively behavior onto the likely effects of such behavior on people (make them feel alive too). This happens in application of the metonymy CAUSE FOR EFFECT, where the 'cause' element is the target of the ENTITY FOR PROPERTY metonymy. Therefore, in this example of metaphor-metonymy interaction, the target of the metaphor has a person, Jim, who is (probably) the most cheerful merrymaker at a party where he is capable of making

⁴⁷ books.google.es/books?isbn=1426886624. Ross, K. (2010). *The Night of the Wedding*. Accessed on May 15, 2013.

⁴⁸ Ruiz de Mendoza and Pérez (2001, p. 337); see also chapter 5, section 2.2 for a discussion of this example as an illustration of selection.

other people merry too. The source, by virtue of two chained domain-reduction metonymies, provides a suitable match for these target elements: it contains a person whose lively behavior makes other people feel similarly alive. The source is not about merrymaking, but about life and energy. The target is about a social event where people look for entertainment, which they derive from a person whose energy is understood in terms of the energy that makes a person feel alive.

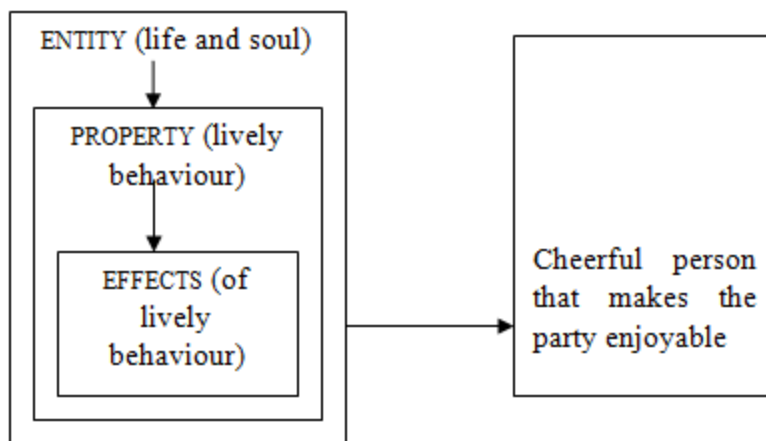


Figure 23. Double metonymic reduction of the metaphorical source domain in *Jim is the life and soul of the party*

4.4.1.2. Double metonymic reduction of the metaphorical target domain.

This is the case, for instance, of the metaphorical expression *lay one's eyes on*, as in the sentence (40):

(40) I'm crazy about you, Abby, since the first time *I laid eyes on* you.⁴⁹

In this expression, the action of gazing at someone, which is the metaphoric target, is seen in terms of putting an object on a surface, which is the source.

⁴⁹ books.google.es/books?isbn=1463432208. Sterling, S. (2011). *When I look into your eyes*. Accessed on November 27, 2012.

Two comments are in order. One is about the use of a ‘laying objects’ scenario in the source. Laying an object somewhere involves a degree of control of where and how the object is placed, i.e. the agent controls how the action takes place in order to achieve the desired result. This kind of source domain helps to convey the idea that the speaker does more than simply look at the addressee: the speaker purposefully fixes his attention on the addressee. Our second comment is about the target, where the speaker’s gaze is put in correspondence with the object in the source. The gaze is metonymically related to the eye, which is prominent in the domain of vision as the organ that allows us to receive a visual input that will then be processed by the brain. Through the metonymic chain INSTRUMENT FOR ACTION FOR RESULT, the eye thus stands for the action of seeing, which, in turn, stands for the result of the action (attention to an object is paid by using one’s eyes to see it). This metonymic complex combines a source-in-target (or domain-expansion) metonymy (INSTRUMENT FOR ACTION) with a target-in-source (or domain-reduction) one (ACTION FOR RESULT). As a result of these two converse operations, we focus our attention on the role of the speaker’s eyes in gazing and on its observational component. The metaphor, meanwhile, supplies the implication that the visual input is the desired one. This interaction pattern is captured in figure 24.

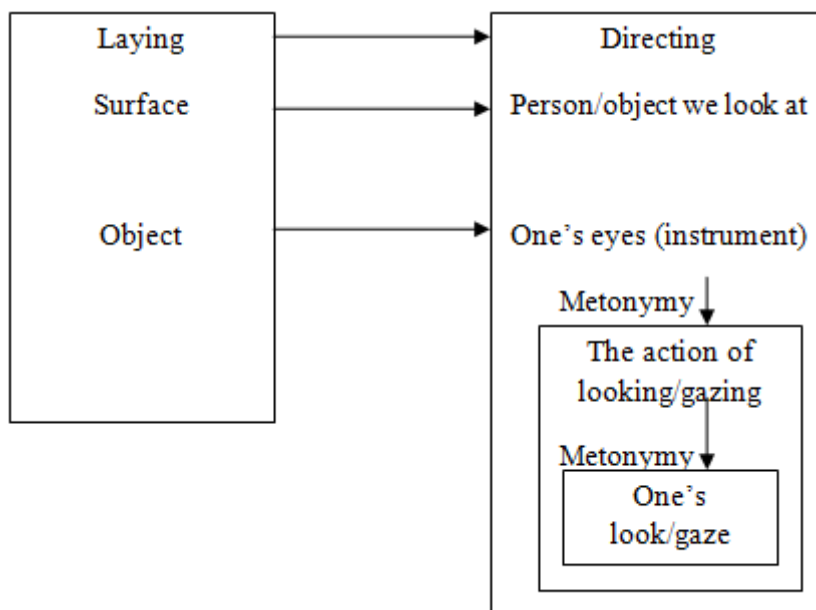


Figure 24. Double metonymic reduction of one of the metaphoric correspondences in the target domain in *the first time I laid eyes on you*

4.4.2. Metonymic developments within metaphoric complexes

Previous studies have found metonymic elaborations to be active in the target domain of double-source metaphoric amalgams and within one of the domains of a metaphoric chain (cf. Ruiz de Mendoza and Galera 2011, 2012). The expressions in (41) and (42) constitute examples of these interactions respectively. Let us analyze each of them in turn.

(41) I'm so shocked I burst into tears.⁵⁰

(42) No wonder she's fed up with him.⁵¹

Saying that someone bursts into tears means that the person has experienced a sudden change of state that has led him/her to be emotionally damaged and

⁵⁰ books.google.es/books?isbn=1408910772. Tucker, S. (2009). *The Younger Man*. Accessed on May 15, 2013.

⁵¹ books.google.es/books?isbn=1848946619. King, S. (2010). *Shetland Diaries*. Accessed on May 15, 2013.

cry. Two complementary metaphorical conceptualizations of this change of state are required in order to reach the final interpretation. On the one hand, the change of state needs also to be seen as a physical damage. On the other hand, we need to understand a change of state as if it were motion. The first reconstrual is given by the lexical item *burst*, while the second arises from the construction. The two metaphors that cooperate in the interpretation of this expression are EMOTIONAL DAMAGE IS PHYSICAL DAMAGE and EMOTIONAL DAMAGE IS MOTION. In this metaphorical amalgam, one of the source domains contains fragmentation resulting from physical damage; the outcome of this process of fragmentation maps onto tears in the target, which are the result of emotional damage. A metonymic operation of expansion makes these symptoms stand for the cause, that is, the final state in which a person has been emotionally damaged. This final state is also connected to the metaphorical source domain of motion in such a way that the final state is conceptualized as the destination of motion. Table 8 schematizes this analysis.

Table 8. Metonymic reduction of the target domain within a double-source metaphoric amalgam in *burst into tears*

Source → (bursting)	Target (change of state)	← Source (change of location)
Process of suffering physical damage (bursting)	Process of experiencing emotional damage	Motion
	Initial state (no emotional damage)	Source of motion

	Final state (emotional damage)	Destination of motion
Broken pieces	Symptoms of emotional damage (tears) ↑ Metonymy	

The interpretation of the expression *to be fed up with someone/something* in (42) works differently. The linguistic expression provides the first metaphoric source domain. For the first mapping to take place, two preliminary metaphors are required: more is up and the human body is a container. These underlying basic metaphors license the first metaphoric mapping from being fed up to being full with food. This first metaphorical target domain needs to be further elaborated through an operation of metonymic expansion by virtue of which ‘being filled with food’ stands for a more complex situation in which a person cannot take any more food or he will throw up. This expanded metaphorical target domain constitutes the source of a subsequent metaphorical mapping whose target domain is a situation in which a person cannot stand a given situation/someone else’s behavior anymore. This complex pattern is illustrated in figure 25.

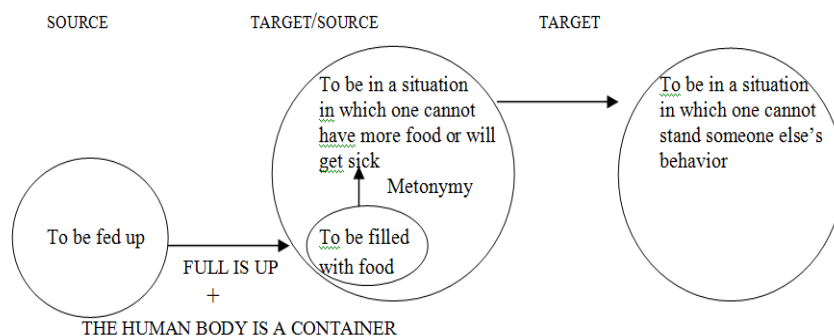


Figure 25. Metonymic expansion of one of the metaphoric domains within a metaphoric chain in *to be fed up*

5. Constraining principles on cognitive operations

The activity of cognitive operations is regulated by a set of principles that limit their scope. These constraining principles may be classified into two broad categories: (i) those that regulate the activity of formal operations; and (ii) those that regulate the activity of content operations. In general terms, the former set the conditions for the activation, selection and integration of information, while the latter regulate the ways in which that information is used in meaning construction.

5.1. Constraints on formal operations

5.1.1. Principle of Conceptual Consistency

This principle underlies the fundamental tenets of Fillmore's (1982) Frame Semantics as well as the *profile-base* dichotomy and the notion of *active zone* in Cognitive Grammar (Langacker 1987, 1999). However, an explicit formulation of this principle has not yet been made and, therefore, its potential connection with other principles regulating cognitive activity has not been explored. The Principle of Conceptual Consistency establishes that the (linguistically or contextually) cued activation of information involves a selection of conceptual material that is consistent with the cueing mechanism. For instance, the information related to the concept 'cute white

rabbit' as invoked in the sentence *He gave her a cute white rabbit* differs from the information related to the same concept that gets activated in *He saw a cute white rabbit*. In the first sentence, the relevant information of the concept denoted by the expression *cute white rabbit* is cued by the context created by the verb 'give'. The Principle of Conceptual Consistency leads us to focus our attention on the wishes of the giver to please the receiver of the present; the fact that the rabbit is "cute" and "white" is consistent with this conceptual activation. By contrast, the second sentence highlights the speaker's feelings of admiration or surprise about the rabbit that someone else saw. We need to bear in mind that the Principle of Conceptual Consistency underlies our ability to pin down the profile (the denotation) and the base (or context of activation) of a concept, as well as how we determine its active zone. In the first example, *a cute white rabbit* designates (or profiles) a rabbit as a present, while, in the second example, the rabbit is profiled as a delightful/surprising entity. Both perspectives arise from the relation of each profile with its base. The active zone is the same as the profile in the first sentence, that is, the rabbit as a present. In the second example, the active zone is the rabbit's white fur, which is the feature that draws the speaker's attention.

5.1.2. *Conceptual Combination Principle*

According to this principle, the generic structure of one of the schemas that participate in an operation of conceptual interaction provides the skeleton or basic structure for the projection or combination of other schemas. When a conceptual construct becomes part of any other such structure, the former

becomes subsidiary to the latter regardless of the intrinsic degree of genericity of the former. Consider, for instance, the sentence *Sleeping beauty ate an apple that led her into a comma*. The interpretation of this sentence requires the incorporation of the container image schema into the path image schema whereby the container constitutes the end of the path. In this process, the container schema, which is in principle independent of the path schema, becomes subsidiary to the latter (cf. Peña 2008, for a discussion of dependency relationships among image schemas).

5.2. *Constraints on content operations*

5.2.1. *Extended Invariance Principle*

The Invariance Principle, as originally put forward by Lakoff (1990, 1993), states that the topological relations that hold between the elements of a metaphorical target domain must be consistently preserved in the corresponding elements of the metaphorical source domain (e.g. the exterior of a container is to be mapped onto the exterior of an object, not the interior). The Extended Invariance Principle makes this formulation extensive to all cases of generic-level structure whether in metaphor or in simile (cf. Ruiz de Mendoza 1998). For example, the fragile condition of a person can correspond to the fragility of a piece of china (*My mother is as*

fragile as china dishes), the strength of an ox to the physical strength of a person (*The boy is strong as an ox*), or the behavior of an animal to human behavior (*Don't be a chicken/Stop acting like a chicken*). In many-correspondence metaphors, this principle also regulates the mapping system in such a way that we only select those elements of the source domain that have a corresponding item in the target domain. A case in point is the sentence *He has to hit me into submission*, which we analyzed before in order to illustrate single-source metaphoric amalgams. The main metaphor that participates in this amalgam is AN EFFECTUAL ACTION IS CAUSED-MOTION. There are other elements of the domain of caused-motion that could potentially be included in the mapping system. However, only those elements that find a correspondence in the effectual-action target domain are selected, namely the causer of motion and the object of motion, which are mapped onto the effector and the effectee of the action respectively. Other elements from the source domain that do not find a correspondence in the target (e.g. the source and destination of motion) are thus discarded.

This principle is also at work in the case of other operations that follow the A IS B format. In the interpretation of the hyperbolic statement *This suitcase weighs a ton*, we map an impossible situation in which the speaker is frustrated as he tries to lift a fictitious one-ton suitcase onto a real life situation in which the speaker is likewise frustrated as he tries to pull up a very heavy suitcase: weight corresponds to weight, and feelings to feelings. Furthermore, the two scenarios share the cause-effect pattern that holds between the weight and the speaker's frustration when trying to deal with it.

We have a similar application of the Extended Invariance Principle in the case of mitigation operations. In the sentence *My house is a little[i.e. a long] distance from here*, there is a correspondence between the mitigated distance in the source and the real distance in the target, on the one hand, and between the mitigated psychological effect that the former would have on the speaker and the likewise mitigated psychological effect that is intended for the latter, on the other hand. The central meaning implication that arises from this mapping is that the psychological impact that the real distance, which is long, produces on the speaker is not as severe as the hearer might wrongly conclude. Of course, this type of expression can be used ironically to convey the opposite meaning implication, i.e. that the speaker actually believes the distance is excessively long. But this is the result of applying one further cognitive operation, one of contrasting, which combines with echoing: *My house is a little distance from here*, in a context in which the house is far, echoes an erroneous assumption in this respect held by the hearer or a third party, which contrasts sharply with the real situation that the speaker wants to call attention to.⁵² Evidently, by their own nature, echoing operations guarantee the application of the Extended Invariance Principle, since identical representations share their generic-level structure.

In the case of metonymy, the configuration of the generic structure in domain-internal relations is also preserved by virtue of the Extended Invariance Principle. This is the case of the controlled-controller relation that holds between ‘bus’ and ‘bus driver’. This relation is preserved in the

⁵² See chapter 6, section 4, for a detailed account of irony in relation to echoing and contrasting operations.

sentence *Buses are on strike* but not in, for example, **Windshields are on strike*. The same applies to the rest of cognitive operations that follow the A FOR B schema. Thus, parametrization, substitution and saturation operations must preserve the generic structure of relations across domains. For example, we may parametrize from ‘good’ to ‘efficient’ because we perceive efficiency as something positive and desirable, just like being good.

5.2.2. *Correlation Principle*

According to this principle, the best of all possible metaphorical source domains should be selected in accordance with the implicational structure of the target domain. In metonymic operations, we must select the most relevant source domain, bearing in mind its potential to provide access to the intended conceptual domain. For example, in the case of the metaphor ARGUMENT IS WAR, it seems more appropriate to conceptualize an intense debate between members of opposite political parties as a fierce battle than as a minor skirmish. In order to illustrate how this principle regulates the selection of the source domain in metonymic operations, let us consider the expression *The ham sandwich is waiting for his check*. The waiter may well refer to the customer by mentioning other features such as his clothing, physical appearance, etc. (*The red sweater/the shiny shoes/the big nose is waiting for the check*). However, in the context of a restaurant, it is more direct, and therefore the preferred choice in terms of the Correlation Principle, to refer to the customer by mentioning his order.

The same restrictions described for metaphor and metonymy apply to A IS B and A FOR B operations respectively. For example, in the hyperbolic statement about the suitcase, a ton—which, in terms of its context, is a rounded-up figure designating an impossible weight for a suitcase—is used to produce meaning implications about the effect of the excessive weight of the suitcase on the speaker. Smaller, though still exaggerated amounts, will not convey any such implications: *?This suitcase weighs 72 kilograms*. The reason for this is that the smaller figure is not necessarily an obvious exaggeration, so the speaker is required to look for one that gives rise to a counterfactual or impossible scenario (although too high a figure may be felt as an unnecessary exaggeration: *This suitcase weighs billions of tons*). In the same way, a higher but unrounded figure does not work either: *This suitcase weighs 1032 kilograms*. The reason here is one of extra processing effort for no special meaning effect, as would be predicted by relevance pragmatics (Sperber and Wilson 1995). The expression *a ton* is easier to process than *1032 kilograms* while conveying the same range of meaning effects, thus making a better source domain for the mapping between the impossible and the real situation scenarios.

In the case of euphemisms, we choose an expression that replaces another in order to avoid certain connotations. Our choice is based on the capacity of the new expression to point to the same referent without causing confusion or difficulties in the processing task, and also on its capacity of fulfilling the communicative objective of softening the emotional impact of the original referent. For example, *adult entertainment* (‘pornography’), if taken literally, could potentially refer to any way of providing adults with

amusement or enjoyment (e.g. sophisticated literature, music, etc. that would be boring for younger people). However, since sexually explicit materials, which people of all ages can find particularly stimulating, are illegal for non-adults, the description *adult entertainment* becomes an excellent source domain to refer to pornography, while avoiding the offensive connotations of this less vague term.

5.2.3. *The Mapping Enforcement Principle*

This principle regulates metaphoric and metonymic mapping systems. According to this principle, no item should be removed from a mapping system if it can be adapted to the meaning requirements of such a system by virtue of the Extended Invariance and/or the Correlation Principles. This principle sets the basis for both metaphor-metonymy interaction and metaphoric chains (cf. Ruiz de Mendoza and Galera-Masegosa 2011). In order to illustrate how this principle works, consider the sentence *The boy gave me a kick*. The metaphor that underlies the interpretation of this sentence allows us to conceptualize an action in terms of a transfer of possession: the agent of the action is the giver, the patient is the receiver, and kicking is giving. However, note that the person who figuratively receives the kick does not become its possessor. Lakoff (1993) claims that, by virtue of the Invariance Principle, an element should be discarded from the metaphoric source domain if it cannot be mapped onto a corresponding element in the target. The Invariance Principle seems to constrain the mapping system by excluding the ‘possession element’ of the source domain, which apparently does not have a corresponding element in the

target. In this respect, we postulate that the activity of the metonymy CAUSE FOR EFFECT makes the action of kicking stand for the effects of kicking. This metonymy, which operates exclusively on one of the correspondences in the metaphorical target domain, allows us to maintain the possession element in the source domain. Figure 26 presents a schematization of these operations.

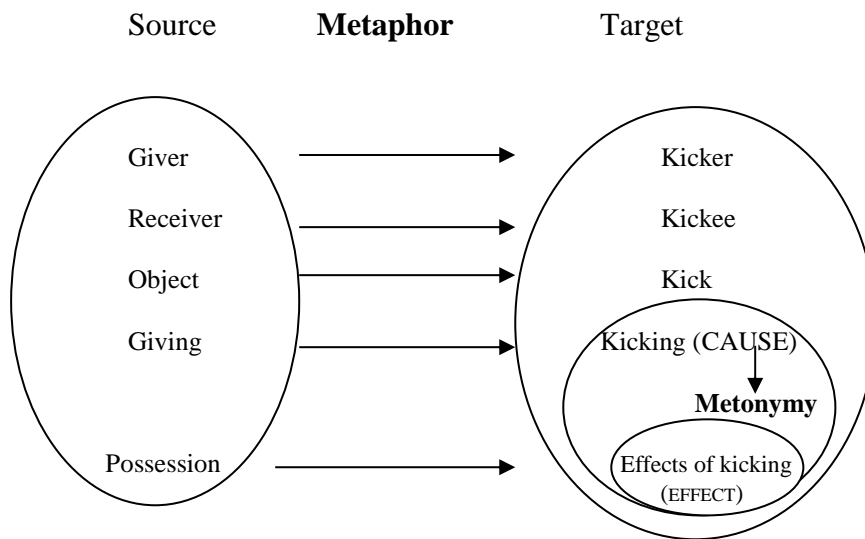


Figure 26. Giving a kick

5.2.4. Principle of Scalar Symmetry

This principle regulates the degree of strengthening that the hearer should perform to adjust the interpretation of a scalar concept that has been mitigated by the speaker, provided that mitigation is not extreme, as in the case of litotes and meiosis, which are regulated by a different principle. The Principle of Scalar Symmetry aims to minimize the impact that the non-mitigated concept would cause on the hearer. The default interpretation generally corresponds to a symmetric point in the scale. Thus, *a bit* is usually interpreted as ‘a lot’, and *a little bit*, where the diminutive increases

the degree of mitigation, gives rise to the opposite effect of further intensifying the degree of strengthening to the point of ‘quite a lot’ (cf. *It’s raining a little bit* in a context in which it is pouring with rain).

5.2.5. Principle of Scalar Pragmatic Adjustment

Since *litotes* (which conveys a statement by negating its opposite) and *meiosis* (which implies that something is of lesser significance than it actually is) are extreme cases of mitigation, they do not adhere to the Principle of Scalar Symmetry. The creation of meaning effects of extreme strengthening by using these figures of speech, which are cases of extreme mitigation, heavily relies on contextual parameters. For example, the expression *It is nothing* (*litotes*), uttered in order to play down the importance of a given situation, does not necessarily implicate ‘it is everything’ or ‘it is terribly serious’, but simply ‘it looks serious, but it does not really matter’. In a similar way, the expression *It hardly hurts at all* (*meiosis*), when used as a mitigating device, does not mean ‘it hurts the most it can hurt’, but rather ‘it (objectively) hurts a lot, but it does not matter’.

Interestingly enough, these pragmatic adjustments are also active in hyperbolic statements: *This suitcase weighs a ton* involves the reduction of ‘a ton’ to a weight that is excessive for the hearer to deal with it. The expression *This is not wind; it is a hurricane*, when it is very windy, but not to the point of qualifying as a hurricane, needs pragmatic adjustment (e.g. from ‘a hurricane’ to ‘too windy’). The pragmatic adjustment conveys the

added meaning implication of 'too much' or 'excessively', which is already conventionalized in the case of hyperbole.

CHAPTER 6: Figurative thought and figurative uses of language

In this chapter, we provide an account of some of the most prominent perspectives from which figures of speech have been dealt with. In our discussion, we advance our own insights, which will be further developed in our analysis of cognitive operations in Chapter 7.

1. Metaphor and metonymy

In Cognitive Linguistics metaphor and metonymy have been the object of an impressive amount of research over the past thirty years. Lakoff and Johnson (1980), Lakoff and Turner (1989), and Lakoff (1987a, 1993) described metaphor as a cognitive mapping, i.e. a set of correspondences, between two discrete conceptual domains, where one of the domains (called the source) allows us to think, talk and reason about the other domain (called the target). For example, we may talk about love as if it were a journey, where lovers are travelers, the love relationship is a vehicle, lovers' common goals is the travelers' common destination, motion forward is progress in the relationship, difficulties in the relationship are impediments to motion, and so on. These correspondences constitute the LOVE IS A JOURNEY mapping system (Lakoff 1993). Metonymy, on the other hand, was initially defined as a cognitive mapping between two non-discrete (e.g. contiguous) conceptual domains. For example, we often refer to an

institution by mentioning the place where it is located. This is the metonymy PLACE FOR INSTITUTION: *She graduated from Yale, Wall Street is going to start buying distressed debt, Washington has decided to ban GMO crops.* Other common metonymies are: PART FOR WHOLE (*Three thousand brave souls were lost* ‘soldiers with brave souls’), WHOLE FOR PART (*He couldn’t tie his shoes well* ‘shoelaces’), CONTROLLER FOR CONTROLLED (*The buses are on strike* ‘the bus drivers’), CONTAINER FOR CONTENTS (*He drank bottle after bottle* ‘the liquid in the bottle’), AN OBJECT FOR ITS BEARER (*the crown* ‘the king’), PRODUCE FOR PRODUCT (*I need a Kleenex*), EFFECT FOR CAUSE (*That was a sad story* ‘a story that caused sadness’).

The CL view of metaphor and of metonymy differed from previous approaches that saw these phenomena as deviations from the norm used for special communicative purposes (e.g. when we try to mean more than what we say) or for simple aesthetic reasons (as in poetry). Interestingly enough, the CL approach is partly coincidental with (and largely complementary of) early proposals in Relevance Theory (cf. Sperber and Wilson, 1985/86; 1995), within post-Gricean inferential pragmatics, according to which metaphor, metonymy and other figures of thought are not deviations from a norm, but ordinary “loose uses” of language, that is, interpretive or non-descriptive uses that involve inference but are more economical than corresponding literal uses.

As several studies have highlighted, there should be no conflict between the cognitive-linguistic and the relevance-theoretic approach to metaphor and metonymy (see Gibbs 1994; Ruiz de Mendoza 1999; Ruiz de Mendoza and Pérez 2003; Gibbs and Tendahl 2006; Tendahl 2009).

However, the two theories have taken rather different routes. Wilson and Carston (2008) explicitly reject the cognitive-linguistic proposal that metaphor involves a conceptual mapping. The reason given for this rejection is the authors' conviction that metaphor, metonymy, hyperbole and all tropes use roughly the same interpretative procedures. Since in Cognitive Linguistics metaphor is given special status as a cognitive "mapping" across conceptual domains, but other tropes are not mappings, although their meanings are calculated by exploring concepts and deriving meaning implications in that process, it follows that the notion of associative mapping is misled (Wilson and Carston 2008). Evidently, relevance theorists, by avoiding thinking in terms of cognitive operations (e.g. mappings), make the mistake of putting all the weight of interpretation on inferential procedures like premise-conclusion patterns. For example, if there is a context in which it is speaker and hearer are talking about Robert's inconsiderate behavior, the interpretation of Robert is a bulldozer will select from our encyclopedic entry for 'bulldozer' information related to how bulldozers go straight ahead powerfully regardless of obstacles. Then, the theory claims that there is a process of mutual adjustment between what we know about Robert and what we know about bulldozers, which gives rise to meaning implications that are further constrained by the context. Imagine the hearer would like to discuss a topic with Robert. In this context, the sentence Robert is a bulldozer will implicate that Robert is hard to deal with, may hurt the hearer's feelings, will use his power to impose his opinion, etc. Ironically,

what is missing from this account is the recognition that the “adjustment” process is in fact a cognitive operation. Wilson and Carston (2008) avoid recognizing this fact, perhaps because their goal is to put together all figurative thinking under the same umbrella. This restrictive goal, however, brings with it an insurmountable problem: textual and contextual adjustment is different for every figure of thought. Metaphor requires exploring two concepts, metonymy shifting from one concept to a related one, hyperbole overstating a situation, etc. These are cognitive operations that can be defined and constrained, as has been shown in Ruiz de Mendoza and Pérez (2003), Ruiz de Mendoza and Peña (2005), and Ruiz de Mendoza (2011).

The CL approach has become strongly influenced by the brain sciences. In this view, emphasis is given to the empirical fact that all concepts arise from neural circuits that derive their meaning via neural cascades that end up linked to the body. Thought and meaning are thus seen as embodied. Metaphor is also seen as embodied (Lakoff 2008; Gibbs 2011). The theory makes a clear distinction between primary metaphor (cf. Grady 1997b) and complex metaphor. The former arises directly from sensorimotor experience from the earliest stages of our development. The latter are constructed on the basis of the former. There is linguistic evidence that this is the case. Think of LOVE IS A JOURNEY, which gives rise to metaphorical expressions such as *We are on the right track*, *We are at a crossroads*, *We don't know where to go*. These expressions are useful to talk about the nature of progress in a love relationship: the idea of travellers being on the right track maps onto lovers' developing their relationship

correctly to keep it alive; being at a crossroads maps onto a moment of uncertainty and difficult decision-making for the lovers' to reach their goals; not knowing where to go marks a situation in which the lovers are unsure as to how to reach their goals or what their goals are. But the same expressions, and other possible ones arising from the idea of traveling along a path to a destination, hold for any goal-oriented activity where people try to achieve their goals (e.g. business, a career, solving a problem, etc.). The reason for this is that LOVE/A CAREER/A BUSINESS/SOLVING A PROBLEM IS A JOURNEY, etc., are complex metaphors created by enriching the primary metaphor GOALS ARE DESTINATIONS. Postulating this primary metaphor allows us to make a broader generalization, which is an adequate step in terms of the explanatory power of the theory.

Lakoff (2008) treats primary metaphors as the consequence of our brains' ability to link disparate neural regions on the basis of our experiential input. In the case of GOALS ARE DESTINATIONS, we link the regions coordinating the two conceptual constructs because the places that we go to are usually our planned destinations (our goal is to reach them and when we do, our goal is satisfied). Complex metaphors, on the other hand, require neural binding across metaphors or from a metaphor to a neural circuit. This neural process matches is the brain correlate of the conceptual enrichment process that we have just discussed.

Over the years, a number of scholars have been concerned with setting up clear boundaries, to the extent that this may be possible, between metaphor and metonymy. Initially, metaphor was distinguished from metonymy on the basis of (i) the discreteness/non-discreteness of the

domains involved, and (ii) the nature of the relationship between source and target domains. These criteria allowed cognitive linguistics to define metaphor as a mapping across separate conceptual domains, while metonymy was taken to be a domain-internal mapping (cf. Lakoff and Johson, 1980; Lakoff and Turner 1989). In a complementary way it was noted that while metaphorical thought exploits source-domain structure and logic to reason about corresponding target-domain structure, metonymy uses the source domain to afford access (and thus “stand for”) the target domain (cf. Kövecses and Radden 1998). Another distinguishing criterion was introduced by Croft (1993), who argues that metonymy consists in highlighting a secondary (i.e. non-central) domain thus giving it primary status.

However, all these criteria have been found to be problematic. Let us start with domain highlighting. Ruiz de Mendoza (2000a) has noted that this cognitive process only holds for metonymies whose target domain is a subdomain of the source domain, as in *Let's drink one more glass*, where *glass* stands for its contents (e.g. wine). Metonymies of this kind are called, for convenience, *target-in-source metonymies*. Containers necessarily have walls, an interior and an exterior. But we can empty containers, i.e. we can have containers without contents. This means that the contents are not a central characterization of containers if compared to the walls, the interior and the exterior. When we perform the metonymic shift from container to contents, we are giving primary or central status to the latter, which thus become essential for the interpretation of the metonymy. In Croft's (1993) terms, this is a *domain highlighting* operation. However, think of those

metonymies whose source domain is a subdomain of their target domain, or *source-in-target metonymies*. An example is *The sax has been late to rehearsal one too many times*, where *sax* stands for ‘the person that plays the sax’. This metonymy is not based on domain highlighting, since the target domain is in fact broader than –and encompasses– the source domain.

Domain highlighting also takes place in metaphor. For example, in order to understand *Achilles is a lion*, based on PEOPLE ARE ANIMALS, we map attributed behavioral features of lions (e.g. their ferocious instinctual courage when fighting other animals or their determinacy to chase and kill their prey) onto corresponding features in Achilles as a warrior. This cluster of related attributes is in fact not central either to a warrior or to a lion: some warriors are not brave and not all lions are instinctually ferocious (e.g. think of a tame lion). The metaphor brings the non-central (or secondary) attributes in this cluster to the fore by highlighting them. Since domain highlighting does not occur in all cases of metonymy, nor is it exclusive of this phenomenon, it cannot be taken as a reliable criterion to determine the metonymic status of a conceptual connection.

Then, we have the “afford access” criterion, which actually stems from Langacker’s discussion of *reference point* constructions (Langacker, 1993, 1999). In reference point relationships, the entity first perceived (e.g. the metonymic source) allows us to make “mental” contact with another entity with which it is related. Metonymy is one such construction, since the source domain triggers a target meaning on the basis of the conceptual relation between the source and target. But there are other linguistic phenomena that work in a similar way. The possessor-possessed

relationship, where conceiving the possessor affords mental access to the possessed entity, is a case in point. Thus, in *my neighbor's dog*, we first focus our attention on *my neighbor* and then we shift our attention to the *dog*, thereby relegating the possessor to the background. This means that being a reference point phenomenon is not a definitional criterion for metonymy either.

Finally, we come to the “stands for” relationship between source and target. Most scholars working on metonymy seem to take for granted that this relationship is central in order to understand metonymy. However, this criterion is not definitional either since we also find it as a property of euphemism and of some types of metaphor. For example, the expression *an ample girl*, when referring to an overweight person, can stand for the more derogatory expression *a fat girl*. In a similar way, *be excused* stands for the less appropriate *go to the lavatory*, or *breath one's last* for the more straightforward *die*. As for metaphor, Ruiz de Mendoza (1998, 2000a) has noted that metaphors whose meaning implications cluster around one single-correspondence, which is often the case in what Lakoff and Johnson (1980) called ontological metaphors, are amenable to being used referentially, which facilitates the creation of a “stands for” connection between source and target: *I want to kill that damned rat who betrayed me* (‘rat’ stands for the person that betrayed the speaker; cf. *He is a rat*).

In a relatively recent paper, Barnden (2010) has argued that the differences between metaphor and metonymy are less clear than has been assumed by many metaphor and metonymy theorists. One of the areas where Barnden feels that there are previously unidentified problems is the

discreteness criterion. Most theorists would agree that metaphor is a mapping across domains, while metonymy takes place inside a domain. But since metaphor is sometimes based on conflation, which involves regarding two distinct domains as if they were one, the domain-external nature of metaphor ceases to be a distinctive feature of the phenomenon. Thus, Barnden argues that ‘upward motion’ can stand for its experientially contiguous notion of ‘increasing’, ‘warmth’ for ‘affection’, ‘destination’ for ‘goal’, and so on. There is a problem in this line of argumentation, though. The “stands for” relation is a substitution relation that is made possible by some perceived association between concepts; ‘A stands for B’ is not the same as ‘A means B’, but rather of ‘although A and B do not mean the same, I can use A to substitute for B’. There is no reasoning system underlying “stands for” relations. Metonymy is a thus clear case of this kind of relation: ‘rabbit’ in ‘eat rabbit’ substitutes for ‘rabbit’s meat’ and in ‘wear rabbit’ for ‘rabbit’s fur’; ‘bottle’ in ‘drink a bottle’ substitutes for ‘the bottle’s contents’; ‘Napoleon’ in the sentence *Napoleon lost at Waterloo* substitutes for ‘Napoleon’s army’ and ‘Waterloo’ in the same expression for ‘the battle that took place at Waterloo’. However, the use of ‘warm’, as in *a warm embrace* or *a warm person*, is part of reasoning system according to which people can be ‘warm’ or ‘cold’ in different degrees (*She’s as cold as ice*, *She’s warmer than the Sun*; *She’s cooler than a breeze*) and with different effects (*She’s so cold that I start shivering when she’s by me/that I can barely tell when she’s angry at all*) (cf. Ruiz de Mendoza, 2013a). The existence of such a system points to metaphor. In much the same way, we have reasoning systems based on metaphor for MORE IS UP (e.g. prices

can go ‘up’ and ‘down’, quickly or slowly, or they can stagnate) and for GOALS ARE DESTINATIONS (e.g. progress is seen as motion forward, which can be quick or slow, in different degrees, depending on the kind of vehicle or on the existence of impediments and obstacles along the way, etc.).

Barnden (2010) also argues that there is further evidence, outside the realm of conflation, that the domain-internal/domain-external criterion does not hold. He gives the example of the sentence *There’s a snake on the left-hand side of the drawing*. This sentence can have two interpretations: in one, there is a wavy line intended to depict a snake, so the word “snake” is metonymic for the sketchy representation of a snake in the drawing; in the other, the same word is used to denote a wavy line (not a snake) metaphorically. The mapping is domain-external in the two interpretive situations, despite the claim made by many cognitive linguists that metonymy requires a domain-internal mapping. However, it can be argued that the two interpretations are in fact metaphorical. In the first one, the notion of ‘snake’ (the metaphoric source) allows us to reason about the image-schematic structure of the wavy line (the target). This reasoning process facilitates identifying the line with a snake, which requires a referential use of the “there” construction. In the second one, the speaker wants to draw attention to the image-schematic properties of the line by highlighting its similarities with analogous structure in a snake. Here, since there is no referential intention, we have an existential use of the “there” construction.

Another problematic issue is, according to Barnden (2010), the classical claim, taken over by most cognitive linguists including Lakoff and Johnson (1980), that metonymy, but not metaphor, is based on contiguity between the domains involved. Barnden thus argues that sometimes metaphor can be based on contiguity, as in *The creampuff didn't show up*, where “creampuff” refers to a physically weak boxer. There is a similarity link between the boxer’s weakness and the sweetness of a creampuff, which is used to achieve reference. This line of argumentation is problematic. First, metaphor can be used referentially, as we have evidenced above; so the referential use of an expression is not evidence of the existence of any “metonymy-like” contiguity. Second, it is not correct to attribute contiguity to similarity relations. As is well known, in origin, this notion of contiguity referred to spatial relations (i.e. contiguity in space), but then it was extended to refer to other types of conceptual association. As Koch (1999: 146) has aptly noted, these other kinds of association correspond to frame-internal connections. Similarity is perceived across concepts, never within concepts. Other relations are internal to a frame, in the sense given to this term by Fillmore (1985), and as applied by his associates and followers to understanding meaning and its projection into syntax (e.g. Nemoto 2005; Boas 2005, 2011). These relations do give rise to metonymy. This is self-evident in the case of part-for-whole (e.g. head for person) and whole-for-part metonymies (e.g. a bottle for its contents). But it also holds for other metonymies. A few examples will illustrate this point. Take ‘hand’ for ‘help’. This metonymy arises from our common everyday experience of giving help through physical labor involving the hands, which is part of the

‘helping’ frame. Or take the case of the Spanish verb *casar* (‘marry’), which stems from Latin *casare* (‘set up house’). Since making one’s own home separate from one’s parents is often a consequence of getting married and having children, the metonymic link is evidently frame-internal too. The same considerations hold for other metonymies: PRODUCER FOR PRODUCT (*He bought a Ford*) is based on the production frame; TAXI FOR DRIVER (*The taxis are on strike*) on the driving frame; PLACE FOR INSTITUTION (*The Kremlin has decided to ban Americans from adopting Russian children*) on the institution frame; and so on.

Finally, Barnden (2010) also argues that metonymy, like metaphor, can exploit resemblance relations. For example, in the sentence *In Goldfinger Sean Connery saves the world from nuclear disaster*, the actor (Sean Connery) bears resemblance to his character (James Bond). However, we see resemblance here as subsidiary to the metonymic actor-character relationship between Sean Connery and James Bond (e.g. an actor can perform so poorly that he may not resemble his character). Another example of metonymy purportedly based on resemblance is *Tony Blair is on the left hand side of the photo*, where the representatee (Tony Blair) and the representation (the image in the picture) are similar. This is not exactly true, however. As with the previous example, the resemblance relation is accidental and does not determine the existence of metonymy. Imagine a situation in which the picture has been badly damaged and the image cannot be seen. One could still say that Tony Blair is on the left hand side of the picture, meaning that the image was there in the past.

In view of the discussion above, we hold that metaphor is a domain-external mapping between selected structure from cognitive models (frames or image schemas), while metonymy can be best defined in terms of domain-inclusion relationships (i.e. through expansion/reduction processes) where the source affords access to the target, for which it stands. We also support the view, clearly put forward by Grady (1999) and also by Lakoff and Johnson (1999) that metaphor is based either on resemblance or on experiential correlation. Finally, in metaphor, but not in metonymy, the source domain is used to reason about the target. We will return to these issues in our discussion of correlation operations in Chapter 7, section 2.1.

2. Overstatement: hyperbole and auxesis

The term *overstatement* is linked to the notion of exaggeration, that is, an overstatement is an exaggerated statement or account. *Hyperbole* and *auxesis* are two types of overstatement that have traditionally been regarded as figures of speech belonging to the realms of poetry and rhetoric. The role of hyperbole within these two fields is that of evoking strong feelings in poetry and creating strong impressions in the case of rhetoric. In any case, hyperbolic statements are not meant to be taken literally. Here we want to argue that hyperbole is a pervasive figure of speech in our everyday language as adduced by sentences such as *I'm so hungry I could eat a horse*, *It took me a hundred years to get over him*, *I've told you a thousand times not to do that*, and the like. The meaning effects that arise from the use of a

hyperbolic statements derive from the creation of a counterfactual scenario by maximizing a scalar value to an abnormal degree. This communicative strategy is intended to strike hearers with surprise thus stirring them to react in largely predictable ways. For example, *I've told you a thousand times* suggests speaker's annoyance and reinforces the directive impact of the expressions ('I don't expect you to do that again'); *It took me a hundred years* may convey the speaker's complaint on the difficulty of a situation that he or she has had to face; *I could eat a horse* expresses the speaker's desire to satisfy his or her anger, which may easily move the hearer to make an offer.

Auxesis is an extreme case of overstatement. In auxesis we make an extreme exaggeration by maximizing a scalar value to the highest point that the speaker can conceive at the moment of speaking. For instance, we may say *I blacked out when I saw the bill*⁵³ to mean that the impact caused by the bill on the speaker was extremely intense and shocking. Blacking out is the figurative effect of such an extreme emotional reaction. Because of the extreme nature of the effect described we may consider this statement as a case of auxesis. Other remarks on the part of the speaker expressing shock or surprise through less extreme exaggeration such as *I fell off the chair when I saw the bill*, *I almost choked when I saw the bill*, *I lost my breath when I saw the bill*, etc., are to be considered regular cases of hyperbole.

Hyperbole and auxesis have received some treatment in inferential theories of language whether from the perspective of psycholinguistics (Colston and Keller 1998) or of pragmatics (e.g. Edwards 2000; McCarthy

⁵³ <http://news.staytia.com/article/255917/Beauty--the-beast>. Accessed July 30, 2012.

and Carter 2004; Norrick 2004; Sperber & Wilson 1995). For example, Norrick (2004) distinguishes *extreme case formulations* (ECFs), on the one hand, and hyperbole and overstatement, on the other hand. Hyperbole is defined as a figure of bold exaggeration (e.g. *His heart is bigger than the world*); overstatement involves non-literal amplification or attenuation used to express emotion (e.g. *I'm starving*). Extreme case formulations (e.g. *He always cheats*) are constructed on the basis of extreme expressions such as *every, all, none, best, least, always, perfectly, absolutely*, and the like (cf. Edwards 2000).

In our view, while EFCs are clear cases of classical auxesis, there is no reason to differentiate overstatement from hyperbole, since both uses of language are based on non-extreme amplification. For Norrick, the difference seems to be a matter of degree, but there is no principled way to draw the boundaries. Think of the subtle difference of intensity between *I'm starving* and *I'm starving to death* when used figuratively, i.e. the speaker is feeling very hungry. In principle *starving to death* could be considered, following Norrick's logic, a bold exaggeration or even an ECF given the extreme character of "to death". This is clearly not so. While the use of *to death* seems to point to a greater intensity of the speaker's feelings about his or her hunger, *starving* and *starving to death* are largely equivalent. The same holds for other uses of *starving* where there is no indication of hunger, as in *I'm starving (to death) for some donuts*, where rather than hunger, there is a craving, but the implication of its high intensity is kept intact.

3. Understatement, meiosis and litotes

As the opposite of overstatement, *understatement* is an expression of less strength than would normally be expected. Because of this, understatement is commonly used to diminish the emotional impact on the addressee of the content of an utterance. Understatement can be achieved in a number of ways (cf. Jason 1988). It can result from the use of linguistic hedges such as *a bit*, *slightly*, and *some*, which mitigate the value of terms or linguistic expressions designating the upper part of a scale: *a bit far* ‘very far’, *slightly big* ‘very big’, *some distance* ‘a long distance’. For example, imagine a situation in which a child insists in riding a bicycle that is too big for his size. In this context, the sentence *I’d say that bike is slightly big for you* can easily be understood as a kind, cautionary piece of advice, as a mild, humorous remark, or both. By contrast, in the same context, *That bike is too big for you* can more easily be taken as a reproof. Other linguistic hedges that can result in the production of understatements are: *sort/kind of* (*He was sort of rude to me*), *somewhat* (*She was somewhat surprised to see me*), *basically/essentially/technically* (*You are basically/essentially/technically your worst enemy*), *quite/rather* (*She was rather/quite cold to me*).

Understatement can also arise from the substitution of a modality marker by a weaker one, as exemplified by the contrast between *He is obviously/certainly a criminal* and *He is presumably/probably a criminal*. Adverbs such as *obviously* and *certainly* involve greater speaker’s confidence on the truthfulness of his assertion than adverbs like *presumably* and *probably*. Using the latter adverbs results in weaker, more tentative

statements, which, in situations in which the hearer would expect stronger ones, can be regarded as examples of understatement.

One special case of understatement is *meiosis*, which is characterized by producing meaning effects that are the exact opposite of the ones achieved via *auxesis*: the speaker intends to diminish the meaning impact of a given utterance to its lowest extent. For example, if someone has received a bad wound in his leg, and the wound is not open to easy visual inspection, he may pretend he only has a “scratch”. The use of *scratch* in this context is an attempt to minimize the impact that the real wound may have on a caring addressee. Of course, it may also be used in a situation in which the wound is visible and the speaker is simply boasting about his strength.

Another special case of understatement is *litotes*, which is used for emphasis. It is often constructed on the basis of double negation (e.g. *It's not unreasonable* ‘it is precisely very reasonable’), but it is also based on simple negation, provided that what is negated is axiologically negative (e.g. *He's not a bad student* ‘He's precisely a very good student’). Litotes is based on pretense mitigation by denial, since negation is not used to actually rule out a state of affairs, as in *It's not reasonable* and *He's not a good student*, but to assert it emphatically in contrast to whatever may seem to be the case from a different perspective. For this reason, litotes is useful for speakers to reassert their positions when other people hold different views, as in the following sentences: *I insist that it is not a bad income.*⁵⁴ *Not a bad slide, whatever the distance;*⁵⁵ *Carbs are not a bad thing, no matter what the*

⁵⁴ <http://www.vaultads.com/category/foreign/adsense/>. Accessed on November 17, 2012.

⁵⁵ <http://singletrackworld.com/forum/topic/going-roadie-hairless-legs/page/2>. Accessed on November 17, 2012.

diet fads try to tell you;⁵⁶ He was not unattractive, in spite of the scar that so many other women thought a glaring detraction;⁵⁷ All these ‘unexpected meetings’ are not genuinely unintentional, in spite of what he claims;⁵⁸ It is not unlikely that you will be brainwashed by the professional-sounding language.⁵⁹

4. Irony

4.1. Verbal irony: an overview

Traditionally, verbal irony has been regarded as a figurative rhetorical device or trope and described as arising from the incongruity between what is said and what is actually the case. Making the incongruity evident gives rise to very specific, often humorous, overtones: the speaker feels that there is something foolish about what was said given the sharp contrast with the actual state of affairs. An easy example is the sentence *It is a nice day today, indeed!*, uttered in a context in which the hearer had previously expressed his certainty that the weather would be good enough for an outing, but the real situation is quite the opposite (e.g. it is cold and rainy).

It should be noted that textual and contextual information is crucial in the identification of irony. In fact, many scholars have devoted their

⁵⁶ <http://globalsuccesswithjoe.com/business-opportunities/body-by-vi/body-by-vi-scam/>. Accessed on November 17, 2012.

⁵⁷ books.google.es/books?isbn=1462029388. Montgomery, S. (2011). *Love’s Apprentice*. Accessed on February 20, 2013.

⁵⁸ <http://www.articledashboard.com/Article/Could-It-Be-Real-Does-My-Ex-Boyfriend-Still-Love-Me-Five-Signs-That-Says-He-Does/1626412>. Accessed on November 17, 2012.

⁵⁹ <http://press.princeton.edu/chapters/i9742.pdf>. Accessed on July 31, 2012.

efforts to the study of the contextual factors related to ironical uses of language: the profession of the speaker (cf. Katz and Pexman 1997), gender (cf. Colston and Lee 2004; Katz et al. 2004), and cultural background (cf. Dress et al. 2008), among others. The influence of textual factors has also been investigated. Recently, Burgers et al. (2012) have conducted several experiments that show that the interpretation of ironic remarks heavily relies on textual characteristics: (i) irony factors, which are essential for an ironic statement to be considered as such; (ii) ironic markers, which constitute clues that make the hearer aware that the uttered remark may be ironic (see Attardo et al. 2003 for further details on the distinction between irony factors and irony markers). Burgers et al. contend that irony factors (the type of ironic evaluation) and irony markers (e.g. quotation marks, hyperbole) are highly influential in the comprehension of ironic remarks.

Even though irony is highly pervasive in language, it is very difficult to discern whether the speaker of an utterance is being ironic or not if the context is not accessible. This is so because, unlike in metaphoric expressions, the literal interpretation of ironic statements is available. For instance, the sentence *John is a pig* can hardly be taken literally (we would need a highly marked context in which the speaker is warning the hearer that the referent for *John* is actually a pig and not a person). However, saying *It is a nice day today!* in the face of rainy weather is plausible if the addressee likes rainy days, which is not so unusual. Therefore, irony is highly context-dependent. Speakers are aware of the importance of context and shared ground between them and their addressees, and usually tend to avoid ironic remarks when such common knowledge and beliefs are low (cf. Kreuz and

Cacciari 2009, p. 335). In fact, it is acknowledged that some people have the ability to interpret ironic statements as such, while others fail to do so (Gibbs and Izett 2005 refer to the former as “wolves” and to the latter as “sheep”).

Many scholars within the field of Cognitive Linguistics have devoted their efforts to the study of irony as a cognitive mechanism that displays a broad range of social and pragmatic effects (see, for instance, the collection of papers in Gibbs and Colston 2007 and the references therein). Some of the widely acknowledged goals attributed to the use of irony are related to politeness, humor, the expression of negative emotion and criticism (Kreuz and Cacciari 2009). Our study is mostly concerned with the cognitive processes that operate in the creation of ironic remarks. Nevertheless, the communicative impact of such cognitive strategies is also addressed in our approach to the creation and understanding of ironic language.

Different proposals about the mechanisms underlying irony have been put forward over the years. Let us review some of the most representative perspectives from which irony has been accounted for.

Grice (1975, 1989), much in line with traditional theories of irony, sustains that ironic statements convey the opposite meaning of what the speaker actually wants to express. He considers irony a case of implicature obtained through a flouting of one of the two maxims of Quality: “Do not say what you believe to be false”. Grice points out that the hearer is aware that what the speaker is saying is not true. Then, further following the Cooperative Principle, the hearer assumes that the speaker’s contribution must comply with the Maxim of Relation, thus searching for an appropriate

interpretation. Later research has shown not only that the violation of other maxims may also result in irony (cf. Kaufer 1981; Sperber and Wilson 1981), but also that irony can be achieved while respecting all the maxims (cf. Holdcroft 1983). Grice's assumptions with respect to ironic statements fail to explain why the speaker should choose ironic over literal statements and which are the cognitive mechanisms that give rise to ironic communicative effects. Furthermore, Grice assumes that the interpretation of other figures of speech, such as metaphor, follow similar processes. This assumption posits a problem related to one of the characteristic features of irony, namely the speaker's attitude, which is not present in metaphor.

Sperber and Wilson (1981, 1986, 1995, 1998) propose a different explanation for irony. According to these authors, irony arises from the echoic use of language, that is, when the speaker explicitly refers to "some state of affairs that was predicted, expected or desired, either because of some explicit prediction or based upon a mutually shared domain of knowledge" (Colston and Gibbs 2007, p. 5). Wilson and Sperber (2012) argue that, contrary to traditional accounts of irony, ironical effects are not the result of saying the opposite of what one means, but rather the result of echoing a thought that the speaker attributes to another person, group of people or people in general, and expressing a mocking, critical or skeptical attitude to this thought. Thus, the two major claims of the echoic account are that in irony (i) the echoed thought is attributed to someone other than the speaker at the current time and (ii) the attitude of the speaker towards the echoed thought (which is considered as false or inadequate) is that of rejection. Wilson and Sperber (2004) provide a definition that nicely wraps

up their notion of irony: “On the relevance-theoretic account, verbal irony involves the expression of a tacitly dissociative attitude –wry, skeptical, bitter or mocking – to an attributed utterance or thought.”

An alternative explanation of irony was put forward by Clark and Garrig’s (1984) *Pretense Theory*. These authors suggest that ironic effects are achieved by means of pretending or simulating to perform a given speech act. In addition, the pretense on the part of the speaker must be recognized as such. This theory is clearly connected with Sperber and Wilson’s echoic theory of irony. Both the echoic and the pretense accounts reject traditional approaches where irony is defined as saying the opposite of what is meant. Also, both accounts acknowledge the central role of the speaker’s attitude in ironic statements. Their similarities have led to hybrid proposals that encompass features from both approaches. This is the case of the *Allusional Pretense Theory* (Kumon-Nakamura et al. 1995). In essence, this theory is very close to the pretense theory. Their advocates claim that speakers that produce ironic utterances do not actually perform any speech act, but rather pretend to perform one and expect their interlocutors to detect the speaker’s attitude (mockery, rejection, etc.) through the pretense (cf. Recanati 2004, 2007; Currie 2006). Kumon-Nakamura et al. propose two conditions for a statement to be considered ironic: (i) pragmatic insincerity (irony flouts the sincere felicity condition); (ii) a violation of expectations.⁶⁰ The latter condition is common to most accounts of verbal irony. In fact, this condition is what brings Kumon-Nakamura et al.’s proposal closer to the echoic account of irony, since it entails that the ironic statement must make

⁶⁰ A third condition was later added by Colston (2000), which consisted in establishing a contrast between the expected and the real state of affairs.

allusion to (thus somehow echoing) an expected state of affairs that has been violated in some way (Kumon-Nakamura et al. 1995, p. 61). Some authors claim that the former condition provides an explanation for instances of irony where echoing is not present (cf. Colston and Gibbs 2007). One of Kumon-Nakamura et al.'s examples of non-echoic ironic utterance is the question *How about another small piece of pizza?* (said to someone that has gobbled the whole pizza). Apparently, this sentence is not an echo of a previous utterance or belief. However, we agree with Wilson and Sperber's claim that the question can be said to constitute an echo of what it could be expected from a good host to say to his guests (see Wilson and Sperber 2012, p. 46, ft. 16). Wilson (2006) and later Wilson and Sperber (2012) set the echoic and pretense accounts of irony in contrast. They provide an overview of both approaches and focus on the ways in which each of them tackle the task of explaining the distinctive features of irony (i.e. the role of attitude in irony, the normative bias and the ironical tone of voice). Their work suggests that the echoic account of irony provides a better explanation of these features. Wilson (2009, p. 210) contends that pretense or simulation may be involved in some cases of irony, but should not be considered to be a necessary feature of irony. She further argues that the echoic account is self-standing in the explanation of central cases of irony, even if it may occasionally combine with pretense (see also Wilson 2012, and Wilson and Sperber 2012). When discussing irony, Wilson (2009) also points to the importance of the capacity of metarepresentation, which is to be understood as the ability to infer other people's mental states. Bryant (2012) has recently accounted for the interplay of linguistic approaches to

metarepresentation in irony and related disciplines concerned with this issue, namely psycholinguistics, developmental and neuropsychological research.

Attardo's conception of irony parallels Grice's account in that he acknowledges that irony is to be achieved inferentially and under the influence of the Cooperative Principle (cf. Attardo 2000, p. 813). However, Attardo takes a step further and claims that irony must be considered an entirely pragmatic phenomenon, therefore being closely linked to contextual considerations. This author conceives of irony as *relevant inappropriateness*, that is, ironic statements are not appropriate in the context in which they are uttered, but they are indeed relevant. He also takes into account the speaker's attitude, which is in line with both the Echoic and the Allusional Pretense Theories. In sum, Attardo (2000) relates irony to the notions of contextual appropriateness and to what he calls the *Principle of Least Disruption*, which warns the speaker to limit his violation of the Cooperative Principle to the smallest conversational unit and to try to relate such unit to the rest of the interaction. Ironic statements are contextually inappropriate, therefore flouting one (or more) of the Gricean maxims. Then, the Cooperative Principle needs to be restored as soon as possible in order to achieve a plausible interpretation by virtue of the Principle of Least Disruption. We believe that the notion of contextual inappropriateness provides only a partial solution to the matter. It is true that ironic statements are not appropriate in that they clash with reality, but in fact, the same could be said about other figures of speech. Consider metaphor and hyperbole. In the case of metaphor, saying, for example, that someone who has behaved

immorally is a pig can also be considered to be contextually inappropriate, because a person is not literally a pig. It is also relevant, since it is meaningful in its context. However, it is not ironical, unless we change the situation and the person thus labeled is actually a highly honorable one. Similarly, hyperbolic statements also violate one of the maxims of Quality since they contain information that is not true. Thus, saying that a suitcase weighs a tone can also be regarded as contextually inappropriate. Along these lines, we could even go as far as to say that every figurative use of language is contextually inappropriate. Therefore, we may contend that, elegant as it is, the explanation of irony in terms of contextual inappropriateness is too broad and is therefore in need of refinement. In addition, Attardo's claim that there are cases in which an echo is not present in the elaboration of ironic statements is also questionable. Let us take one of his examples:

- (1) Two farmers in a drought-stricken area are talking and farmer A says: 'Don't you just love a nice spring rain?' (Attardo 2000, p. 816).

In his analysis of this ironic remark Attardo argues that the irony arises from the contextual inappropriateness (it is not raining). However, we should note that this ironic statement is indeed an echo, not from a previous utterance or situation, but rather from a desired situation. Echoic uses of language are not restricted to observable situations. They apply to all possible elements of what Sperber and Wilson (1995) have called the language user's *cognitive environment*, i.e. any assumption or set of assumptions that are mentally

accessible to communicators. In Attardo's example the two farmers share the assumption that both want a rainy spring. The utterance *Don't you just love a nice spring rain?* echoes this thought.

In view of the argumentation developed above, we take sides with the account of irony originally provided by Sperber and Wilson (1981), later developed in subsequent studies, in the sense that verbal irony involves the repetition (or echoing) of a previous statement or state of affairs. However, our account regards echoing as a cognitive operation rather than mere repetition. Additionally, we believe that echoing operations combine with contrast operations in that ironic communication arises from the contrast of the ironic statement and the actual situation.⁶¹ This combination is almost invariably complemented by pretense. In other words, ironic statements are more often than not the speaker's pretense or simulation. While echoing and pretense are both involved in the creation of ironic overtones, these two factors display varying degrees of salience in different instances of ironic statement.

Even though we argue for the plausibility of the incorporation of pretense to echoic accounts of irony, we do not fully agree with all the tenets of the pretense account of irony. Contrary to what pretense theory advocates, we believe that the speaker does perform a speech act, rather than pretending to do so. When we say *It is a nice day today, indeed!* in a rainy day, echoing the hearer's expression of certainty that the weather would be good, we are humorously and rather phlegmatically complaining about a

⁶¹ Colston (1997) suggests that the contrast between the statement and the actual state of affairs is meant to enhance the negative effects of the statement. Even if he did not regard contrast as a cognitive operation, his account is similar to our view of the role of contrast in irony.

situation that seemed to be different. The sentence echoes a belief someone had. This belief clashes with and is thus cancelled out by the real situation. So, *It is a nice day today, indeed!* is a mild (or mitigated) complaint. It is also a non-accusatory repairing statement. The ironical overtone has this effect.

Furthermore, we contend that the notion of cognitive model as discussed in Chapter 4 is also essential for the interpretation of ironic statements. A more detailed explanation and further illustration of how contrast and echoing operations cooperate, together with pretense, in the interpretation of verbal irony is provided in Chapter 7, section 4.

4.2. *Verbal irony vs. situational irony*

Verbal irony is to be distinguished from situational irony. Most accounts of irony have been devoted to the study of verbal irony. However, a number of scholars have paid attention to situational irony (cf. Lucariello 1994 for an exhaustive analysis and taxonomy of situational ironic events). For example, imagine that a person has invested a large sum of money in an apparently reliable company, while mocking others for failing to take the same opportunity. Then, the company turns out to be a failure and all the investor's money is lost. The situation is ironical for two reasons in combination: (1) there is a mismatch between the investor's certainty on the solvency of the company and the real situation; (2) after getting ruined, the investor's unwise mockery of those who did not want to undertake any risk makes the investor look foolish. We may observe that, in situational irony,

just like in verbal irony, there is incongruity between intention and effect or between belief and reality. By itself, this is enough to produce ironical effects. But in verbal irony these effects can be reinforced through specific suprasegmental features (especially, stress and intonation; cf. Anolli et al. 2000, 2002 for two analyses of intonation and other acoustic parameters in ironic communication; see also Attardo et al. 2003, who propose pitch and facial expression as markers of irony and sarcasm).⁶²

4.3. *Sarcasm*

When verbal irony is used to ridicule the addressee or a third party, often in a humorous way, it becomes sarcasm: “Sarcasm is an overtly aggressive type of irony, with clearer markers/cues and a clear target.” (Attardo 2000, p. 795). Generally, sarcasm is assumed to have a victim towards whom the ironic remark is directed (Fowler 1965; Kreuz and Caucci 2009).

Some scholars claim that sarcasm is but a special case of irony (Wasserman and Schober 2006), while others regard them as two separate phenomena (Kreuz and Glucksberg 1989; Dress et al. 2008; see Attardo 2000, p. 795 for additional references). Leggitt and Gibbs (2000) regard irony, sarcasm, overstatement, satire and rhetorical questions as kinds of ironic language. Along the same lines, other authors even claim that “irony is really a global term for a variety of figurative forms, such as sarcasm,

⁶² Bryant and Fox Tree (2002) provide experimental evidence on the role of acoustic (as well as contextual) information in the identification of ironic intentions. Bryant (2010, 2011) further explores the pervasiveness of prosodic elements in the production of irony. However, Kreuz and Roberts (1995), in their study of hyperbole and the tone of voice as potential cues for ironic communication, suggest that tone of voice should not be considered a feature to be sought in the identification of irony, but only in the case of hyperbole.

jocularity, rhetorical questions, understatements and hyperbole.” (Gibbs and Izett 2005, p. 150). Here, we take sides with Attardo (2000) and those scholars who advocate for the similarity of irony and sarcasm, and consider sarcasm as a special subtype of irony in which there is a certain intention of attacking others.

Take again the context described above for *It is a nice day today, indeed!* and use it to calculate some of the meaning implications of the following utterance: *Yes, this is the ideal weather for an outing; so, you enjoy the day ... alone!* To the two elements of incongruity between belief and reality and hearer’s foolishness, this new example adds a stronger degree of speaker’s negative bias against the hearer’s misjudgment of the actual situation. Sarcasm is often contemptuous. Think of the following humorous sentence as written on a T-shirt: *You couldn’t handle me even if I came with instructions.*⁶³ There are two ways to interpret the referent of “me”: one is the T-shirt bearer; the other the T-shirt. In either case, the addressee of the message, i.e. whoever reads the stamped text, is being treated as incompetent to carry out the action described in it. If “me” refers to the T-shirt, the text sets up an odd, rather absurd situation in which the addressee is trying to use his or her T-shirt (e.g. wash it, fold it, put it on, etc.) by following an instructions booklet. If “me” equates with the T-shirt bearer, the text plays on the ambiguity between the metonymic interpretation of the verb “handle” as ‘control a person’s behavior’ and its literal meaning as ‘control a person (or an object) physically (usually with the hands)’. Whichever the case, the situation is likewise absurd: we do not

⁶³ <http://www.badideatshirts.com/YOU-COULDNT-HANDLE-ME-EVEN-IF-I-CAME-WITH-INSTRUCTIONS-T-SHIRT-P2367.aspx>. Accessed on December 8, 2012.

interact with people on the basis of instructions manuals. It is precisely this kind of oddity that gives rise to the humorous overtones of the sentence under discussion. The sarcastic innuendo, in its turn, arises from the application of this absurd situation to the real-life scenario in which a person tries to handle another (whether physically or behaviorally) but is unable to do so even under advice. This highlights the idea that the T-shirt bearer expects everybody else to be highly incompetent when dealing with him or her.

As with metaphor, there has been some neurological research on the ability to understand sarcasm. Shamay-Tsoory, Tomer and Aharon-Peretz (2005) examined the performance of people with focal lesions on tasks that required understanding sarcasm. They found that the right frontal lobe mediates understanding of sarcasm by integrating affective processing with perspective taking. Different parts of the brain have to work together to understand sarcasm. It has also been found that the ability to determine the non-literal meanings of sarcastic utterances appears around the age of six, but the capacity to actually determine the meaning intentions behind a sarcastic utterance is developed around the age of nine (Glenwright and Pexman 2010).

5. Paradox and oxymoron

Paradox and oxymoron are basically the same phenomenon. With the former there is an apparent inconsistency between the description of two states of

affairs that are set out as logically related; however, the inconsistency can be sorted out if the two descriptions are seen from a different, more marked perspective. For example, while it is normally not possible to be cruel and kind to the same person at the same time, the sentence *I must be cruel to be kind* can make sense in a context in which what at first sight seems cruel may ultimately turn out to be good. A painful medical procedure that saves someone's life could be such a situation. With oxymoron the apparent contradiction is between two opposite terms that are put together as logically related. For example, the sentence *He is a wise fool* holds true of a person whose general foolish behavior can occasionally have surprisingly positive results that would be considered wise by many.

Because of their shared characteristics, it is possible to derive an oxymoron from a paradox and the other way around. Consider Fauconnier's (1997, p. 41) example *The girl with blue eyes has green eyes*. If the girl's eyes are blue, they cannot be green at the same time. However, duly contextualized, this contradiction vanishes: imagine that both speaker and hearer know that the girl's eyes are blue, but they are looking at a picture where they appear to be green. This context, which makes the speaker's remark quite felicitous, allows us to discuss it in terms of paradox. Imagine further that the speaker later talks to the girl in question about the picture incident and comments: *So, your eyes are blue and green*. This is clearly a case of oxymoron, which can only be solved with reference to the relevant context. Fauconnier (1997) treats the contradiction in terms of what he calls *mental space* builders. A mental space is a coherent knowledge structure that is drawn from our knowledge store for cognitive purposes such as

reasoning and communicating. According to Fauconnier, *The girl with blue eyes has green eyes* makes sense if contextualized in the right mental space. This mental space can be activated by linguistic expressions that are specialized for that purpose, as is the case of the initial prepositional phrase in this development of the previous example: *In the picture, the girl with blue eyes has green eyes*. Space builders are, therefore, contextualizing expressions that can make explicit the way in which a verbal paradox is solved.

Sometimes paradox is based on exploiting two senses or even two perspectives of the same concept. The rhetorical question *Can anything be more terrible than to be filled with emptiness?*⁶⁴ can illustrate this point. The notion of ‘emptiness’ can be used metaphorically to indicate a psychological state where life lacks purpose or orientation. In this metaphor, a meaningless life is seen as an empty container, which has no value, i.e. which has nothing “inside” to offer. Interestingly, “emptiness”, once used to identify a psychological state, can stand for such a state. At the same time, the state in question can be metaphorically seen as a substance that fills a container. This allows a person to be seen as “filled” with “emptiness” when affected by the feelings associated with this state. This way, it is not a real contradiction to be filled and empty at the same time: a person’s life is empty, which has a psychological effect on him or her; then, such an effect can metaphorically be seen as a substance that fills in and affects a person. In this sentence, both life and people are envisaged as containers. However, life is empty and people are full.

⁶⁴ books.google.es/books?isbn=1581247842. Cooper, L. W. (2003). *A Slow and Silent Stream*. Accessed on December 12, 2012.

This treatment of the notion of paradox is related to the views held within Aristotelian dialetheism, which transcends the rigid postulates of formal logic by claiming that it is possible to have a true statement whose negation is also true. A *dialetheia* is a sentence, A , such that both this sentence and its negation, $\neg A$, are true. An example of *dialetheia* is the statement *I am in the east and west at the same time*, which can be true if the speaker is straddling the Greenwich meridian line. What the dialetheistic explanation does is find a context where ‘being east’ and ‘being west’ are not real opposites and can therefore coexist. Dialetheism has aroused a large amount of controversy in philosophy and logic (cf. Priest et al. 2004; Berto 2007). It is not our purpose to go into this controversy, since it crucially hinges on the belief that meaning is a matter of truth-conditions rather than cognitive modeling. However, we do want to point to the need to view semantic consistency and inconsistency in terms of the activation of the relevant frames of reference. In this approach, paradox and oxymoron are, like metaphor, metonymy, hyperbole, and understatement, ways of being meaningful by using the mind’s ability to look at concepts from different perspectives.

CHAPTER 7: Content operations across levels of representation

The aim of this chapter is two-fold. On the one hand, we provide a more exhaustive account of the cognitive operations that were briefly introduced in Chapter 5. As part of this account we deal with how the different operations may interact beyond the metaphor-metonymy combinations that have been attested in the literature (e.g. Goossens 1998, and Chapter 5 herein). These interactions often yield meaning effects that we accordingly relate to the figures of speech discussed in Chapter 6. On the other hand, we explore the pervasiveness of each cognitive operation at different levels of linguistic enquiry.

1. Domain expansion and domain reduction

As we noted in Chapter 4, section 3.1, domain expansion and reduction operations are closely related (but not restricted) to metonymic processes. However, we believe that the labels expansion and reduction are more adequate since they specify the kind of relationship that holds between the source and target domains of a metonymy. Thus, in expansion operations the source domain is a subdomain of the target (matrix domain). In turn, reduction operations make a broader (matrix) domain stand for one of its subdomains. The terms *part-for-whole* and *whole-for-part* metonymies respectively are in full consonance with these notions.

1.1. Domain expansion and reduction at the lexical level

At the lexical level, expansion underlies some cases of *ad hoc* adjustment of concepts in ongoing discourse by adding new elements of meaning to a conceptual configuration as needed for processing (cf. the factual accumulation of information in an encyclopedic entry).

As we advanced, expansion is a common operation when concepts or parts of concepts are related on a “stands for” basis, as is the case of part-for-whole metonymies, also termed *source-in-target* metonymies in Ruiz de Mendoza (2000a). Metonymic expansion can thus result from using part of a domain to provide access to the whole of it. The domain thus accessed is termed *matrix domain*. Take examples (1) and (2) below:

(1) We need a hand this Sunday.⁶⁵

(2) The guitar has been drinking, heavily.⁶⁶

In example (1), ‘hand’ is a subdomain of (and is metonymically made to stand for) the matrix domain ‘help provided by a person as if with his hand’, where ‘hand’ is a perceptually and therefore conceptually prominent part of the domain of help. Another straightforward example of expansion-based metonymy is the use of “the guitar” in (2). In this sentence, the musical

⁶⁵ <http://www.rcwa.org.au/forum/viewtopic.php?f=59anddt=1377>. Accessed on October 5, 2011.

⁶⁶ <http://www.delcamp.us/viewtopic.php?f=11anddt=33592andstart=0>. Accessed on November 17, 2011.

instrument, the guitar, which is prominent in the domain of playing music, affords metonymic access to its corresponding matrix domain, i.e. ‘the person that plays the guitar’.

Let us now briefly turn our attention to conceptual reduction. Conceptual domain reduction, like domain expansion, also lends itself to metonymic relations. This is illustrated by sentences (3) and (4):

(3) Spain have won the World Cup for the first time in their history.⁶⁷

(4) He taught his daughter to tie her shoes.⁶⁸

‘Spain’ in (3) stands for the Spanish football team that actually won the World Cup. The metonymy works by affording schematic access to the whole notion of Spain and then cueing the addressee for the reduction of this conceptual domain to make it match the conceptual requirements of the rest of the sentence. The matrix domain is thus made to stand for a part of it thereby giving it a conceptual prominence that it did not have. The result of this operation is a *target-in-source* metonymy (cf. Ruiz de Mendoza 2000). The same applies to example (4). The textual information surrounding the word *shoes* forces an operation of metonymic reduction that makes the concept ‘shoe’ stand for one of its subdomains, namely ‘shoelaces’. In other words, the verb *tie* cues for the operation of domain reduction that highlights the appropriate subdomain within the broader matrix domain ‘shoes’.

⁶⁷ <http://www.telegraph.co.uk/sport/football/teams/spain/7884485/Spain-win-World-Cup-2010.html>. Accessed on October 5, 2011.

⁶⁸ books.google.es/books?isbn=0618562052. Randall, A. (2005). *Pushkin and the Queen of Spades: A Novel*. Accessed on January 15, 2013.

1.2. Non-lexical domain expansion and reduction at level 1

A case of non-lexical expansion, also at level 1 of the LCM, is provided by the RESULT FOR ACTION metonymy (cf. Panther 2005). Let us take examples (5) and (6) in order to illustrate this point:

(5) The book is yours.

(6) You are dead.

Sentence (5) exemplifies the RESULT FOR ACTION metonymy in a context in which the book is a gift from the speaker to the hearer. The hearer's possession of the book is the result of the speaker's action of giving the book to the hearer. Another instantiation of this metonymy can be found in sentence (6), which constitutes a threat. Dying can be the result of someone willfully causing death. In this case, telling the addressee that he is dead stands for someone planning to cause his death.

In traditional accounts of pragmatic inferencing, examples like these are considered to be cases of implicature since there is some conceptual distance between the literal (i.e. descriptive) meaning of the sentence, which denotes the speaker's recognition of the addressee's possession of the book, and its default meaning implication that there is a transfer of possession from the speaker to the hearer. However, as will be seen from our analysis of other examples later on, there are other cases of implicature that require more complex reasoning processes that are examined further below in this section. For the time being, we simply note that implicatures like the one described above have an eventive nature, that is, they are based on providing access to

a whole event by mentioning one of its relevant parts (e.g. its outcome); we refer to such implicatures as *event-based implicatures*. Remember from Chapter 4, section 2.2., that an event is a dynamic state of affairs, whether controlled by an agent-like entity or not. The dynamic nature of events refers to their overall structure, since their internal composition can have not dynamic elements such as results within action frames.

As with domain expansion, domain reduction is also possible in cases of non-lexical metonymy. Let us examine example (7) below, which we already discussed in Chapter 5, section 2.2. in relation to the formal operation of selection:

(7) There is a lot of America in everything she does.

In order to interpret this sentence, we need to bear in mind that our knowledge about American lifestyle and values is a subdomain of our knowledge about America. This metonymy, which makes use of high-level propositional cognitive models, has been labeled by Ruiz de Mendoza and Pérez (2001: 337) A UNIQUE ENTITY FOR ONE OF ITS (HIGHLIGHTED) PROPERTIES.

Expansion and reduction operations may also be involved in cases of grammatical recategorization. English speakers often make use of whole clauses in order to provide descriptive details about a noun. That is, they use a clause as if it were an adjectival phrase. This point is illustrated by sentences (8) to (11) below:

- (8) Don't you love her "I played all day" hair?⁶⁹
- (9) I personally like the "I've been gardening" nails look.⁷⁰
- (10) Having them pick out their own clothes cuts down on the "I don't want to wear this shirt" phenomenon.⁷¹
- (11) I'm having one of those "I want to stay in bed all day" days.

From the perspective of cognitive modeling, the clause that plays the adjectival role in (8), i.e. *I played all day*, invokes a whole scenario in which someone has been playing all day. The 'playing all day' scenario contains a number of conceptually related outcomes: 'being tired', 'having dirty hands', 'having dirty clothes', etc. However, not all the potential outcomes are relevant for interpretation. Speakers will naturally choose those that are conceptually compatible with the noun that is modified by the clause. Since (8) ascribes a property to the concept 'hair', the intended interpretation is to be related to the way somebody's hair looks like after having played all day: untidy, messy, unkempt. This calls for a metonymic reduction operation whereby mentioning the action stands for one or more of its outcomes (ACTION FOR RESULT).

Example (9) needs to be handled following the same reasoning pattern. The broad scenario of 'gardening' conveys a series of effects among which we may name having dirty hands and nails, dirty and sweaty clothes, tiredness, etc. Again, the ACTION FOR RESULT metonymy is involved, which allows us to highlight and thus give prominence to the appropriate outcome contained

⁶⁹ <http://www.oopsicraftmypants.net/2012/11/sisters-make-perfect-best-friend.html>.

Accessed on January 9, 2013.

⁷⁰ <http://eitherthecurtainsgoorido.blogspot.com.es/>. Accessed on January 15, 2013.

⁷¹ <http://www.askmoxie.org/2012/08/when-are-kids-old-enough-to-get-themselves-ready-for-school.html>. Accessed on January 9, 2013.

within the matrix domain. As in the case of (8), the adequacy of the outcome relies on its ability to be conceptually compatible with the concept denoted by the noun phrase, i.e. ‘nails’. Therefore, we need to search for a property that is suitable to complement ‘nails’ and that is related to the scenario of ‘gardening’, that is, nails that are full of dirt and consequently unnaturally black..

It may also be the case that the interpretation of this kind of adjectival modification requires an operation of metonymic expansion. Let us examine example (10), in which a particular kind of phenomenon is being described. In order to specify the kind of phenomenon, (10) uses a clause in adjectival function. This clause invokes part of a broader scenario capturing a situation in which a teenager rebels against his parents. The expression “*I don’t want to wear this shirt*” phenomenon can be paraphrased as ‘the kind of phenomenon that takes place when we are in a situation in which someone says “I don’t want to wear this shirt”’. Thus, we assume that the sentence “I don’t want to wear this shirt” is prototypically uttered in a given scenario, which we access through metonymic expansion. The same can be said about example (11), which may be paraphrased as ‘I’m having one of those days in which I say “I want to stay in bed all day”’. As in example (10), the clause that complements the noun phrase (*day*) affords access to the scenario in which it is typically uttered, that is, a scenario in which a person is so tired or depressed that he does not want to get up from bed.

We have found a fairly wide range of expressions that follow this pattern. Some of them are: “*I want to stare at it all day*” creations, “*I want to restart my day!*” moments, “*it’s not gonna happen*” feeling, “*I know*

something you don't smile. All these examples are to be handled in terms of metonymic expansion whereby what is typically said when faced with a stereotyped event is mapped onto the whole event. We may label this expansion operation as the A TYPICAL VERBAL REACTION TO AN EVENT FOR THE WHOLE EVENT metonymy.

Neither expansion nor reduction processes are active in isolation from other processes at levels 2 and 3 of the LCM, that is, at the implicational and illocutionary levels. By itself, expansion would require that a whole situational domain, with all its internal rich structure is not only activated (which could be a theoretical possibility) but also made relevant for interpretation, which is a bit less likely in terms of cognitive economy. In turn, reduction would be linguistically (rather than just cognitively) uneconomical since it would require describing a whole scenario to afford access to one of its subdomains. However, expansion and reduction can – and in fact *do* – cooperate at these levels, as it is shown in the next section.

1.3. Expansion and reduction at the implicational level

Consider, at level 2 of the LCM, a case of what we may call *situation-based implicatures*. Such implicatures are obtained from the application of a premise-conclusion reasoning schema to what is said (cf. Sperber and Wilson, 1995), where “what is said” is part of a more complex situational cognitive model or scenario.⁷² As discussed in Chapter 4, section 2.2.,

⁷² *Situation-based implicatures* are different from so-called *scalar implicatures* (cf. Horn, 1984; Carston, 1998). The latter arise from pragmatic implications between quantifiers such as *some* and *all* (e.g. *She has read some of Lakoff's books* implicates *She hasn't read*

situations are not to be confused with events. While events are made up of high-level propositional cognitive models such as the notions of action, process, object, instrument, result, etc., situations are sequences of events that are generally bound to social conventions. Let us analyze the metonymic grounding of the communicative exchanges in examples (12) and (13) below:

(12) A: So...now what? Am I fired?

B: I think you should collect your things⁷³.

(13) A: Did they have a successful hunt?

B: Jim is a great shot.

In example (12), the first conversational turn affords access, through metonymic expansion, to the whole low-level situational scenario of the world of work, which contains a number of propositional models such as being hired, being dismissed, working set hours, having a place where we develop our work, etc. Once we have access to this situational cognitive model, we need to focus our attention on the part of that scenario that is relevant for an adequate interpretation of the answer. Through domain reduction, the utterance *I think you should collect your things* focuses on the fact that workers usually have a place (e.g. a locker) where they can store their belongings while they are employed. Typically, when an employee is fired, he has to collect his belongings from his assigned locker since he will

all of Lakoff's books, which is cancellable, as is evident from the possibility of saying *She has read some of Lakoff's books; in fact, she has read all of them*). The relationship between the quantifiers is not based on the application of a reasoning schema like the one described here.

⁷³ <http://www.oocities.org/goldengluestick/bernard.html>. Accessed on March 21, 2012.

soon be denied access to it. This implicational chain makes use of the following premise-conclusion reasoning schema:

Premise (implicit assumption): Employees usually have a place at work where they can keep their personal belongings.

Explicit assumption: The addressee is asked to remove his personal belongings from his/her working place.

Conclusion (implicated assumption): The addressee has been dismissed.

Note that different answers will highlight different aspects of the same situational model thus conveying different meaning implications. For example, saying *I can't stand your being late anymore* exploits the assumption that workers must comply with their working hours and that not doing so may be a reason to be dismissed.

We may come across more complex cases in which more than one premise-conclusion schemata may be involved. This is the case of example (13). In a context in which Jim has gone hunting with some of his friends, the question *Did they have a successful hunt?* may be answered with *Jim is a great shot*. The implicature is that the hunt was successful. It arises from the following reasoning process:

Premise (implicit assumption): A great shot is likely to hit all his targets while hunting.

Explicit assumption: Jim is a great shot.

Conclusion (implicated assumption): Jim probably hit all his targets.

Premise (implicit assumption): Hitting all targets makes a hunt successful.

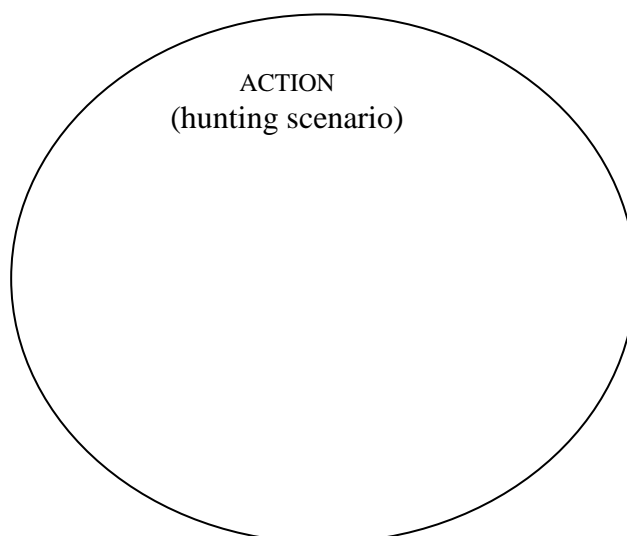
Previous implicated assumption: Jim probably hit all his targets.

Conclusion (implicated assumption): The hunt was successful.

These two chained reasoning schemas are also grounded in a combined expansion and reduction process whereby the idea that Jim has great skills as a hunter gives access to a more complex hunting scenario where Jim uses his skills to actually hit all his targets. This first metonymy is a case of ABILITY FOR ACTION. This richer action scenario, in turn, provides access to its most relevant subdomain in the context of the question about the success of the hunt: the assessment about how successful it was. This second metonymy, which is chained to the first, can be labeled ACTION FOR RESULT. The way in which this process takes place is captured in figure 1.

Domain expansion: Jim is a great shot (ABILITY) < hunting scenario (ACTION).

Domain reduction: hunting scenario (ACTION) > Jim actually hit all his targets, which made the hunt a success (RESULT).



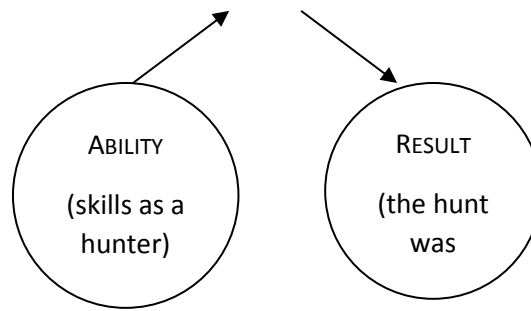


Figure 1. Domain expansion and reduction processes in the communicative exchange *Did they have a successful hunt? Jim is a great shot*

Here we want to propose that metonymic chains are invariably associated to meaning interpretation at level 2. In other words, implicated meaning is always to be accessed through a metonymic complex in which an initial operation of domain expansion is followed by another of reduction. In the case of implicatures, some information is derived from the sentence uttered by means of a (metonymically motivated) premise-conclusion pattern. However, on some occasions level-2 utterances do not involve implicature derivation. Rather, the meaning implications are to be obtained inferentially. This is the case of ironic remarks, which we address in relation to echoing operations at the implicational level (see section 4.2 below). Therefore, we distinguish between *implicated meaning* (obtained by means of premise-conclusion patterns) and *implicational meaning* (obtained inferentially).

We have found that implicational activity may also be involved in the interpretation of some clauses in adjectival position of the kind analyzed in examples (8) to (11) above. In this respect, let us pay attention to sentence (14):

(14) Gopher gave me the “I told you so” look.⁷⁴

Following the same reasoning schema that we applied in our analysis of examples (8) to (11), we may claim that the speaker refers to ‘the kind of look you give someone in the typical situation in which you say “I told you so”’. Therefore, we may assume that the application of the metonymy A TYPICAL VERBAL REACTION TO AN EVENT FOR THE WHOLE EVENT is again in order here. However, we need to point to the fact that sentence (14) does not invoke an event, but rather a situation, which is made up of several events. The situation may logically have slight variations depending on the context, but, generally, it is made up of the following sequence of events:

1. A intends to take action over something.
2. B warns A about the inappropriateness of his action.
3. A disregards B’s advice.
4. After some time A’s action proves wrong.
5. B is upset/disappointed/proud/etc. that he was right while A was not.
6. B says “I told you so” to A.

The speaker in (14) makes explicit reference to the last of these events, which affords access to the whole situation. However, the whole scenario is not relevant for the complementation of the concept ‘look’. Rather, we need to perform a subsequent operation that highlights the event within the whole situation that complies with the requirements for interpretation, that is, the event that provides conceptually compatible information to ‘look’. This

⁷⁴ <http://www.tumblr.com/tagged/gopher?before=1305074765>. Accessed on January 9, 2013.

operation is one of metonymic reduction, which focuses on event 5: B is upset/disappointed/proud that he was right while A was not. Therefore, the kind of look Gopher gave to the speaker is one of upset/disappointment/pride.

The connection between the sentence *I told you so* and the implication that the speaker is upset/disappointed/proud (or somehow bothered) is highly conventionalized. We may thus contend that this is an implicational construction that arises from the following premise-conclusion reasoning schema:

Premise (implicit assumption): if A ignores B's advice and B turns out to be right, B has a right to be upset/disappointed/proud.

Explicit assumption: B tells A that he had already warned him ("I told you so", where 'so' makes reference to the action A carried out in spite of B's advice).

Conclusion (implicated assumption): B is upset/disappointed/proud.

1.4. Domain expansion and reduction at the illocutionary level

Let us now take an example of the metonymic grounding of illocutionary meaning. The existence of illocutionary scenarios that can be accessed metonymically to produce illocutionary meaning was first defended by Panther and Thornburg (1998). For example, the *Can You X* construction invokes the ability component of a more complex scenario that includes all the Searlean conditions for requests (ability, willingness, obligation, result).

Panther and Thornburg (1998) argue that the ability component of *Can You X* stands for the whole request scenario thus giving rise to a request interpretation. This proposal has been further developed in Pérez and Ruiz de Mendoza (2002), who add a number of other variables, and by Ruiz de Mendoza and Baicchi (2007) and Baicchi and Ruiz de Mendoza (2011), who postulate a number of constraints and interacting scenarios that can account for the subtleties of speech act meaning. On the basis of previous work in Ruiz de Mendoza (2007), a crucial ingredient of the developments in Ruiz de Mendoza and Baicchi (2007) and Baicchi and Ruiz de Mendoza (2011) has been the proposal that illocutionary scenarios are but the result of generalizations over low-level situational cognitive models carried out by abstracting common structure away from them; in other words, illocutionary scenarios can be described as cases of high-level situational cognitive models (see 3.2.1. above). With this scenario in mind, consider examples (15) and (16):

(15) Silly me! I've forgotten my pen!

(16) This was red wine.

Imagine a situation in which a student is taking an exam but has forgotten his pen. He slaps his forehead as he utters sentence (15); then a classmate obligingly supplies him with a spare pen. The student's remark has been understood as a request for help. According to Ruiz de Mendoza and Baicchi (2007), this interpretation process is based on the exploitation by the first student of part of the Cost-Benefit Model: a social convention according to which we are expected to do our best to help other people when

we realize that they are in need (Chapter 4, section 2.2.2). In terms of metonymy, the student's remark counts as a statement of need, which first stands for the whole social convention mentioned above, which in turn stands for a subdomain of this convention, i.e. the idea that the addressee should alter the state of affairs to the speaker's benefit. In the same way as with implicatures, which are based on low-level situational scenarios, we have a premise-conclusion reasoning schema, which takes the following form:

Premise (implicit assumption): If a state of affairs is not beneficial to the speaker and the hearer can change it, then the hearer is expected to change it to the speaker's benefit.

Explicit assumption: The speaker has a need for a pen (i.e. there is a state of affairs that is non-beneficial to the speaker)

Conclusion (implicated assumption): The hearer is expected to satisfy the speaker's need (thereby changing the state of affairs to the speaker's benefit).

Two remarks are in order. First, the social convention described above acts both as the matrix domain for the metonymic chain and as the implicit premise in the reasoning schema. By providing a point of access to the matrix domain and then leading the interpreter to highlight a relevant subdomain, the metonymic chain constrains the way in which the inferential process takes place. Second, the high-level elements of the metonymic chain are parametrized by lower-level concepts derived from the context of

situation or from previous discourse. On some occasions, the lower-level concepts that play a role in the parametrization process of higher-level structure are organized in the form of (stereotyped) low-level situational models or scenarios. This is the case of example (16). Think of a scenario in which a man and a woman on a date attend a wine party. After emptying his first tasty cup, the woman, rather than helping herself the second cup, simply points at her empty cup while telling her date: *This was red wine*. This remark, which is an indirect statement of a desire, affords access, through metonymic expansion, to the social convention that we have mentioned above. The high-level elements of this scenario are then parametrized through low-level elements of the ‘dating scenario’ in the context mentioned. It is at this level that the man will understand, through domain reduction, that his date is asking him for a refill of red wine (i.e. he needs to address his date’s desire).

1.5. Domain expansion and reduction at the discourse level

At level 4, or discourse structure, expansion and reduction mechanisms are also operational. Conceptual expansion underlies cases of anaphoric reference where the pronoun, which is empty of content (i.e. it only carries grammatical features like gender and number), is linked to a content item. In general, any kind of substitution device of the kind postulated by Halliday and Hasan (1976), as illustrated by the sentences *Give me the red one* (where ‘one’ stands for ‘the red gown’) and *I told you so* (where ‘so’ stands for ‘that you would lose your money’). The expansion is from a skeletal unit

expressing gender and number to a non-skeletal unit expressing gender, number and denotational attributes based on our knowledge of the world. The necessary information for these operations to be successfully performed needs to be elicited from previous linguistic input, therefore taking place at the discourse level.

In turn, conceptual reduction is typical of focalization phenomena where the addressee's attention is directed to a specific area of the conceptual complex invoked by a proposition. In *He stole my WÁTCH (i.e. not my wallet)*, the idea that someone stole an object is simply given information; so the focus of attention is on the identity of the stolen object. This involves reducing the amount of conceptual material that is used to actually make the sentence (and its accompanying propositional structure) meaningful. Table 1 below summarizes domain expansion and reduction operations at different levels and in different domains of meaning construction.

Table 1. Expansion and reduction

Operation	Lexical level	Implicational level	Illocutionary level	Discourse level
Expansion (A FOR B, where B is a matrix domain and A is a subdomain of A)	Source-in-target metonymies (<i>We need a hand this Sunday</i>)	Expansion and reduction in combination (<i>Did they have a successful hunt? / Jim is a great shot</i>)	Expansion and reduction in combination (<i>I've forgotten my pen</i>)	Anaphoric reference
	Non-lexical expansion: the RESULT FOR ACTION metonymy (<i>This book is yours</i>)			
Reduction (B FOR A, where A is a matrix domain and B is a subdomain of A)	Target-in-source metonymies (<i>Spain won the World Cup</i>)			Focalization phenomena (<i>He stole my WATCH</i>)
	Non-lexical reduction: A UNIQUE ENTITY FOR ONE OF ITS (HIGHLIGHTED) PROPERTIES (<i>There is a lot of America in what she does</i>)			

2. Correlation

Correlation is the basic operation that underlies so-called correlation metaphors. This kind of metaphor is based on the co-occurrence of events, that is, we tend to conceptualize a concept in terms of another that is perceived to often happen at the same time. In this section we account for this cognitive operation and also address the metaphor-metonymy distinction in the case of correlation metaphors.

At level 1 of the LCM, correlation operations are at the basis of primary metaphor and actuality implications. Let us see each of them in turn.

2.1. *Correlation and primary metaphor. The metaphor-metonymy distinction*

Some common metaphors based on correlation operations are:

1. IMPORTANT IS BIG: large objects exert major forces and dominate our visual experience more than small objects; e.g. *Nicolas Sarkozy has big plans for transforming Paris into a model city for the 21st century*;⁷⁵
2. INTIMACY IS CLOSENESS: being intimate usually involves physical closeness; e.g. *Kephart and Masa became close friends and spent much time working on maps for the proposed park*;⁷⁶
3. KNOWING IS SEEING: seeing is a crucial way of getting information; e.g. *87% of people can't see what's wrong with this computer. Can you?*;⁷⁷
4. MORE IS UP: levels rise and fall as quantity, e.g. of a fluid, increases or decreases; e.g. *Why is the market on oil rising so fast?!?!?*;⁷⁸
5. UNDERSTANDING IS GRASPING: holding and touching an object allows us to get information about it; e.g. *Harrigan caught the idea in a flash*.⁷⁹

⁷⁵<http://www.francetoday.com/articles/2010/08/21/big-plans-for-grand-paris.html>. Accessed on October 6, 2011.

⁷⁶<http://www.pbs.org/nationalparks/people/behindtheparks/kephart-masa/>. Accessed on October 6, 2011.

⁷⁷<http://www.bypassfanpages.com/2010/05/87-of-people-cant-see-whats-wrong-with-this-computer-can-you/>. Accessed on October 6, 2011.

⁷⁸http://www.southcarolinagasprices.com/Forum_MSG.aspx?master=1andcategory=1056andtopic=441028andpage_no=14andFAV=N. Accessed on October 6, 2011.

⁷⁹<http://www.freefictionbooks.org/books/h/23098-harrigan-by-max-brand?start=3>. Accessed on October 6, 2011.

Cognitive linguists have generally accepted that experiential correlation gives rise to the conflation or mixing up of the correlated concepts in our minds. For this reason, speakers are not generally aware that expressions such as *a warm embrace*, *high prices*, *catch an idea*, and the like, are metaphorical.

Correlation underlies primary metaphor because if A and B are found together in experience, then A (source) can be used to talk and reason about B (target) as if B (target) were A (source). However, this only applies in one direction. We use heat to talk about anger, or height about quantity, or closeness about intimacy, etc., but not the other way around. This is an important asymmetry which is due to the fact that one of the co-occurring domains is taken to be perceptually and therefore cognitively more prominent: the signs or symptoms of anger, in fact the effects of anger, such as the redness of the skin and the release of bodily heat are visible, but not so the cause, anger itself, which is only accessible as an inference from the symptoms; the height of a pile of objects as these are put one on top of the next is perceptually more prominent than the pile itself; finally, the act of two people holding close to each other is a perceptually outstanding sign of their mutual affection. Since in experiential correlation one of the two domains involved is perceptually more salient than the other, the former readily acts as a point of access to the latter, which is why some authors claim that it is reasonable to argue that correlation metaphors such as *hot with anger*, *high prices*, and *a warm embrace* are also metonymic (cf. Barcelona 2000a; Radden 2000; Barnden 2010): ‘hot’ stands for ‘angry’, ‘high’ for ‘expensive’ and ‘warm’ for ‘affectionate’. Authors who advocate

for the vagueness of the boundaries that separate metonymy from correlation metaphor argue that in such correlations the perceptually salient domain and the less salient domain stand in a subdomain-domain relationship. Thus, for *a warm embrace*, which relates (and conflates) affection and warmth, the notion of ‘warmth’ would be interpreted as ‘the result of expressing affection by holding someone close to oneself’. Here we want to argue that expressions based on experiential correlation are not metonymic. A highly compelling reason for this contention is found in the fact that experiential correlation gives rise to a reasoning system, while metonymy does not. This reasoning system is, furthermore, a pretense or make-believe one. Thus, the temperature-affection connection allows us to think of affection *as if* it were warmth (e.g. *a warm embrace*; *warm greetings*; *a sunny smile*); as a natural-logic consequence, lack of affection is coldness (cf. *the coldness in her eyes*; *She’s a block of ice*; *a glacial look*). On the same kind of logic, middle-ground cases are also possible: *a cool greeting*; *a tepid welcome*; *a lukewarm reception*. Evidently, these expressions exploit the reasoning schema of the source domain to fully understand the target domain rather than use source elements to afford access to target elements. This being so, “warm” in the expression *a warm embrace* would not be metaphorical but metonymic, where it would stand for ‘affectionate’. However, this reasoning line is not exempt of problems too. First, if we want to regard the connection between affection and warmth a domain-internal one, we need to say which of the two concepts is a subdomain of the other. It might be postulated that since warmth is felt when showing affection, then the former concept is part of a ‘showing

affection' scenario. But then, in order to interpret *a warm embrace*, we would need to postulate a rather unusual mapping from 'warm' to the whole 'showing affection scenario' (where people become intimate through physical proximity and then feel warmth) and from here to its 'affection' subcomponent. This is not impossible, since double metonymic mappings have been attested in research on metonymy (cf. Ruiz de Mendoza and Pérez, 2001) (Chapter 5, section 4.3). However, this explanation misses two important facts. The first fact is that there is a whole reasoning system, which we do not find in metonymy, related to the affection-warmth correlation: an embrace can be *extremely cold*, *cold*, *tepid*, *lukewarm*, *warm*, *hot*, etc.; this means that we reason about degrees of affection in terms of temperature scale ranges. In metonymy, one conceptual domain affords access to another domain, for which it stands (cf. Kövecses and Radden 1998); the first domain is the metonymic source and the second is the target. But the source is not used to reason about the target, as is the case of the examples above. Compare the famous metonymy *The ham sandwich is waiting for his check*. The order stands for the customer but it does not allow us to reason about him. The second fact is that AFFECTION IS WARMTH is used in expressions such as the following, where the "stands for" relation typical of metonymy does not hold: *She is as cold as ice*; *She is as warm as the sun*. These are cases of simile, which are combined with hyperbole (cf. Chapter 6, section 2), to convey extreme lack of affection and extreme affectivity respectively. Here, the temperature terms *cold* and *warm* cannot stand for *unaffectionate* and *affectionate*: **She is as unaffectionate as ice*; **She is as affectionate as the sun*.

These observations do not mean that there is no substitution of terms and their associated concepts in expressions whose meaning interpretation is grounded in experiential correlation. We use *warm* instead of ‘friendly’ and *cold* instead of ‘unfriendly’. But substitution, while certainly exploited to construct metonymies, is not unique to metonymy. It happens in referential uses of metaphor. Compare the predicational use of PEOPLE ARE ANIMALS in the sentence *My husband is a pig* with its referential use in *The pig came back to get his stuff*. When we make referential use of a metaphor, the metaphorical terms substitutes for the implicit non-metaphorical referent: in the example above, *the pig* substitutes for ‘my husband’ (cf. Ruiz de Mendoza, 1997, 2000; Ruiz de Mendoza and Pérez, 2003).

2.2. *Correlation and actuality implications*

An interesting case of experiential co-occurrence is provided by the relationship between the ability to perform an action and the action itself, where the former is a pre-requisite for the latter to be possible. There are common expressions, such as *I can guarantee/promise that you will have your money back* or *I can see the Rockies from my penthouse*, which have been traditionally discussed in the philosophy of language as a matter of so-called *actuality entailments* (e.g. Karttunen 1971). An actuality entailment is a non-presuppositional implication whereby the attribution of the ability to perform an action either entails or somehow implicates the prospective performance of the action. This kind of implication can only take place

given a number of conditions that have been explored in the literature (e.g. Bhatt 1999). For example, the implication is not possible if the subject of the modal verb expressing ability receives an existential interpretation (e.g. *In those days, firemen were able to come to the rescue in less than ten minutes*) but it holds if there is no such an interpretation (e.g. *Yesterday, the firemen were able to come to our rescue in less than ten minutes*). In our view, underlying such entailments we have a domain expansion cognitive operation grounded in the experiential correlation of the event of expressing ability and the event of performing an action that one has the ability to perform. This experiential correlation gives rise to the mental conflation of the events involved thus facilitating the metonymic connection between the ability subdomain and its corresponding matrix, the action domain. Of course, this metonymy, which is of the source-in-target kind (see section 1 above), will not take place when there is an existential interpretation of the situation, as noted above.

It must be observed that postulating a source-in-target metonymy in connection to actuality entailments is necessary to account for the meaning difference between talking about the actuality of an action through the direct expression of actuality (e.g. *I actually did/ I will certainly do*) or through the ability pre-requisite (e.g. *I was able to do/ I can do*). The latter choice gives prominence to the fact that the action did take place or will take place because it is indeed practicable. This is so since, as was pointed out in section 1, the metonymic source domain is more prominent in source-in-target metonymies.

The kind of metonymic operation that we are describing comes very close to a previous programmatic proposal in the literature on metonymy, the POTENTIALITY FOR ACTUALITY metonymy (cf. Panther and Thornburg 1999; Ruiz de Mendoza and Pérez 2001). These authors observe that it is very common to use the ability/potentiality for physical or mental perception to make it stand for the actual perception. Thus, *I can see/hear/feel*, etc. can stand for ‘I actually see/hear/feel, etc.’. They also observe that this metonymy is productive when the actor commits himself to some course of action or personally guarantees the truthfulness of what s/he says. However, in our view, the situation is more complex, since, as noted above, the metonymy has an underlying licensing factor, which involves the conflation in our minds of co-occurring events.

2.3. *Correlation at the implicational and illocutionary levels*

We want to argue that experiential correlation can also underlie some cases of metonymy involving highly overlapping or even simultaneous (or co-occurring) events within a cognitive situational model or scenario at levels 2 and 3. However, in these cases correlation does not give rise to conflation in the speaker’s mind. A case in point is found in marriage proposals where a man offers a diamond ring to his prospective fiancée as he asks her for marriage while getting down on one knee. These three events are largely simultaneous thus clustering in our minds into the same conceptual package. A question like *Did he finally give you the ring?* can metonymically stand for the whole act of proposing with the meaning ‘did he finally propose to

you?'. There is no temporal contiguity between the events, but either full or nearly full co-occurrence, so the metonymy here is grounded in (culturally-determined) experiential correlation.

The example above is a case of low-level situational cognitive model. A similar rationale may hold for high-level situational cognitive models, which, as noted above, supply the conceptual material for illocutionary meaning derivation through the application of a metonymic (domain expansion) inferential schema (cf. Panther 2005). Think of the illocutionary scenario for requests, which includes the following events:

1. A has a problem or is somehow in need of help.
2. A makes assumptions about B's ability and willingness to change A's situation for better.
3. On the basis of (2) A determines whether to make B aware of (1) or directly entreat B to change A's situation for better.

This description is very much in line with the cultural stipulation, which we have referred to as the Cost-Benefit cognitive model, according to which a person is expected to help other people upon becoming aware that they need help. The first of the two alternative reactions in (3) is based on A's expectation that, once B is aware of A's needs, B will do his best to cater for such needs. The second reaction arises from A's assumption that simply making B aware of the problematic situation may not be enough to get him to act as needed. Whichever reaction, it must be noted that B's ability and willingness are co-requirements for A to make a request. These two co-

requirements are not events and they do not conflate in the speakers' minds. However, either of them can metonymically stand for the whole directive scenario: *Can/will you give me a hand here?* Since neither the events nor the other constituents of a scenario conflate in our minds, they are not sensitive to the same processes that give rise to primary metaphor. Correlation in such cases only enables metonymic connections within tight-knit elements of the scenario.

To sum up, correlation operations are a pre-requisite for the conflation (i.e. the mixing up) of events in our minds, which give rise to metonymic shifts grounded in primary metaphor, as in *Prices are high*, where 'high' stands for 'expensive' on the basis of a metaphor according to which we can treat quantity in terms of height (MORE IS UP). The correlation of events is also prior to situational metonymies where events co-occur or other scenario elements cluster into tightly combined conceptual patterns, in such a way that mentioning one straightforwardly calls for the other, but there is no actual mixing up or conflation of the concepts involved. Table 2 provides a summary of the various correlation phenomena that we have discussed.

Table 2. Correlation

Operation	Lexical level	Implicational level	Illocutionary level	Discourse level
Correlation (A IS/FOR B, where A and B designate co-occurring events in our experience)	Primary metaphor: UNDERSTANDING IS GRASPING (<i>He caught the idea in a flash</i>)	Co-occurrence of events within low-level situational models (<i>Did he finally give you the ring?</i>)	Co-occurrence of events within high-level situational models (<i>Can you give me a hand here?</i>)	
	Actuality implications: ABILITY FOR ACTION metonymy (<i>I can hear the music from here</i>)			

3. Comparison

We here propose the notion of comparison as an encompassing mechanism for cognitive operations that involve a process aimed at highlighting either differences or similarities across concepts. The comparison of two concepts may be thus focused either on the differences or the similarities between them. We make use of comparison by contrast in the first case, and comparison by resemblance in the second. Let us address both variants of comparison in turn.

3.1. *Comparison by resemblance*

Resemblance operations underlie some cases of metaphor, all cases of simile, and iconicity. We now proceed to discuss these three cases in turn. In addition, we address the metaphor-metonymy distinction in relation to resemblance metaphors.

3.1.1. *Resemblance metaphors*

According to Grady (1999), resemblance metaphors consist in establishing a correspondence relation between two entities on the basis of perceived similarities between them. Resemblance metaphors can be *structural* or *non-structural*. See examples (17) to (19) below:

- (17) His nose is an elephant's trunk.⁸⁰
- (18) His teeth are pearls in double row close press.⁸¹
- (19) Her skin is silk, her eyes could stir the dead.⁸²

Example (17) is a case of analogy, which supplies an instantiation of structural resemblance. In this sentence, the shape and size of the person's nose is compared to that of an elephant's trunk. In this case the analogy is based on shared part-whole structure combined with shared shape. The person's nose is to the person's face as an elephant's trunk is to an elephant's face. Structural resemblance is image-schematic or topological in nature, whereas non-structural resemblance is focused on specific non-topological attributes or, more generally, on non-topological attribute clusters. A straightforward example of non-structural resemblance is the metaphor that underlies the interpretation of sentence (18), which sees the color and brightness of the enamel of a person's teeth in terms of comparable features in pearls. Another example of non-structural similarity is found in example (19), in which representative features of silk (smoothness, softness, etc.) are attributed to the skin of a woman.

In the case of resemblance metaphors, difficulties arise when we attempt to distinguish metaphor from metonymy on the basis of the resemblance-contiguity distinction. Consider, in this respect, examples (20) and (21):

⁸⁰

<http://www.monsterechange.org/scripts/ms/monster.asp?monsterid=56552andpartid=12621>. Accessed on October 5, 2011.

⁸¹http://books.google.es/books?id=NHL5y5IB-voCandpg=PA210andlpg=PA210anddq=%22+teeth+are+pearls%22andsource=blandots=QmPB3l4Cyuandsig=Ho9KLNVDBoFzpxS-_JR4oovrphMandhl=esandei=eVGITs_NEIzO4QT79PXKBAandsa=Xandoi=book_resultandct=resultandresnum=3andved=0CCoQ6AEwAig8#v=onepageandq=%22%20teeth%20are%20pearls%22andf=false. Accessed on October 24, 2011.

⁸²<http://www.angelfire.com/vt/Tremere/>. Accessed on October 6, 2011.

(20) I could eat that sweet honey-bun alive.

(21) Table 1 ordered a family style appetizer sampler.

Sentence (20) is a case of some metaphoric expression based on resemblance. The speaker here refers to a good-looking, lovable person that is sexually attractive. According to Barnden (2010), the resemblance in crucial features such as being very good-looking and tasting nicely provides a point of access from the honey-bun to the person that shares those features, just like in cases of metonymy. A similar use of metonymy can be found in sentence (21), in which the relation of contiguity is established on the basis of spatial closeness (rather than resemblance) between the table and the customer. However, we believe that there is no reason to regard example (20) as a case of metonymy. Rather, we claim that this is a case of metaphor (based on the resemblance of certain features and effects on the speaker) used referentially.

The metonymies REPRESENTATION FOR REPRESENTED and REPRESENTED FOR REPRESENTATION are also based on resemblance, as exemplified by sentences (22) to (24):

(22) In Godfinger Sean Connery ('James Bond') saves the world from a nuclear disaster.

(23) Tony Blair is on the right side of the picture.

(24) The palefaces invaded Trader Joe's land and shot all his bison.

In example (22), the actor (representation) resembles the character (represented). In the case of (23), the represented (Tony Blair) resembles the representation (the image of Tony Blair in the picture). In addition, some part-whole metonymies are based on resemblance, as in example (24). Here, the pale face of the person affords access to the whole person. The paleness of the face resembles the paleness of the rest of the skin. In our view, even if we assume certain degree of resemblance between actor and character in the first example, this resemblance is secondary to the actor-character relation. The same applies to the other examples, in which the resemblance relation is circumstantial and is not exploited in the metonymic process.

We may also find cases of metonymies in which a famous person or event is used to refer to others that are similar in some way, as in the sentence *In all probability, 9/11 was another Pearl Harbor*. This is a case of paragon (see Chapter 5, section 4.2.3.), which combines metonymy (Pearl Harbor stands for the Japanese attack to the American fleet at Pearl Harbor: PLACE FOR EVENT) and metaphor (a war event like Pearl Harbor is another event of similar destructive consequences). Metaphor, but not metonymy, is based on the resemblance relation.

In his approach to linguistic creativity, Veale (2012) addresses cases of metaphor that encapsulate stereotypical information, focusing mainly on the *X is the Y of Z* construction (cf. Turner 1991, 1998; Fauconnier and Turner 2002). As Veale rightly points out, this construction may give rise to non-metaphorical interpretations (e.g. *Barack Obama is the president of the United States*; Veale 2012, p. 63). Usually, this construction is to be figuratively interpreted when the Y variable is realized by a proper name

that invokes an entity widely renowned for being (one of) the most prototypical instances of a particular category. We here claim that this type of stereotypical metaphor is what we have referred to as paragons (Chapter 5, section 4.2.3.). Recall our example *Humboldt is the Shakespeare of travelers*. Here, the Y element (Shakespeare) represents one of the most famous and skilled writers of all times. These socially and stereotypically attributed features are to be assigned to the entity we want to talk about, namely Humboldt (X) in relation to the category of writers (Z). In these cases, a resemblance metaphor (in combination with metonymic reduction) is at work. Veale shows that this pattern is very productive by making searches in the web, which have allowed him to retrieve a large amount of instances of this construction. These range from those that are easily interpretable, such as *Shahrukh Khan is the Tom Cruise of the Bollywood Industry*, and *Bill Gates is the Thomas Edison of the tech industry*, to more creative examples, whose interpretation is much less obvious, such as *Alfa Romeo is the Quentin Tarantino of the automotive world* and *The potato is the Tom Hanks of the vegetable world*. In our opinion, what makes the interpretation of this figurative construction more or less evident is (i) the representativeness of the attributes of Y within its category; (ii) the conceptual closeness (in terms of conceptual structure) between the categories to which Z and Y belong. That is, it is easy to establish a resemblance relation between the category to which Tom Cruise belongs (Hollywood actors) and the category to which Z belongs to (the Bollywood industry). However, the resemblance relation is not so readily accessible in the case of Tom Hanks (also in the category of actors) as having an

equivalent in the category of the vegetable world. In other words, the connection seems pretty obvious if we rephrase the example as ‘Shahrukh Khan is to the Bollywood industry what Tom Cruise is to Hollywood actors’ (e.g. handsome, well-paid, famous, etc.); but it does not seem to be so clear if we say ‘The potato is to the vegetable world what Tom Hanks is to Hollywood actors’. In this case, the reader may ask himself what is it that makes Tom Hanks representative in the world of actors that can be attributed to a potato in the vegetable world. The most plausible interpretation seems to be that Tom Hanks is a very versatile actor, and potatoes can be thought as an ingredient for many different meals, offering a wide range of possibilities of how to cook them. Nevertheless, many speakers may fail in getting to this conclusion.

3.1.2. Simile and resemblance operations

Simile here is understood as a grammatical structure marked by either ‘as’ or ‘like’ that it is used to pin down similarities between concepts (X is as Y as Z or X is like Y). Simile works through resemblance, like the metaphors we have discussed above. In other words, we talk about an entity and its attributes in terms of another. However, simile differs from resemblance metaphors in either of two alternative ways: (i) by making explicit the grounds for the comparison (cf. *Asian women and Thai ladies have skin as smooth and soft as silk*⁸³); (ii) by opening up the number of attributes that bear upon interpretation (cf. *The man’s skin is like silk despite the fact that*

⁸³http://books.google.es/books?id=mCKed7qHwbcCandpg=PA95andlpg=PA95anddq=%22skin+as+smooth+and+soft+as+silk%22andsource=blandots=Pq2G2ivWeTandsig=odhPRXIH_BFfHjkS5keuGdyNbN4andhl=esandei=yielTp_wAcj04QTkke3DCAandsa=Xandoi=book_res ultandct=resultandresnum=1andved=0CCcQ6AEwAA#v=onepageandq=%22skin%20as%20smooth%20and%20soft%20as%20silk%22andf=false. Accessed on October 21, 2011.

*he uses whatever soap is on sale at the grocery store*⁸⁴, i.e. it is glossy, delicate, soft, smooth, etc.). There is empirical evidence provided by Glucksberg (2001, 2006) that open simile offers a much less restricted range of interpretative options than metaphor. For example, in *He is like a shark* vs. *He is a shark*, the metaphor is almost invariably interpreted by experimental subjects in connection with the nature of sharks as aggressive, predatory animals, whereas the simile is opened to other features like the shark's physical strength (*Be strong like a shark, not weak like an octopus*⁸⁵), its voracity (e.g. *When Jack eats something he likes, he eats like a shark*⁸⁶), its ability to swim fast (cf. *Our pedal-powered tailboat swims like a shark. Quick, comfortable, stable and maneuverable*⁸⁷) and other related aspects (*A relationship, I think, is like a shark. You know? It has to constantly move forward or it dies*⁸⁸).

A wide range of ready-to-use formulaic (idiomatic) similes is available, so speakers do not need to make use of their own creativity to express many of their evaluations about an entity or state of affairs (Veale 2012): *as strong as an ox, as crazy as a goat, as easy as ABC, memory like a sieve, sleeping like a log*, etc. (see Galera-Masegosa 2010a, and Galera-Masegosa and Iza 2012 for preliminary discussion about simile-based idiomatic expression and the cognitive operations that underlie their interpretation).

⁸⁴ <http://www.lolazabeth.com/like-buttah-waxelene-the-petroleum-jelly-alternative/>. Accessed on October 21, 2011.

⁸⁵ <http://www.travelblog.org/Oceania/New-Zealand/North-Island/Gisborne/blog-551400.html>. Accessed on October 14, 2011.

⁸⁶ <http://everydayfather.blogspot.com/2011/08/perfection.html#!/2011/08/perfection.html>. Accessed on October 21, 2011.

⁸⁷ <http://www.tailboats.com/>. Accessed on October 21, 2011.

⁸⁸ <http://www.imdb.com/title/tt0075686/quotes>. Accessed on October 21, 2011.

Not only are similes highly pervasive in everyday language, but also, like some resemblance metaphors, they are often the repositories of stereotypical information about a language and a culture (Veale 2012, p. 76). In fact, non-native speakers of a language may be unable to interpret stereotype-based similes unless they are sufficiently acquainted with specific aspects of the socio-cultural conventions underlying them. A correct interpretation and understanding of similes involves knowledge of the concept invoked by the linguistic expression. Consider, for instance, the simile *as sober as a Kennedy* (taken from Veale 2012. p. 77). Language users that are not familiar with North American culture in general (and with the life habits of the Kennedys in particular) will find difficulties in deriving the appropriate implications that yield to a fully-fledged understanding of the expression: that the person the speaker refers to is drunk. We agree with Veale (2012) in his consideration of this simile as ironic. We address ironic similes in our account of echoing operations (section 4 below). In addition, the data reveal that many similes are hyperbolic in nature: for example, a person can hardly look as pale as a corpse, nor is it likely for someone's skin to be as soft as silk. The interaction between simile and hyperbole is later discussed in relation to strengthening and mitigation operations (section 5 below).

3.1.3. Resemblance operations and iconicity

Iconicity is understood as a linguistic situation where the linguistic expression or some of its constituting elements emulate, whether totally or partially, and thus directly evoke –through resemblance– a given state of affairs. The bibliography on iconicity in connection to the study of the

lexical and grammatical organization of languages is huge (see, for example, Haiman 1980, 1985, 2008; Givón 1985, 1995; Waugh 1994; Waugh and Newfield 1995; Croft 2008, among many others), and it is beyond the scope of this paper to go into the details of this topic. However, a few examples that illustrate some manifestations of iconicity will be useful.

One trivial form of iconicity is found in onomatopoeia. English nouns like *thump*, *bang*, *boom*, etc. try to emulate sounds that occur in the world. Many onomatopoeic nouns may undergo a process of categorial conversion in order to turn into verbal predicates. This process is licensed by a process of metonymic expansion by virtue of which the sound that results from a given action is made to stand for the action as in (25) and (26):

(25) I banged the door with my fists again, loud enough.⁸⁹

(26) Reggie buzzed me in through the side door.⁹⁰

Iconicity in the lexicon is also exemplified in the German word *Apfelsaft* ‘apple juice’, whose formal structure resembles the structure of its content: the form (*Apfel* + *Saft*) is a compound, as well as the concept (‘juice made from apples’) (Marzo 2011: 254-5).

Another more subtle case of iconicity is found in the use of a falling intonation to reinforce the impositive nature of some directive speech acts that are expressed through questions. Consider the following English examples:

⁸⁹ books.google.es/books?isbn=8120730798. Sisodia, R. P. (2000). *World Lost*. Accessed on January 17, 2013.

⁹⁰ books.google.es/books?isbn=0615131166. Pinto, J. A. (2005). *Flowers for Evelene*. Accessed on January 17, 2013.

(27) Aren't you just going to shut up! (with falling intonation).

(28) Will you stay with us a bit longer? (with rising intonation).

Both (27) and (28) are used to convey directive acts. However, the question in (28), unlike (27), is open to rejection. The rising-falling pattern is an indication of high and low optionality respectively. Interestingly enough, in real life, down positions often involve a submission position (from which it is more difficult to fight back). This experiential correlation gives rise to metaphorical uses of 'down' (e.g. *Nancy's moxie and determination to bring down the enemy preceded her*⁹¹). The correlational metaphor, which is itself iconic of co-occurring events (being defeated/being down), is in turn matched by the use of falling intonation.

A still more sophisticated form of iconicity is found in syntax. For example, the distance created by the use of the preposition “as” to introduce some complements parallels a “psychological” distance in the way we conceive a state of affairs. This is clear from the contrast between examples (29) and (30):

(29) Then came Anais Nin, the French writer, who proclaimed him [Henry Miller] a genius⁹²

(30) The Independent Republic of Texas proclaimed Sam Houston as president.⁹³

⁹¹ <http://darlingmagazine.org/the-white-mouse-a-short-biography>. Accessed on December 1, 2011.

⁹² www.gradesaver.com/author/henry-miller/. Accessed on December 2, 2011.

⁹³ <http://www.affiliate-earner.com/2011/05/>. Accessed on December 1, 2011.

In sentence (29), Henry Miller is directly ascribed the quality of being a genius; in (30), Sam Houston is officially announced as the person that will take charge of the presidency of the Independent Republic of Texas, but holding the presidency is not a regular property of the candidate. For this reason, there is greater distance between the verbal complement (or direct object) and the object complement.

3.2. *Comparison by contrast*

Contrasting, as mentioned above, is more a matter of differences than similarities. The result of this cognitive operation may differ depending on whether the concepts involved are scalar or non-scalar:

1. When we are working with non-scalar (i.e. entity-denoting) concepts, we can distinguish two kinds of contrast, *full* or *partial*. There are linguistic markers that capture both kinds of contrast. For example, full contrast is expressed through the conjunction *but*, the prepositional complex *in contrast to* and discourse connectors such as *however*, *nevertheless*, *on the other hand*, and *by contrast*. Partial contrast is captured, for example, by the prepositional complexes *but for/except for* (e.g. *There are no trees, except for some birches in the lower latitudes*⁹⁴), which explicitly mark *exception* relations at the discourse level.

2. When a contrasting operation works on scalar concepts, it results in different forms of understatement (e.g. litotes, meiosis) and overstatement

⁹⁴ <http://www.blueplanetbiomes.org/tundra.htm>. Accessed on October 17, 2011.

(e.g. hyperbole, auxesis). *Meiosis* (e.g. *It's just a scratch*, when referring to a serious wound) and *auxesis*⁹⁵ (e.g. *The lacerations inflicted on my client*, used by a lawyer to refer to his clients minor wounds) are extreme cases of understatement and overstatement respectively. In these cases, contrasting operations work in combination with processes of strengthening and mitigation, which we address in section 5 below. In addition, contrasting may cooperate with echoing operations in the creation of ironic effects. Colston and O'Brien (2000) argue that contrast is present both in irony and understatement since there is a mismatch between what is said and what is actually happening. Their experiments show that the degree of contrast is stronger in irony than in understatement, thus giving rise to different communicative effects. They contend that irony yields more humorous and condemning effects, which often arise from the unexpectedness of the remark; in turn, understatement is more protective of the speaker than literal statements. It is beyond the scope of this dissertation to analyze the different degrees of contrast that underlie these two cognitive strategies and the prevalence of some communicative effects over others. For our current purposes, suffice it to say that our data support Colston and O'Brien in their contention about the pervasiveness of contrast in irony and understatement. However, we additionally claim that ironic communicative effects arise not only from the contrast between the expected and the experienced events, but also from echoing operations (section 4 below).

⁹⁵ The traditional notion of auxesis is roughly equivalent to what some pragmaticists (e.g. Norrick 2004) have referred to as *Extreme Case Formulations* or EFCs. We will use the label "auxesis" in order to preserve the contrast with meiosis, which is necessary for our analysis of these phenomena in terms of scalar concepts and operations on them.

3.2.1. Paradox and oxymoron

A special case of contrasting operation is found in *paradox* and *oxymoron*, which are closely related phenomena. Paradox allows us to conceptualize a given state of affairs from an unusual but plausible perspective in terms of which apparent opposites can be reconciled. See, for example, sentences (31) to (33) below:

- (31) I am happy to be sad.⁹⁶
- (32) He is a wise fool.
- (33) Break this bittersweet spell on me.

Example (31) is a case of paradox: a person who is far away from her family is happy to think that she has people that she loves, even if she misses them. However, in oxymoron the contrast is not between situations but between concepts that can be reconciled within a broader framework. A case in point is found in example (32). The contrast between the individual but opposed concepts ‘wise’ and ‘fool’ can be resolved within a situation in which generally foolish behavior can have a surprisingly (and probably unintended) ‘wise’ outcome. For example, this expression could apply to a person that gives up everything for an apparently impossible ideal (which could be judged to be foolish behavior in terms of many standards) but whose desires eventually materialize against all expectations. Similarly, consider the line of a well-known song in (33), where the object of someone’s love behaves in an emotionally disruptive way. The concepts

⁹⁶ <http://courtneyfolwick.theworldrace.org/?filename=happy-to-be-sad>. Accessed on October 5, 2011.

‘sweet’ and ‘bitter’ apply to different aspects of the lover’s emotional makeup: the former to the positive feelings that emerge from being in love; the latter to the negative feelings that arise from a real situation of rejection. Panther and Thornburg (2012) relate these phenomena to antonymic clashes that may take place either between two lexical items within the same predication (lexical oxymora) or between a lexical item and the predication in which it appears (grammatical oxymora or performative paradox). Our account is in line with Panther and Thornburg’s proposal in that we understand paradox and oxymoron in terms of a contrasting cognitive operation, which is essential to produce antonymy. In other words, antonymy is one of the possible effects of contrasting concepts that have lexical expression. For example, at the lexical level we say that *rich* is the opposite of *poor* because we create default scenarios where applying the two at the same time to a given entity results in a complete conceptual clash: the two adjectives cancel out each other in such a scenario. But we can also contrast lexical items on the basis of lexematic hierarchies. Here, lexical items may overlap to some extent, but there are distinguishing factors that allow us to place them within a set of contrasting relations. Imagine that someone goes to the pet shop in order to buy just one pet bird. If this person buys a canary, then it follows that this person cannot have bought a parrot. Canaries, parrots, together with pigeons, budgerigars, etc., are sister categories that contrast among one another when considered as hypordinates of the category ‘pet bird’. This taxonomic context allows for the contrasting operation to separate each item off from the rest of the items in the context. This means that *rich* and *poor* are antonyms when contextualized to be

antonyms, while canaries and parrots are not antonyms, although they are exclusive of each other when contextualized within a lexematic hierarchy. In oxymoron the clash created by a contrasting operation is sorted out by constructing a marked (or non-default) scenario where one of the two items that contrast in a default interpretation is subsumed into the conceptual architecture of the other in a plausible way, however striking. For example, ‘sound’ and ‘silence’ are antonyms, but when Simon and Garfunkel, in their famous song, talk about “the sounds of silence”, the concept ‘silence’ is not understood as the complete absence of noise but in fact as the opposite: people talk and hear but without purpose; so their talking and hearing boils down to nothing, which is as if there were silence.

We can also apply contrasting operations to predications. One cannot say *God hates the sinner* and *God loves the sinner* at the same time, in a default scenario, without creating a contradiction. However, it is possible to construct a paradox, in much the same way as with oxymoron, by recontextualizing the clashing assertions: *God hates and loves the sinner* is congruent if we think of God as hating not sinners but their behavior when they sin because God hates sin, although God unconditionally loves all his children even if they sin.

3.2.2. *Contrasting at discourse level*

At the discourse level, besides exception relations, briefly discussed above, contrasting operations also underlie *alternation* relations. Alternation is a general semantic relation of mutual exception between two clauses (or their corresponding propositions), which brings about a situation of full contrast,

i.e. the states of affairs denoted are so different that they become incompatible. For example, in *Either you come or we come and get you*⁹⁷, the addressee is faced with two sharply contrasting situations, one in which he moves voluntarily to where the speaker is and another in which the speaker is compelled to come to the place where the speaker is.

As should be expected, comparison operations have no role in the derivation of implicated meaning on the basis of low and high-level situational models or scenarios (i.e. implicational and illocutionary meaning respectively). These cognitive models are inherently sensitive to (domain expansion) metonymic operations whereby part of the model is used to supply access to the rest of the model. Table 3 summarizes the different situations that we have discussed in connection to the cognitive operation of comparison.

⁹⁷ http://www.tribune242.com/06072011-vehicle-fraud_news_pg1. Accessed on July 20, 2011.

Table 3. Comparison

	Operation	Lexical level	Implicational level	Illocutionary level	Discourse level	
Comparison	Resemblance (A IS B, where A and B designate entities/states of affairs that resemble each other)	Metaphor - Structural (<i>His nose is an elephant's trunk</i>) - Non-structural (<i>His teeth are pearls</i>)				
		Simile (<i>Her skin is as smooth as silk / Her skin is like silk</i>)				
		Iconicity (onomatopoeia, suprasegmental features)				
	Contrast (A IS B, where A is the opposite of some aspects of B)	Non-scalar concepts	Full contrast (<i>Everybody but you</i>)			Full contrast (A, on the other hand B)
			Partial contrast (<i>There are no trees except for some birches</i>)			Partial contrast: exception relations (<i>I'd do anything except giving you away</i>)
		Scalar concepts	Understatement: litotes, meiosis (<i>It's just a scratch</i>)			Alternation relations (<i>Either you come or we go and get you</i>)
Overstatement: hyperbole, auxesis (<i>The lacerations inflicted on my client</i>)						

4. Echoing

In simple terms, echoing operations consist in the repetition of (part of) either a thought, a (real or imaginary) state of affairs or a linguistic expression. We believe that the scope of echoing is very broad and needs to be explored in further detail than in previous accounts. According to Sperber

and Wilson (1995), within the framework of Relevance Theory, this cognitive mechanism is related to irony. As we discussed in Chapter 6, section 4.1, we agree with Sperber and Wilson's stance and acknowledge the role of echoing in the creation of ironic expressions. However, we have proposed that it is the combination of echoing and contrast operations –in cooperation with pretense– that gives rise to irony. We also claim that irony is to be handled at the implicational level, thereby calling for the additional involvement of metonymic chains (see section 1 above).

Sperber and Wilson (1995) also suggest that echoic uses of language are not restricted to the creation of ironic effects. In section 4.1 we address this point in some detail in our discussion of echoing operations at the lexical level. Section 4.2 presents an account of the role of echo in the creation of ironic effects. Here we contend that irony needs to be handled at the implicational level, since the interpretation of ironic statements involves inferential activity. Section 4.3 is concerned with the pervasiveness of echoing operations at the implicational and illocutionary levels. This section provides illustration that echo at these levels may underlie both ironic and non-ironic echoic constructions. In addition, our data attest to the cooperation of echoing with other cognitive operations, an issue that we also address in detail.

4.1. Echoing at the lexical level

Wilson and Sperber (2012) propose that *echoic* uses of language are but a subtype of *attributive* uses of language. Attributive uses of language do not

give expression to the speaker's thought about states of affairs (*descriptive* uses of language), but rather to a different thought attributed to someone else or to the speaker at another time. For these authors, echoic uses of language are those that are both attributed to some source other than the speaker at that time (as they are a subtype of attributive use) and that express an attitude or reaction towards the content of the echoed thought (Wilson and Sperber 2012, p. 12). They contend that it is the nature of this attitude or reaction that determines whether the statement in question can or cannot be considered to be ironic. We believe that the expression of the speaker's attitude is an implication naturally arising from the combination of echoing and contrasting operations underlying ironic utterances. We address this point in detail with respect to echo at the implicational level. For the time being, we agree with Sperber and Wilson's regard of ironic uses of language as a subtype of echoic uses of language. However, we do not believe in the necessity of distinguishing between attributive and echoic uses of language. In fact, as will be made evident in our illustration of echoing at the discourse level, there are cases in which an echo cannot be attributed to anyone but to the speaker himself at that time. In our view, the repetition of a (part of) previously stated utterance, belief or thought is considered an echoic use of language, regardless of the speaker's attitude (if any) towards the contents of the utterance. Therefore, it is only logical to assume that there are cases of echoic language that are not ironic. In order to illustrate this point, Wilson and Sperber set in contrast different responses to the statement *I've finally finished my paper*. If the addressee answers happily saying *You've finished your paper! Let's celebrate!*, this is a case of

echoic but not ironic language: the speaker expresses his attitude, but this is not one of rejection. On the contrary, a dismissive response like *You've finished your paper. How often have I heard you say that?* constitutes a prototypical case of irony (see Wilson and Sperber 2012, p. 13-14 for further discussion). In our view, it is not the speaker's attitude that determines whether the remark *You've finished your paper* is ironic or not. What makes the second response ironic is that it is obvious from context that the speaker does not believe that the paper is finished. By echoing the first speaker's assertion, the second speaker creates a contrast between the content of the utterance and (his perception of) reality. It is thus the cooperation of echoing and contrast operations that endows the remark with ironic overtones.

Direct speech reports are clear cases of non-ironic echoes at the lexical level (e.g. *Mark said: "I don't want to go with you"*). Indirect speech reports are also to be regarded as echoic uses of language (e.g. *Mark told me he didn't want to come with us*). Additionally, it is not uncommon to find utterances that echo common beliefs or sentences conveying culturally-shared wisdom⁹⁸ (e.g. *They say a glass of wine is good for you*; Wilson and Sperber 2012, p. 14).

Another case of echoing at the lexical level is to be found at the basis of the metonymy TYPICAL VERBAL REACTION TO AN EVENT FOR THE WHOLE

⁹⁸ Wilson and Sperber (2012) regard this kind of sentences as attributive uses of language, but not echoic, as they not convey a particular attitude of the speaker towards the content of the utterance. As we already pointed out, we adopt a broader notion of echoic uses of language that encompasses Sperber and Wilson's echoic and non-echoic attributive uses of language, thus disregarding the manifestation of the attitude of the speaker as a marker of echo.

EVENT, which we put forward in section 1 above. For convenience, let us consider example (10) again:

- (10) Having them pick out their own clothes cuts down on the “I don’t want to wear this shirt” phenomenon

The analysis of this sentence in relation to expansion and reduction operations led us to put forward the TYPICAL VERBAL REACTION TO AN EVENT FOR THE WHOLE EVENT metonymy. It is only logical to assume that the source domain of this metonymy relies on an echo: the speaker of sentence (10) echoes what we may recognize as a typical sentence uttered in a given scenario. This way, the sentence must be representative enough of that particular scenario so that speakers can readily access the whole range of implications comprised within that scenario. In the case of example (10), the echoed sentence *I don’t want to wear that shirt* affords access to a scenario in which parents struggle to handle their teenage sons’ behavior, i.e. teenagers rebel against their parents and often seem to reject their suggestions about clothing. The scenario that results from the operation of metonymic expansion does not contrast with reality. In fact, the outcome of this metonymy is meant to be a reflection of the actual state of affairs at the moment in which the communicative exchange takes place. Therefore, this remark, despite being a clear case of echoing, cannot be said to be ironic, and its meaning is to be obtained at the lexical level.

We have found that the exploitation of this metonymy in combination with metaphor (see Chapter 5, section 4.2 for a detailed

account of metaphonymy) is also operational in the interpretation of echoic utterances at the lexical level. Consider examples (33) to (35) below:

- (33) Take a number
- (34) Welcome on board
- (35) Join the club

The expression *Take a number* in (33) is typically uttered in situations in which people are waiting to benefit from some kind of service (e.g. shopping at the butcher's). Therefore, it can be metonymically made to stand for the whole scenario. A series of related events are comprised within this scenario: there are several people wanting to benefit from the service, one needs to wait for one's turn, there is a person who will provide them with the product/service they need, etc. This typical everyday situation is then to be metaphorically mapped onto the actual situation in which sentence (33) has been uttered. Imagine, for instance, that someone lent money to another person in the past and now demands his money back. The answer *Take a number* involves a range of meaning implications that need to be accessed through metonymic expansion (in application of the TYPICAL VERBAL REACTION TO AN EVENT FOR THE WHOLE EVENT metonymy) within the metaphoric source, and then mapped onto the metaphoric target: the person needs to await his turn because there are other people to whom the speaker owes money. The situation (and therefore the events comprised within it) in the metaphorical source find their correspondences in the metaphoric target domain: there are other people waiting to benefit from the same service (getting their money back), a person is in charge of providing

the service (the person in debt), etc. The overall interpretation of the expression ‘take a number’ in this particular context may be summarized as follows: ‘I am not giving you your money back right now; you will have to wait until I have paid other people who requested it before you did’.

The expression in (34) is uttered literally by flight attendants and pilots when a person boards a plane: members of the crew welcome passengers on board. The situation that this expression is made to stand for in the metaphorical source domain is that of a passenger, who does not belong to the crew, joining them for a trip. The crew is an organized team that work together to make the flight possible. In the target of the metaphor we find a new employee being welcome by the members of an organization. People belonging to this organization or company are thus metaphorically conceptualized as if they were the crew of a plane: they all work together to keep their common enterprise going and succeed in the achievement of goals as a group.

Example (35) is usually uttered to encourage a person to become a member of a club. The operation of metonymic expansion affords access to the whole scenario: several people who share common interests gather and create a club in order to share their likings, worries, hobbies, etc. They invite people with the same interests to join their club. Once constructed, this scenario is metaphorically mapped onto other situations in which two or more people share any kind of circumstance. For instance, think of a person that tells another about his recent divorce. The person who answers ‘join the club’ is being empathetic, and intends to let his interlocutor know that they both are in the same kind of situation.

It is worth noting that the scope of use of (34) is much more restricted: our searches suggest that this expression is almost invariably associated with greeting new employees to their new job. However, (33) and (35) can be applied to a wider range of situations.

As we have claimed, the absence of the echoing-contrast combination at the lexical level distinguishes these echoic uses of language from ironic remarks. The cooperation of echoing and contrast operations involves a series of meaning implications related to irony that go beyond the lexical level, and that fall within level 2 of the LCM. Also, we may find that there are cases in which echoing cooperates with other cognitive operations, thereby yielding other kinds of meaning implication that are also to be handled at the implicational level. We now proceed to account for (some of) the combinations involving echo that give rise to implicational –although not implicated– meaning⁹⁹.

4.2. *Echoing at the implicational and illocutionary levels: irony*

One of the main contentions of this monograph with respect to irony (which makes the present account distinct from others) is that ironic effects are the result of combining echoing and contrast operations. Some scholars have observed that the notion of contrast has been present in most approaches to irony in one way or another (Colston and O'Brien 2000). We agree with these authors in their stance that the idea of contrast underlies or is

⁹⁹ Readers should recall that we distinguish between *implicated* and *implicational* meaning (see section 2.2 above). The former label refers to meaning implications obtained by the application of premise-conclusion reasoning schemas; the latter label covers any meaning implication obtained inferentially.

intrinsically related to a number of terms used in various approaches to verbal irony:¹⁰⁰ ‘pragmatic insincerity’ in the Allusional Pretense Theory, ‘pretense’ in Pretense Theory, ‘relevant inappropriateness’ in Attardo’s account, and ‘conversational implicature’ in the standard pragmatic model (Grice 1975). Any of these notions somehow involves a contradiction or incongruity between the content of the ironic remark and the actual state of affairs (Colston and O’Brien 2000, p. 1563). Colston (2002) further argues that contrast effects (and also assimilation) play an active role in irony comprehension. However, none of these approaches have made explicit reference to contrast as a cognitive operation, nor have they explored its interaction with other cognitive operations in the creation of ironic meaning effects.

We also believe that pretense plays a role in the creation of ironic effects. Of course, as discussed in Chapter 6, section 4.1, we take sides with Sperber and Wilson’s contention that pretense alone cannot account for the ironic nature of an utterance. However, in our view, pretense is invariably involved in ironic communication. We understand pretense in the sense of “make believe”, i.e. a simulation of one’s beliefs where the speaker acts as if he were unaware of the falsity of the state of affairs that he puts forward. Currie (2006) claims that the ironic speaker pretends to have “a limited or otherwise defective perspective, point of view or stance” (Currie 2006, p. 118). In our view, ironic speakers do not pretend to say, nor pretend to perform, a speech act; rather, they pretend to believe in the truth of the contents of the sentence they are uttering (or the meaning implications

¹⁰⁰ See Chapter 6, section 4.1 for an overview of some of the most prominent approaches to verbal irony.

derived from it). From this conception of pretense, it logically follows that the ironic speaker always pretends in some way or another. As Wilson and Sperber (2012) rightly point out, this pretense is not exclusive of ironic statements and therefore not enough to define and characterize irony, since other figurative uses of language are also grounded in the pretense of believing what is blatantly false (e.g. in metaphorically saying that John is a pig, the speaker pretends that he believes in the truth of the utterance). It is essential to note that in pretense the speaker acts as if he were unaware of the falsity of the ironic utterance, but yet expects the hearer to recognize this falsity. In fact, the ironic speaker usually provides the hearer with hints that make his ironic intent easily identifiable.

Irony has also been approached from other perspectives –not directly related to echoing– that merit attention. Panther and Thornburg (2012) have recently regarded prototypical instances of irony as cases of antonymy on the paradigmatic axis (which they call auto-antonymy). These authors distinguish two types of auto-antonymy. One constitutes a special type of polysemy in which the same referent is assigned two opposite meanings. A case in point is the verb *cleave*, which means both ‘cut apart’ (e.g. *They cleaved their way through the crowd*) and ‘stick, bring together’ (e.g. *They cleaved one to another*). The other type of auto-antonymy is used to achieve special communicative effects, such as irony and sarcasm. In this case, not only a given expression has one meaning and its opposite at the same time, but also this situation is intended to be evident to the addressee. Panther and Thornburg illustrate this point with the use of the word *fine* in the sentence *You are a fine friend*, in a context in which the speaker’s friend has behaved

in such a way that the speaker feels disappointed. The addressee should have been a “fine” friend but he has not been so. What Panther and Thornburg call “auto-antonymy” is in fact one of the possible outcomes of the activity of contrasting cognitive operations working in the domain of lexical polysemy.

Our view of irony entails that ironic echoing is the way in which the two contrasting situations that are invoked by the same linguistic expression can be reconciled. One of the two situations is supplied by the real referent; the other, which is supplied by the linguistic expression, echoes a previous thought or belief. It is possible to put this problem in better perspective through *mental space* theory (Fauconnier 1994). As we discussed in Chapter 6, section 5 with reference to paradox and oxymoron, a standard but very clear example of the explanatory power of postulating mental spaces to resolve apparent semantic anomalies is provided by the sentence #*The girl with blue eyes has green eyes*. Recall that, if given the right context, i.e. if framed within the right mental space, the anomaly is not such: *In the picture, the girl with blue eyes has green eyes*.¹⁰¹ The girl with blue eyes belongs to a mental space based on the description of the real-world referent, whereas the girl with green eyes belongs to a different space containing the description of the girl in the picture. In a parallel way, in irony the echoing expression denotes the unreal, belief-based situation, while the real referent supplies a contrasting situation based on fact. There is

¹⁰¹ It should be noted that it is not necessary to use linguistic mental space builders such as “in the picture”. The context of situation, if known to speaker and hearer, can directly create the right mental space to resolve the apparent anomaly. For example, we can have a context in which the girl, whose eyes are naturally blue, wears special contact lenses that give them a green hue.

no semantic anomaly, but simply a case of contrast between two different mental spaces.

One may argue that in Panther and Thornburg's 'fine friend' example there is no echoing operation whatsoever. In this respect, we need to bear in mind that echoing is not restricted to the repetition of previously uttered statements. Rather, a thought, a belief, or a (real/unreal) situation may be echoed and therefore constitute an ironic statement. Moreover, echoic statements may not be identical in content to the echoed utterance, thought or belief, but rather summarize, paraphrase or convey the more relevant implications for interpretation (cf. Wilson 2012; Wilson and Sperber 2012). For instance, recall Kumon-Nakamura et al.'s (1995) example *How about another small piece of pizza?* (said to someone that has gobbled the whole pizza), already discussed in Chapter 6, section 4.1. The speaker here is echoing the typical offering a host would make to a guest in normal circumstances. In the case of 'fine friend' the speaker is echoing the remark one would make in a situation in which a friend truly behaves as such, pretending to believe that this has been the actual situation. Two different situations (the expected and the actual situation) are co-activated and set in contrast. Let us address this point in depth by analyzing in some more detail the expression *She is an angel* uttered in a context in which the parents' belief (that their child is well-behaved) clashes with reality (the child behaves in mischievous ways). In this example, there is a mismatch between the echoed parents' belief and reality. When the speaker performs the operation of echoing, he is invoking the expected situation: 'She is an angel' conveys a range of meaning implications that are accessed through an

operation of expansion (e.g. the girl is obedient, the girl keeps quiet, the girl eats her vegetables, the girl does her homework, etc.). In the actual situation, it is manifest that the girl is not an angel. An operation of expansion yields meaning implications that cancel out the ones in the expected situation (e.g. the girl is *not* obedient, the girl does *not* keep quiet, the girl does *not* eat her vegetables, the girl does *not* do her homework, etc.). The actual situation runs parallel to the expected one in that there are meaning implications in the actual state of affairs that contradict corresponding meaning implications in the expected state of affairs. The contrast between the meaning implications of the two situations causes a personal reaction on the speaker, which is highlighted by virtue of an operation of reduction within the real situation. Ironic utterances present a special pattern of metonymic interaction in which the operation of expansion takes place in the expected situation, while the highlighting process through metonymic reduction does so in the actual situation. We shall refer to this phenomenon as a *cross-domain metonymic chain*. It should be noted that the cross-domain nature of this metonymic chain arises from the combination of metonymic expansion/reduction with a contrasting operation. There is no metaphor, since metaphor involves either cross-domain similarity (not dissimilarity) or correlation associated with a reasoning process whereby one domain serves to understand the other.

As we put forward in section 1 above, metonymic expansion and reduction operations cooperate at the implicational level, which includes ironic remarks as they call for inferential processes in their interpretation. We should also note that ironic remarks do not require implicature

derivation, since no information is obtained through premise-conclusion patterns. Rather, the role of the metonymic chain is to support a different type of meaning derivation process. This process first calls for domain expansion from what is said to an expected scenario that contains what is said; then, it crucially involves the highlighting –through metonymic reduction– of the speaker’s emotional reaction to the actual scenario in its contrast with the speaker’s emotional reaction to the echoed belief (i.e. the expected scenario). As a side effect of this combination of highlighting and contrasting operations, the speaker’s attitude to the expected scenario, which is not initially a highlighted element, acquires a degree of conceptual prominence too. This complex conceptual situation is captured in Figure 2 below.

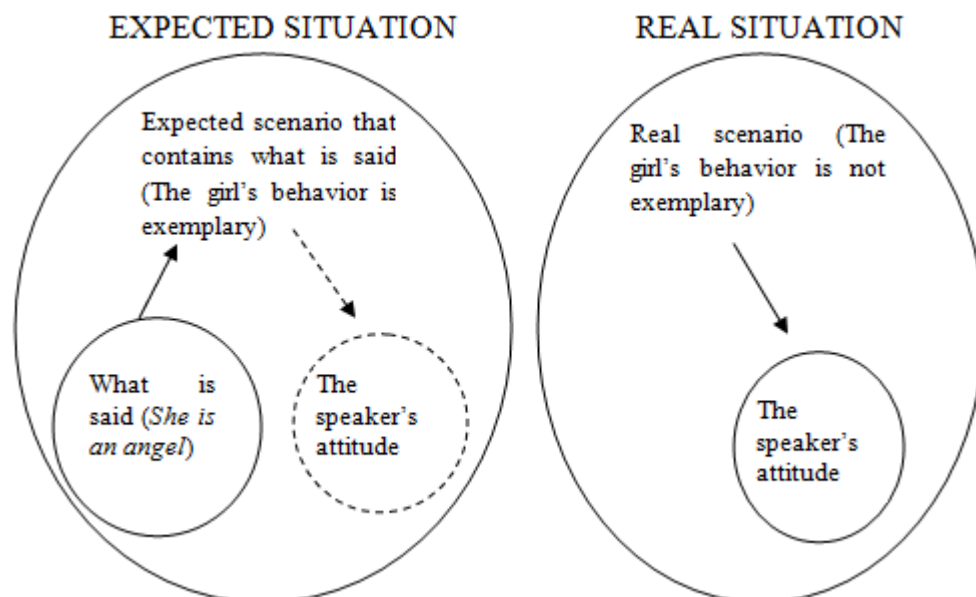


Figure 2. Cross-domain metonymic chain in the interpretation of the ironic remark *She is an angel*

An interesting communicative effect of the combination of cognitive operations described above is that the speaker acts as if he believed that the content of the utterance is true, i.e. that the girl is well-behaved, when it is evident that she is not. However, the speaker is not lying, but rather expecting the addressee to be aware of his pretense. Note that the remark *She is an angel* may have been previously uttered by the girl's parents, but not necessarily so. For example, they may have been praising their daughter's exemplary behavior in many other ways: *Our daughter is very obedient; She always tidies up her room; She is always quiet and polite; She is very respectful with the elderly*; etc. In this case, the sentence *She's an angel* is one way of capturing the gist of the girl's overall behavior.

In addition to echoing and contrasting operations, (metaphorical) comparison by resemblance is also at work here, allowing the speaker to (ironically) ascribe the culturally attributed features of an angel to the girl, namely, extremely kind behavior.

As we have advanced, there are ironic statements in which the ironic effect does not arise from echoing a previous utterance identically. Think of a situation in which a girl returns home to her parents after a holiday. As soon as she gets home, her mother yells at her reproachfully reminding her about a number of unmet duties: cleaning up her room, taking the dog to the vet, tidying up the leaving-room, etc. Faced with such a barrage of criticism, the girl utters: *It is great to be back home!* As is evident from the context, the girl is being ironic, intending to mean quite the opposite of what the

sentence literally says. In this case the girl is echoing the kind of thought that she would have voiced in the more desirable situation of being received by her parents in a peaceful and relaxing home environment. The target of this metonymic operation of expansion (i.e. the idea of a peaceful and relaxing home environment) sharply contrasts with the real situation that the girl encounters when she gets home. A subsequent operation of metonymic reduction within the domain containing the real situation focalizes the speaker's attitude towards it. Thus, four cognitive operations are needed in the interpretation of this ironic statement: echoing, metonymic expansion/reduction and contrasting. The same rationale holds true of Panther and Thornburg's example *You are a fine friend*. In our view, the irony in this statement hinges on the construction of two contrasting scenarios on the basis of the same linguistic cue: one of them is supplied by whatever is actually the case in the world (the addressee is evidently not a fine friend); the other echoes a previous thought or belief about what should be the case (the speaker would have expected the addressee to act as a "fine" friend in the context in which the sentence is uttered).

Let us now address the example provided by Kumon-Nakamura et al. (1995) *How about another small piece of pizza?* in some more detail. The cognitive mechanisms that underlie the interpretation of this ironic question follow the same pattern as the examples analyzed above: the question is in principle an echo of what a good host would say to a guest in normal circumstances. The echoed question affords access (through metonymic expansion) to a scenario in which the guest is behaving politely at a gathering and the host offers him another slice of pizza. This scenario

constitutes the expected situation. However, the real situation contrasts with the expected one: the guest has gobbled up the pizza. An operation of metonymic reduction highlights the host's emotional reaction of being bothered by the guest's behavior. Therefore, we find a cross-domain metonymic chain working on a low-level scenario in the interpretation of this ironic question. However, note that this case of irony transcends the implicational level of description. There is indeed a low-level scenario related to hosting people, but this scenario is grounds for the development of a higher-level speech act scenario in which hosting involves offering. Because of this, the ironic remark does not only echo what a good host would say, but also, more specifically, the kind of offer that a good host would make. Echoing is thus active at more than one level of pragmatic meaning derivation.

We have seen that metaphors based on resemblance operations may be endowed with ironic overtones, therefore cooperating with echoing, metonymic expansion/reduction and contrast operations (e.g. *She is an angel*). As we pointed out in section 3 in our analysis of comparison by resemblance, similes may also lend themselves to ironic purposes. In the field of computational linguistics, Veale and Hao (2007) searched the web for similes of the kind 'X is as Y as Z' in order to explore the stereotype-simile connection, i.e. to what extent are similes carriers of stereotypical information. They collected around 15,000 similes; almost 3,000 of them were tagged as ironic. Following Moon's (2008) claim about the role of *about* as a marker of irony in similes, Hao and Veale (2010) and Veale and Hao (2010) take the 'X is about as Y as Z' form as the prototypical ironic

simile in their study about the computational detection of irony in similes. Veale's (2012) searches suggest that a great amount of the similes of the *about as X as Y* form obtained through Google searches can be regarded as ironic. He harvested similes from the web and manually annotated which of them are ironic. Veale's approach to the computational identification of irony in creative similes is very illuminating and provides us with a vast collection of web similes. Veale (2012) contends that, even if *about* is very useful in the detection of irony (in fact, 76% of the *about* similes that he harvested were tagged as ironic, Veale 2012, p. 119), it may be the case that a simile containing *about* is intended to be literally interpreted. Interestingly enough, only 19% of simple 'as' similes were found to be ironic (Veale 2012, p. 129). Veale suggests that some markers such as *about*, *likely*, *almost* or *nearly* are meant to 'warn' the speaker that their remark is not intended to be precise, thus suggesting that a conventional interpretation may not be appropriate (Veale 2012, p. 117). Here our main concern is to pin down the mechanisms that make a simile ironic. Veale's criterion to distinguish ironic from non-ironic similes is to determine

(...) whether the highlighted property is stereotypically associated with the vehicle (hence the simile is *straight*), or whether the vehicle describes an idea that, stereotypically at least, we would strongly expect *not* to exhibit that property (hence the simile is *ironic*). In other words, we use implicit negation as a criterion for deeming a simile to be ironic. (Veale 2012, p. 119).

Veale's conception of irony is fully compatible with our proposal: when there is a contrast between the entity involved in the simile (Z) and the property ascribed to such entity (Y), the simile can be said to be ironic. Of

course, echoing operations also underlie ironic similes: as Veale and Hao (2007) suggest, similes are generally carriers of stereotypical, culturally-shared information; therefore, speakers uttering an ironic simile echo people's stereotypical beliefs. In fact, in the case of ironic similes, the speakers echo the opposite of the stereotype, which is what creates the contrast and thus makes the simile ironic. See examples (36) and (37) below, taken from Veale (2012, p. 121):

- (36) a. About as useful as a microscope
- b. About as useful as a clock
- (37) a. About as useful as buying one shoe
- b. About as useful as a raincoat in the desert

The examples in (36) cannot be considered to be ironic, while those in (37) are clearly ironic. In the former, the speaker echoes culturally-shared wisdom (e.g. microscopes and clocks are generally useful). Therefore, there is echo, but not contrast. On the other hand, the speaker in (37) purposely chooses vehicles (buying one shoe, a raincoat in the desert) that do not exhibit the property denoted by Y (i.e. being useful).

We also want to draw the reader's attention to Veale's claim about the direct relation between the negativity of the property and the non-ironic nature of the simile containing such a property. In other words, Veale rightly notes that similes in which the highlighted property is negative are usually straight. This is so because irony usually fulfils pragmatic functions such as criticizing, mocking, etc. If the highlighted property is negative (i.e. useless), the simile is most likely to be straight (*about as useless as a flat tire/tits on a nun/a gun with no bullets*, etc.; Veale 2012, pp. 120–123). On

the other hand, choosing a positive property, as in (37) above, is more likely to prompt the speaker to make use of irony to achieve funny, mocking effects, thus stating a property Z that contrasts with entity Y. Giora et al. (2005) suggest that (implicit) negation (in irony) is a mitigating device. If we compare ironic and straight similes, we notice that straight similes are more aggressive than the ironic ones. We may thus consider that mitigation is also involved in the creation of ironic statements. In this respect, Kreuz and Caucci propose that “verbal irony serves the purpose of adjusting the affective content of an utterance” (Kreuz and Caucci 2009, p. 329). In their argumentation, these authors make reference to the research carried out by Dews et al. (1995) and Dews and Winner (1995), who demonstrate that ironic remarks are perceived as less aggressive than literal ones. For example, literal criticism (*I think you look awful in that shirt*) may be taken as more aggressive than ironic criticism (*You look great in that shirt!*). Section 5 below addresses the role of mitigation in understatement, which is also connected to irony in that both ironic statements and understatement make reference to state of affairs that somehow differ from actuality.

4.3. *Echoing at the implicational level: other pragmatic effects*

As the reader may be well aware by now, echoing is neither restricted to the lexical level nor to cases of irony. In fact, we have found that echoing operations are essential in the interpretation of some implicational (and potentially illocutionary) constructions. In order to illustrate this point, we

proceed to analyze the *Don't (You) X Me*, the *Do I Look Like I X*, and the *I am not X* constructions. We address them in that order.

4.3.1. *The Don't (You) X Me construction*

Consider the imperative construction *Don't X Me*, in which the speaker explicitly asks the hearer to refrain from starting or pursuing a given course of action or some form of behavior. A semantic paraphrase of this construction could be 'Do not do something that will (negatively) affect me.' Some instantiations of this level 1 construction are *Don't let me down*, *Don't stop me now*, *Don't blame me*, etc. A constructional variant of this construction adds the second person vocative *you* as part of its makeup: *Don't You X Me* (e.g. *Don't you blame me*). This variant conveys a meaning implication that is not a stable part of the base construction. The *Don't You X Me* variant is generally used in contexts in which the speaker is bothered by the hearer's prospective behavior. The use of the vocative 'you' acts as an intensifier that cues for a shift of emphasis from the speaker simply asking the addressee not to do something, as in *Don't X me*, to the speaker's annoyance at the prospects of the action eventually being carried out. In the LCM, this is a level-2 meaning implication. Through use frequency, the constructional variant with the explicit vocative has become specialized to convey annoyance, while the base construction is more neutral as to this meaning, i.e. it is not stably associated with the construction, although it can be conveyed through contextual clues or prosodic prominence.

In order to meet constructional requirements, X is generally realized by a verbal predicate in both variants of the construction. However,

we may come across certain realizations in which the X slot is not filled in by a verbal predicate, but by the repetition of (part of) a statement previously uttered by the hearer, which is a matter of echoing. When this happens, there is a change in the meaning part of the initial construction, as is illustrated in examples (38) and (39) below, which results in a different, although related, construction:

- (38) Father: And your mother called looking for you and she caught an attitude with me for you not being here.
Daughter: Ugh! Daddy.
Father: “Don’t ‘Daddy’ me.” He said as she stood up. “Call your mother.”¹⁰²
- (39) Husband: But if this were Syracuse, we would be in the air, honey.
Wife: Don’t ‘honey’ me. You were in charge of this, and we’re never going to make it to Miami!¹⁰³

In both cases, the speaker who uses the *Don’t X Me* construction does not approve of his interlocutor’s attitude. The interlocutors (the daughter in (38) and the partner in (39)) try to soften the consequences of previous behavior (that has brought about an undesired state of affairs) by addressing the other speaker in affectionate ways, namely “daddy” and “honey”. The speaker’s irritation increases on account of his assumption that his interlocutor is trying to draw his attention away from a situation that is not appropriate.

There are two cognitive processes that run parallel in the interpretation of these utterances. In the first place, we need to account for

¹⁰² <http://mychaelajaleesa.wordpress.com/2011/07/20/>. Accessed on November 14, 2011.

¹⁰³ <http://writingcontest.thenovelette.com/teresa-adele-bettino/>. Accessed on November 14, 2011.

the use of “honey” and “daddy” within this construction. These appellatives are generally used in contexts where speaker and hearer, who are involved in a mutual emotional relation, are in good terms with each other. Therefore, the daughter in (38) and the husband in (39) invoke this positive situation through metonymic expansion, i.e. by making use of a linguistic expression that invokes the general scenario) in order to either request being absolved from doing something (calling her mother), in the case of (38), or avoid responsibility and indirectly apologize, as in (39). This is another example of the metonymy TYPICAL VERBAL REACTION TO AN EVENT FOR THE WHOLE EVENT. The repetition (or echoing) of the appellative, which is integrated into the *Don't X Me* construction, shows the second speaker's disapproval of the first speaker's appeal to their intimate relation. This is achieved by calling upon the whole event so as to lessen the negative effects brought about by previous actions, i.e. not being there when her mother called, in (38), and not having been able to comply with the duty of getting tickets for the flight, in (39). That is, the father and the wife ask their interlocutors not to use the appellative that represents a situation of emotional closeness and well-being that may induce him to overlook the facts.

In the second place, the appellatives “daddy” and “honey” need to undergo a process of categorial conversion before they can be subsumed into the *Don't X Me* construction, which canonically takes verbal predicates into the X variable. This process is licensed by the high-level metonymy RESULT FOR ACTION: the result, which is a scenario where the addressee feels comforted by the use of the vocative, stands for the action of psychologically making the addressee feel that he is involved in such a

scenario. For example, the overall meaning of the two chained metonymic operations involved in *Don't daddy/honey me* can be paraphrased as follows: 'do not act in such a way that as a result I will be comforted to such an extent that I will take an indulgent (fatherly/wifely) approach to what you've done'. This metonymy licenses the necessary syntactic adjustment in order to fulfill constructional requirements (cf. Ruiz de Mendoza and Pérez 2001 for a detailed account of the role of metonymy in the grammar; see also Barcelona 2002, 2005).

The choice of repeating part of the interlocutor's statement is in our view a sign of irritation. The echoing operation can be used as an alternative to the emphatic "you", leading to the same (or even a stronger) implication that the speaker is bothered by the hearer's behavior/attitude, which was not the case in sentences like *Don't stop me now*. The realization of the constructional variable through an echo determines both the existence of a new construction and the level of linguistic enquiry into which such construction fits. In this connection, when the X variable is saturated with echoed information, the result is initially an implicational construction (involving irritation) built on the basis of a level-1 construction (a negative imperative amalgam). However, its prototypical illocutionary import may also be conventionally attached to it thus making it into an illocutionary construction, as is evident from our previous discussion of the expressions *Don't daddy/honey me!*.

The manifestation of the second speaker's discomfort may be reinforced with the use of *you* in the *Don't You X Me* construction, as illustrated in examples (40)-(42) below:

- (40) Well, I'm...uhm...I wanna go there, Mom. Daddy
Don't you daddy him, Zena put the vegetables on the table.¹⁰⁴
- (41) You shouldn't hang out with freaks, honey. You are with me now
Don't you honey her! She isn't your honey!"¹⁰⁵
- (42) Glad to see you to, honey."
Don't you 'honey' me, Wyatt! Do you know what time it is?"¹⁰⁶

Furthermore, we may find additional intensifiers that make more evident the speaker's disgust at the interlocutor's behavior, as in (43):

- (43) Lance, honey, sweetie Jace is here.
Don't you fucking honey me you bastard!"¹⁰⁷

Besides appellatives, there are other ways of filling in the X slot in these constructions that involve echoing and metonymic operations in combination. See the communicative exchanges in examples (44) to (46) below:

- (44) a. Hello to you, too, Aunt Ida. (...)
Don't 'hello' me. You should've made them children go to counseling or something. (COCA, 2008).
- b. Hello, Mama.
Don't 'Hello, Mama', me. You had me worried sick. Where were you last night?"¹⁰⁸

¹⁰⁴ <http://s9.invisionfree.com/downtime/ar/t1848.htm>. Accessed on November 16, 2011.

¹⁰⁵ <http://m.fanfiction.net/s/5259140/8/>. Accessed on November 16, 2011.

¹⁰⁶ <http://www.jewornotjew.com/profile.jsp?ID=637>. Accessed on November 14, 2011.

¹⁰⁷ <http://www.angelfire.com/blues/tabithakitten/fromthismomenton6.html>. Accessed on November 15, 2011.

- c. What the hell are you doing here!
Hello to you, too, Faye.
Don't you fucking 'Hello, Faye' me!¹⁰⁹
- d. Oh, hi, Asuka. How are you doing?
"Don't 'How are you doing' me, Shinji Ikari!" she yells.
"Just look at what I've found on the floor!"¹¹⁰
- (45) a. Keisuke: What seems to be the problem?
Takumi: Yeah. What's the problem?
Cop: Don't 'What's the problem?' me! It's common
knowledge that those things aren't road legal!¹¹¹
- b. Mort? What's going on?
Don't 'What's going on?' me! You know exactly what's
going on!¹¹²
- c. What happened?
Don't 'what happened' me! You've been like that since
morning.¹¹³
- (46) a. Oh, Charlie...
Don't 'Oh, Charlie' me!
- b. Hey, Dude!
Don't 'Hey, Dude' me!¹¹⁴

The examples in (44) are contextually similar to examples (40) to (43) in that one of the speakers has behaved in a way that upsets the other. However, in (44) the first speaker is either unaware of that situation or pretends to be, so he/she opens the conversation with a typical greeting or salutation: *Hello* in (a-c); *How are you doing?* in (d). The second speaker makes use of the *Don't X Me* construction in order to immediately show his

¹⁰⁸ http://www.fanfiction.net/s/2830323/1/Against_the_Rules. Accessed on November 14, 2011.

¹⁰⁹ <http://m.fanfiction.net/s/1351856/10/>. Accessed on November 14, 2011.

¹¹⁰ <http://fanfictionarchives.com/stories/eva/Hedgehog.txt>. Accessed on November 15, 2011.

¹¹¹ <http://idforums.net/lofiversion/index.php/%60http://s19.yousendit.com/t7910-1275.html>. Accessed on November 14, 2011.

¹¹² <http://m.fanfiction.net/s/4248048/3/>. Accessed on November 14, 2011.

¹¹³ <http://mangahelpers.com/t/jinhea/releases/30862>. Accessed on November 14, 2011.

¹¹⁴ Examples in (46) have been drawn from the script of the sitcom *Two and a half men*.

dislike of the situation, and subsequently expresses the origin of this dislike. Whether the first speaker is aware of the second speaker's discomfort or not, the first speaker activates a metonymic operation in which uttering a greeting to open a conversation stands for normal situations in which people open conversations like that again exploiting the metonymy TYPICAL VERBAL REACTION TO AN EVENT FOR THE WHOLE EVENT. The second speaker does not feel that a normal greeting is appropriate because he feels that the first speaker should justify his unacceptable behavior. What the second speaker means could be paraphrased as 'don't act as if nothing were wrong.' The same metonymy also operates in (45) and (46). In the case of (45), the sentence is a question. Questions are requests for information, so they can be said to stand for a scenario in which a person lacks knowledge about something. Therefore, the person who utters the *Don't X Me* in (45) means to say 'Do not try to make me believe that you don't know about it'.

The examples in (46) have been selected in order to illustrate the fact that contextual information may be crucial in order to determine the nature of the scenario to which the sentence provides metonymic access. Expressions such as *Oh, Charlie* and *Hey, Dude* may be uttered in a great variety of contexts thereby giving rise to different meaning implications. The former may be an expression of surprise, joy, reproach, etc.; the latter may be a greeting, an expression of discomfort, etc. Previous linguistic and contextual information is thus essential in the interpretation of the *Don't X Me* construction in these cases in which the variable X is realized by a clausal element that may afford access to different events. (46a) was uttered in a context in which the boyfriend had promised not to eat meat, but the

girlfriend finds out he has eaten a hamburger. Therefore, *Don't 'Oh, Charlie' me* conveys the meaning 'Don't be reproachful and make me feel bad about what I have done'. In the case of (46b), an uncle turns off the television while his nephew is watching it, intending to scold him because he has misbehaved. The teenager's utterance *Hey, Dude* constitutes a protest towards the action of turning the television off. Therefore, saying *Don't 'Hey, Dude' me* in this context means 'Don't complain about me turning the television off.' The examples in (46) show that the metonymic connection between a sentence and the typical scenario in which it is uttered is not always clear.

In sum, echoing may underlie, in combination with double metonymic expansion, the interpretation of the *Don't (You) X Me* construction in the following way: (i) the intrinsic meaning conventionally associated to the *Don't X Me* construction is 'Don't do something (X) that will affect me in some negative way'; (ii) the variable X is filled in by echoing a part of the interlocutor's speech; (iii) X invokes a given scenario and a series of pragmatic implications by virtue of the metonymy TYPICAL VERBAL REACTION TO AN EVENT FOR THE WHOLE EVENT; (iv) the first speaker does not want the other to call upon that scenario by mentioning X; (v) the RESULT FOR ACTION high-level metonymy licenses the subsumption of a non-verbal element within the verbal slot of the construction.

We may thus contend that the operation of echoing acts in combination with a metonymic chain based on double domain expansion in which low-level and high-level metonymies cooperate: TYPICAL VERBAL REACTION TO AN EVENT FOR THE WHOLE EVENT plus RESULT FOR ACTION (the

scenario accessed through the first metonymic expansion constitutes the result of the action involved in the second metonymy). The intervention of a metonymic chain is only to be expected, since the interpretation of the construction falls within the implicational level (see section 1 above). Figure 3 captures this process.

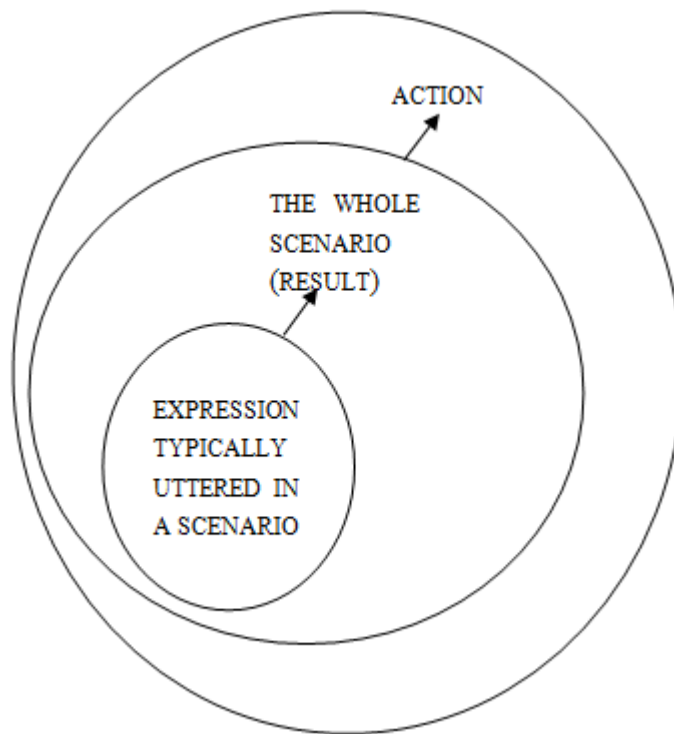


Figure 3. Double metonymic expansion in the *Don't You X Me* construction

4.3.2. *The Do I Look Like I X construction*

Another example of echoing working at the implicational and illocutionary levels can be found in the interpretation of the construction *Do I Look Like I X?*, which is exemplified in sentences (47) and (48):

- (47) Do I look like I want to talk to you?¹¹⁵
 (48) Are you alright?

¹¹⁵ books.google.es/books?isbn=141699484X. Scott, E. (2011). *Between Here and Forever*. Accessed on December 19, 2012.

Do I look like I'm alright?¹¹⁶

This level-2 construction conveys the implication that the speaker is upset about a given state of affairs. In general lines, this meaning implication relies on the assumption on the part of the speaker that, given the evidence provided by the situational context, the addressee's attitude/behavior is not appropriate. Example (47) is uttered in a scenario in which speaker and addressee are a couple that has recently broken up. The man approaches the woman and starts talking to her about their current situation. Then, the woman utters (47). The implications derived from her question may be summarized as follows: 'I assume that it should be clear from the stage our relationship is in that I do not want to talk to you. The fact that you are acting as if this situation were not evident enough bothers me'. Furthermore, it is very likely that the woman's body language (facial expression, body posture), also contribute to show her obvious discomfort. The woman is not enquiring about her looks, but rather drawing the addressee's attention to her belief about the inappropriateness of the man's behavior. This reasoning process is grounded in a cross-domain metonymic chain. The question is part of a scenario in which it is pertinent to formulate this question, that is, a scenario in which there may be doubts as to the speaker's predisposition to talk to the addressee. Therefore, uttering (47) invokes, through metonymic expansion, a non-real scenario. However, the real situation (as perceived by the speaker) is made up of events (the stage of their current relation, her blatant uneasiness) that make it evident that there is no possible doubt about her feelings towards the addressee: she does not want to speak to him. An

¹¹⁶ Sitcom *The Big Bang Theory*.

operation of metonymic reduction highlights the speaker's attitude towards the actual situation, which is set in contrast with the unreal situation she invoked through the question *Do I look like I want to talk to you?* The echoing operation cooperates with contrast and cross-domain metonymic chaining. It is thus reasonable to claim that this construction bears ironic overtones. In (47), the speaker echoes a belief attributed to the addressee rather than a previous statement on her part, but we may also find instantiations of this construction in which the echoing operation consists in the repetition of previously uttered discourse. Example (48) illustrates this point. This exchange takes place after one of the speakers falls off a chair, hurting his back, and the other asks whether he is alright, when it is obvious that he is not. The second speaker's answer, uttered while still on the floor, may be paraphrased as follows: 'It is evident to both of us that I am not alright, so the fact that you are asking about it bothers me.' The question is metonymically made to stand for a scenario in which asking about one's appearance is appropriate. This scenario is set in contrast with the real situation, in which the fact that the speaker is still on the floor makes it unnecessary to ask about his well-being. The speaker's emotional reaction is highlighted by virtue of an operation of metonymic reduction.

Irony is involved in most of the examples of this construction that we have obtained in our searches. However, there may be cases in which speakers actually ask addressees about what they look like with respect to a given state of affairs, as in *Do I look like I've been working on?* In this case, there is neither echoing or contrasting operations, but rather a direct question to be handled at level 1 of description.

4.3.3. *The X is not Y construction*

We have noted before that echoes are not necessarily an identical match of a whole belief or thought. Sometimes only partial (although relevant) conceptual structure is echoed. It may also be the case that an echo is an implicit premise in a premise-conclusion reasoning schema. The *X is not Y* construction provides some illustration on this point. With this construction, which is addressed in Veale (2012, pp. 111-112), speakers negate an ostensibly unreal state of affairs in order to convey annoyance over a real situation that has points in common with the negated state of affairs. Examples (49) and (50) are instantiations of this implicational construction:

(49) I am not your maid¹¹⁷

(50) “Can’t you and your friends entertain yourselves?” he asked dryly.
“Your sister is not a professional entertainer, you know.”¹¹⁸

Example (49) is uttered by a wife who is tired of cleaning and tidying up after her husband. The context in which (49) is uttered provides evidence on the incongruity of X (the wife) being Y (the husband’s maid). What the wife does is echo an implicit premise that she attributes to her husband’s set of beliefs: ‘You want me to clean and tidy up after you, so you must think that I am your maid’. Embedded within this belief is the following premise: ‘Hired maids will clean and tidy up after their lords no matter how dirty they are.’ This premise is then used to construct the following reasoning schema:

¹¹⁷ Taken from Veale (2012, p. 111).

¹¹⁸ books.google.es/books?id=Hz8rAAAAIAAJ. Wong, S.-L. (1952). *Daughter of Confucius. A Personal History*. Accessed on March 6, 2013.

Implicit premise: Hired maids will clean and tidy up after their lords no matter how dirty they are.

Explicit assumption: The speaker says that she is not the addressee's maid

Implicated conclusion: The speaker will not clean and tidy up after her husband no matter how dirty he is.

This implicated conclusion cancels out the echoed belief: the addressee cannot expect the speaker to tidy up after him. Since this belief is constructed on the basis of metaphorical resemblance, i.e. the wife complains that her husband is attributing the duties of a maid to her, what the speaker actually does is deconstruct an infelicitous metaphor.

The interpretation of example (50) follows the same rationale. The speaker again negates an assumption that is evident to both speaker and hearer, i.e. that the addressee's sister is not a professional entertainer, in order to make the addressee aware of the unacceptability of his behavior towards his sister. There is also an infelicitous metaphor within the belief echoed by the speaker, as was the case in (49). In this connection, Giora et al. (2010) point out that the use of negated assertions in which the non-negated version is blatantly false prompts the hearer to regard a figurative interpretation as preferable to the literal one.

4.4. *Echoing at discourse level*

Echoing can also take place at level 4 of the LCM. This is the case of paraphrases in discourse. Paraphrases do not necessarily capture the whole range of possible meaning implications of an utterance, but they restate (and thus “echo”) at least part of it. We may thus distinguish between *full* and *partial* paraphrases, which we exemplify in (51) and (52) below:

- (51) Black people are welcome to sit at the back of the bus. ... In other words, black people are not allowed on the front of the bus.¹¹⁹
- (52) Amounts don't need to be consistent each day. In other words, you might eat 100g of protein one day and 50g the next.¹²⁰

An example of a virtually full paraphrase is to be found in (51), in which the speaker's intention is to express the full communicative import of his initial utterance (including its speech act value). By contrast, in example (52), the speaker is simply satisfied with echoing at least the most central meaning implications of his initial utterance. Whichever the case, either all or part of the thought communicated by an utterance can be restated or reworded as an echo of all or part of the original thought. Table 4 summarizes the communicative situations associated with echoing.

¹¹⁹ <http://inastrangeland.wordpress.com/tag/kyriarchy/>. Accessed on October 6, 2011.

¹²⁰ <http://chriskresser.com/is-meat-bad-for-you-no-but-junk-science-and-the-clueless-media-are>. Accessed on October 6, 2011.

Table 4. Echoing

Operation	Lexical level	Implicational level	Illocutionary level	Discourse level
Echoing (A IS B, where A designates any entity/state of affairs that contradicts H's thoughts about the entity/state of affairs; B echoes such thoughts)	Direct speech reports Indirect speech reports TYPICAL VERBAL REACTION TO AN EVENT FOR THE WHOLE EVENT metonymy	Irony (<i>She is an angel</i>) The <i>Don't You X Me</i> construction The <i>Do I Look Like I X?</i> construction The <i>I Am Not X</i> construction	The <i>Don't You X Me</i> construction	Paraphrases (X, in other words, Y)

5. Strengthening and mitigation

Strengthening and mitigation are converse cognitive operations that work on scalar concepts, such as weight, height, and frequency (cf. Chapter 4, section 2.3), by grading them up or down respectively along their corresponding scale. However, they may affect any concept that is susceptible of being graded: one may love a person too much, a lot, little, very little, etc; one may have very good, good, poor eyesight, etc. For this reason, a straightforward instantiation of the working of these cognitive operations is found in adverbs expressing higher or lower intensity: *This man is very tall* (strengthening), *I can barely hear what you say* (mitigation), *She earns so much/little money* (strengthening/mitigation).

Strengthening and mitigation may operate through different linguistic devices other than lexical mechanisms beyond the level 1 of the LCM. An example of strengthening in grammar is supplied by intensifiers

(e.g. emphatic *do*). Thus, emphatic *do* in *Do shut up now!* has the function of strengthening the directive force coded by the imperative form of the verb *shut up*. This value is further reinforced by the adverb *now*, which conveys impatience on the part of the speaker. In a similar way, in *Do have some more of this cake!* the same grammatical device is used to strengthen the commissive speech act meaning conveyed by the imperative in the context of an action that, from the speaker's point of view, is beneficial to the addressee. In both instances, the emphaser works directly on the coded value of the imperative and, in so doing, it affects the overall meaning effect of the imperative in its context of use.

Mitigation in the case of imperatives is achieved through the adverb *please* and such tags as *will you?*, *would you?*, *can you?*, *could you?*. In a similar way as with intensifiers, the mitigating device in these cases has the imperative within its scope: *Open the door, please/will you?/can you?*, etc. These mitigating devices operate at level 3: they invoke the request scenario by playing down the originally strong directive impact of the imperative through the activation of specific elements of the request scenario such as the addressee's willingness/ability to perform the action.

An interesting case of the use of strengthening and mitigation devices is provided by hyperbole and understatement respectively. In what follows, we analyze each figure in turn and examine the role of strengthening and mitigation operations in the creation of the corresponding meaning effects. We also discuss the combination of strengthening and mitigation and their interaction with additional cognitive operations.

Furthermore, we explore the pervasiveness of these operations at the implicational and the illocutionary levels.

5.1. *Hyperbole*

From the perspective of cognitive modeling, for an utterance to contain hyperbole the speaker has to perform an operation of extreme strengthening on a scalar cognitive model. In other words, speakers make use of a higher (usually non-realistic) point in a scale to refer to a lower one. The contrast between such values in the scale creates the hyperbolic effect.

The idea that scalarity (cf. Chapter 4, section 2.3) is connected to hyperbolic statements is not new. Brdar-Szabó and Brdar (2005) claim that the scalar model is almost invariably involved in the creation of hyperbolic effects. They further argue that metonymy plays a crucial role in such a task. More specifically, Brdar-Szabó and Brdar (2005) propose that the metonymies UPPER END OF A SCALE FOR THE WHOLE SCALE and LOWER END OF A SCALE FOR THE WHOLE SCALE motivate hyperbolic expressions. Our contention, however, is slightly different. While it is true that it is possible to define hyperbole generically in terms of a “stands for” connection between the upper region of a scale and lower regions, the production of a specific instance of hyperbole requires for a scalar concept itself (e.g. frequency, size, weight) to be first taken to an extreme and then to examine the nature of the non-maximized version of the concept in terms of the maximized version. This is necessary in order to account for the meaning implications of hyperbole, which cannot arise from a mere “stands for”

relation, but from a reasoning system. Recall, in this connection, that the existence of “stands for” relations is not exclusive of metonymy, but it also appears in referential uses of metaphor (cf. Chapter 6, section 1) and euphemism (cf. Chapter 5, section 2.5). In the case of hyperbole, the fact that we can think of the exaggerated version of a concept as standing for the real-world one is not a defining criterion. We will address this point below.

Let us first examine the whole meaning derivation process for hyperbole in greater detail. First, note that a statement that is strengthened by the speaker (thus creating a hyperbolic statement) needs to be mitigated by the hearer. The strengthened and mitigated concepts are then set in contrast thereby giving rise to specific meaning implications. Let us illustrate these points with examples (53) and (54) below:

(53) I know I told you a million times the night of the wedding.¹²¹

(54) I thought for sure I would have gained a ton over Christmas.¹²²

The expression “a million times” in (53) is used figuratively to enhance the contrast between the speaker’s subjective assessment of the situation and what he believes is the erroneous (likewise subjective) assessment made by the addressee. “A million times” is used to refer to what the speaker perceives as an excessive amount of times. When processing a sentence of this kind, the hearer needs to perform the opposite mitigation operation that will bring “a million times” down to a more realistic scalar magnitude (say,

¹²¹ <http://www.dagenentertainment.com/regionalacts/powerof10.htm>. Accessed on October 5, 2011.

¹²² <http://answers.yahoo.com/question/index?qid=20100128053030AAoEtpn>. Accessed on May 16, 2013.

ten times), which is compatible with contextual parameters (cf. Herrero 2009: 228). This creates a peculiar cognitive situation where the addressee is required to call up two scenarios, a factual one where the speaker has given a specific instruction a given number of times and a counterfactual one where the same action has been performed a million times. These two scenarios contrast in terms of the extreme distance on the frequency scale between the source and the target ‘telling’ events. Therefore, the interpretation of hyperbolic statements generally requires the combination of (at least) strengthening, mitigation and contrasting operations. There is a meaning implication that arises from combining these three cognitive operations: the idea that the psychological impact of the factual scenario is somehow similar to the psychological impact that the (strengthened) counterfactual scenario would create in the speaker (e.g. in terms of personal frustration). The same kind of reasoning applies to the analysis of example (54). The weight the speaker says he has gained over Christmas (a ton) is the strengthened value, which contrasts with the real gain (it might have been 2-3 kilograms), thus enhancing the speaker’s perception that he or she has gained too much weight. In neither case does the hyperbolic statement “stand for” its non-hyperbolic counterpart: ‘a million times’ does not stand for ‘many times’ or ‘a ton’ for ‘an excessive amount of weight’. These are just part of a larger set of meaning effects that include the speaker’s feelings and attitude when faced with an undesired situation.

Our analysis of hyperbolic statements has revealed that it is not infrequent to find examples in which strengthening, mitigation and contrast operations cooperate with other cognitive operations. In fact, if we retake

the analysis of the sentence *She is an angel*, which we discussed as an instance of ironic remark in section 4.2 above, we find that it is hyperbolic in nature: it is an exaggeration to attribute the exemplar characteristics of an angel to a person, even when this attribution is ironic. Therefore, the production and interpretation of this ironic remark requires the cooperation of echoing, contrast, resemblance, strengthening and mitigation operations. It should be noted that contrast in this case operates at two different levels: on the one hand, there is a contrast between the parents' belief and the actual state of affairs; on the other, the attributes of an angel (strengthened concept) contrast with the attributes of a girl. We have found that hyperbole is quite frequent in the creation of ironic effects. In fact, some authors suggest that hyperbole is one of the markers that prompt the speaker to go for the ironic interpretation over the literal one (cf. Kreuz and Roberts 1995).

The combination of strengthening/mitigation operations may require the intervention of still other cognitive operations. Here we do not attempt to account for all of the possible combinations. Rather, examples (55)-(57) constitute a representative sample that illustrates the complexity of the potential interaction between different cognitive operations in the interpretation of hyperbolic statements.

(55) This man has a brain the size of a pea (BNC ED2 164).

(56) One mistake, and he'll fill you with lead.¹²³

(57) I don't like the "I live in the gym" look.¹²⁴

¹²³ books.google.es/books?isbn=1475937148. Fuller, G. J. (2012). *Lady Lawbreaker*. Accessed on February 4, 2013.

The interpretation of (55) involves an offensive hyperbole. It is based on the combination of the following cognitive operations:

- a. Metonymic reduction of a conceptual domain in which the brain stands for a person's intelligence.
- b. Metaphoric correlation, by virtue of which we generally associate bigger brain size with greater intellectual capacity.
- c. Strengthening and mitigation. In the first place, the speaker strengthens the statement in order to create the hyperbole: the speaker exaggerates the smallness of the brain up to an impossible size (the size of a pea). Then, the hearer needs the converse operation of mitigation to bring this measure back to a value that is conceivable, i.e. more realistic, though still small.
- d. Comparison. This cognitive operation sets human and animal attributes in correspondence. On the one hand, we have a case of comparison by resemblance, because we point to the similarity between a person's brain and a pea in terms of shape. On the other hand, we find comparison by contrast between the actual size of the brain of the person and the concept strengthened by the speaker, that is, the size of a human brain and the size of a pea. We have noted that hyperbolic statements usually take the form of a simile¹²⁵ (in fact, example (55) can take the variant *a brain as small as a pea*). Another example is provided by the sentence *This cake is as hard as a rock*. The simile *as hard as a rock* is grounded in the resemblance between the hardness of a rock and the hardness of a cake. The hyperbolic

¹²⁴ <http://www.cr17.com/index.php?topic=7608.0>. Accessed on January 15, 2013.

¹²⁵ See Carston and Wearing (2011) for an alternative account of the relations that may hold between metaphor, simile and hyperbole.

component relies on the fact that it is not virtually impossible for a cake to be exactly as hard as a rock is. Simile-based hyperbolic expressions are thus to be analyzed making use of comparison by resemblance in combination with strengthening and mitigation operations. In addition, the real scenario (e.g. the real hardness of the cake) contrasts with the counterfactual scenario that has been created on the basis of a strengthening operation.

Let us now take example (56), which involves the set expression to *fill somebody with lead*, which means ‘to kill somebody by shooting him several times’. Here we have a case of lexical metonymic expansion (MATERIAL FOR OBJECT) where ‘lead’ stand for ‘bullets’. Then, the speaker strengthens the concept of shooting a high number of bullets up to an unrealistic amount that figuratively fills in the victim’s body. Note that the conception of the human body as a container is also involved in this mental process. Also, there is a contrast between the real situation (a gun does not contain more than ten bullets, so that is the most the speaker can shoot) and the counterfactual situation in which the victim is shot as many times as necessary for his body to be filled with bullets.

The cognitive analysis of example (57) parallels that of examples (8) and (9) in that it requires a process of metonymic reduction of an eventive cognitive model. The clause “I live in the gym”, which plays an adjectival role within the main clause, invokes a cognitive model in which a person spends quite a lot of time in the gym doing body building. We thus need to highlight the aspect of this scenario that is conceptually compatible with the noun that is modified by the clause, which would be the kind of look one gets when working out too much (excessively muscled). However, we also

need to bear in mind that a process of strengthening is involved here: living in the gym, if taken literally, would involve spending most of one's life there, which is not a likely scenario. Rather, the speaker has performed an operation of strengthening by virtue of which the event 'spending long hours in the gym' is brought up in the temporal scale to 'spending one's life in the gym'. As hearers, we need to perform the opposite operation, that is, mitigation, in order to come up with a plausible interpretation. The contrast between the real and fictitious situations is also made evident.

5.2. *Understatement*

Mitigation is also a cognitive operation performed by speakers in the case of understatement (cf. Chapter 6, section 3). It is only a matter of common sense that when people say *I'll be ready in a second*, they do not literally mean 'a second'. Typically, the speaker's intention when using this expression is to communicate that he will be ready in very little time. The remark is constructed by minimizing the real amount of time that getting ready will still take to a nearly insignificant (and therefore ostentatiously unrealistic) level. The added meaning implication is that whatever amount of time the speaker takes to get ready will not really trouble the addressee, just as if he only had to wait for a second. As in hyperbolic statements, the addressee needs to perform the opposite cognitive operation in order to achieve a realistic interpretation. In this case, the addressee will bring 'one second' up in the scale of time to a more reliable (probably undetermined)

figure, i.e. ten minutes. Again, there is an operation of contrast between the real and the counterfactual scenarios.¹²⁶

Mitigation may also be operational at the implicational level. Examples (58) and (59) below illustrate the presence of strengthening and mitigation operations in the interpretation of understatements at the implicational level.

(58) I like him a little bit¹²⁷.

(59) You know, it wouldn't kill you to attend one of these balls that Mother keeps harping on¹²⁸.

Sentence (58) was uttered in the context of a girl talking about a boy that she is in love with. In this context, the expression “a little bit” actually means ‘a lot’ (often with the accompanying implication that the amount of love is more than the addressee may think, therefore making use of level 2 inferential activity). This operation is in fact grounded in a metonymic schema, according to which a lower part of the quantity scale can stand for an upper part of the same scale. Obviously, the hearer's task when faced with examples like this is to strengthen the speaker's understatement into an assumption that fits the relevant aspects of the context of situation.

Example (59), which is part of a conversation between two brothers, Grant and Derek, is an interesting case of litotes (cf. Chapter 6, section 3). It makes use of the construction *It Wouldn't Kill You to X*, which is a

¹²⁶ Some authors argue that the contrast is more powerful in ironic statements than in understatement (Colson and O'Brien 2000).

¹²⁷ http://www.answers.becomegorgeous.com/love_and_relationships/how_can_i_tell_a_boy_has_a_crush_on_me-18447.html. Accessed on October 5, 2011.

¹²⁸ books.google.es/books?isbn=0743466497 Cole, K. (2003). *The Captain of All Pleasures*. Accessed on December 19, 2012.

hyperbolic case of the construction *It Wouldn't Do You Harm to X*, which is used to prompt people to act as described in its X part. The challenge is based on the social convention according to which we should not ask people to do whatever is going to be harmful to them. To the contrary, we are expected to ask other people to act in ways that are beneficial to them (Cost-Benefit Model, Chapter 4, section 2.2.2). So, telling the addressee that doing X is not going to be harmful to him becomes an indirect way to communicate that the speaker would like the addressee to do X or at least that the speaker believes that it may even be good for the addressee to do X. This is how litotes works. Now, the hyperbolic use of *kill* for *do harm* intensifies the meaning effect of the litotes: it is not only the case that doing X may not be bad, but also that it could not possibly be bad and in fact it may turn out to be very good.

See table 5 for a summary of how strengthening and mitigation operations can act at different meaning representation levels.

Table 5. Strengthening and mitigation

Operation	Lexical level	Implicational level	Illocutionary level	Discourse level
Strengthening (A IS B, where A is a point in a scale and B is an upper-level point in the same scale)	Lexical strengthening (<i>very</i>)	Hyperbolic use of litotes (<i>It Wouldn't Kill X To Y</i>)	Grammatical strengthening: emphatic <i>do</i> (<i>Do shut up now!</i>)	-----
	Hyperbolic statements (<i>I told you a million times</i>)			
Mitigation (A IS B, where A is a point in a scale and B is a lower-level point in the same scale)	Lexical mitigation (<i>little</i>)	Understatement (<i>I like him a little bit</i>) Litotes (<i>It Won't Do You Harm To X</i>)	Grammatical mitigation: <i>please</i> , tags such as <i>will you?</i>	

6. Parametrization and generalization

Parametrization operations consist in the specification of general conceptual material on the basis of textual and contextual information. Generalization is the opposite operation, that is, we have to access to a general configuration from a more specific one. Generalization operations are not to be confused with abstraction operations, which are formal in nature (see Chapter 5, section 2.3). Abstraction consists in the selection of common structure from several constructs thus creating higher levels of meaning representation. By contrast, generalization involves the shift from specific to more general elements that belong to the same level of representation.

Parametrization and generalization are grounded in world knowledge and are cued by the linguistic expression. We provide examples of both operations in (60) and (61) respectively:

- (60) a. I like tomatoes.
b. I like horror movies.
c. I like him very much.¹²⁹
- (61) a. One may assume that a scholar in fact lacks taste.¹³⁰
b. Many times you just want to hide an element simply because you don't want people to see it in a given view.¹³¹

An instance of parametrization can be observed in the different (yet related) meanings of the verb *like* in the sentences in example (60). The generic

¹²⁹ Given the common nature of these structures, sentences in (60) have been made up by the authors. The same holds for examples (65) and (66) below.

¹³⁰ books.google.es/books?isbn=0521585848. Nietzsche, F. (1997). Edited by D. Breazeale. *Untimely Meditations*. Accessed on February 6, 2013.

¹³¹ books.google.es/books?isbn=1118141598. Davis, P. (2011). *Introducing Autodesk Revit Architecture 2012*. Accessed on February 6, 2013.

meaning of the verb *like* needs to be parametrized by taking into account surrounding linguistic material in order to get an accurate interpretation. In (60a), ‘like’ is related to eating, because ‘tomatoes’ activates the ‘eating’ frame through cueing. Therefore, the speaker’s assertion about his liking for tomatoes means that the speaker enjoys the taste, texture, healthy properties, etc., of tomatoes.¹³² In a default interpretation of example (60b), what the speaker likes is ‘watching’ (rather than making, selling, distributing, etc.) horror movies. In the case of (60c), ‘him’ makes reference to a certain man, who is identifiable in context. By contrast, ‘one’ in (61a) and ‘you’ in (61b), which are in principle specific terms, are to be handled in more general terms, that is, they stand for ‘any person’.

Given that parametrization and generalization operations respectively work by making generic structure stand for more specific configurations and by making specific configurations stand for generic structure, we may contend that they are guided by a metonymic inferential schema: parametrization works on the basis of the metonymy GENERIC FOR SPECIFIC, while SPECIFIC FOR GENERIC underlies generalization operations.

6.1. *Parametrization at the lexical level*

We have found parametrization to be highly pervasive at the lexical level. This is only to be expected in terms of linguistic economy: choosing a

¹³² Ruiz de Mendoza and Pérez (2001) account for this type of example as being grounded in the OBJECT FOR ACTION metonymy: ‘tomatoes’ for the action of ‘eating’ tomatoes. They argue that this phenomenon is at work with like/love and start/begin/finish verbs. These verbs generally subcategorize for actions, so the presence of a noun phrase is grammatically incongruent unless the metonymy OBJECT FOR ACTION licenses the use of the noun phrase. However, we believe that this metonymy does not account for an interpretation involving color, taste, texture, etc.

generic term that encompasses several conceptual specifications gears the main cognitive effort towards the hearer. It would then seem unlikely that the speaker selects a specific term to make reference to more general configurations. In fact, 'one' and 'you' presented in example (61) should be considered an exception to the general rule. However, this does not mean that generalization has no role in language-based interaction. In fact, the opposite is the case, since hearers parametrize what the speaker has previously couched in generic terms. That is, generalization operations are, in general, subsidiary to parametrization operations. Some expressions suggest that certain cultural conventions license the use of generalization in linguistically economical terms. Going for a coffee does not necessarily mean that the people getting together will have coffee (they may drink tea or any kind of beverage). Therefore, speakers use a more specific term (coffee) to make it stand for the generic term, i.e. any kind of drink. However, the choice of mentioning 'coffee' in the expression is motivated by the social convention according to which having coffee involves a specific kind of social activity (chatting, sharing leisure time with friends, etc.) that generally takes places in the afternoon. Therefore we have a linguistic situation in which the prototypical drink metonymically stands for the social situation in which we have that kind of drink.

We have selected examples (62) to (64) in order to illustrate different linguistic phenomena that involve the activity of parametrization operations.

(62) After I had my hair *done* I was charged nearly 50% more than what I had been quoted.¹³³

(63) Do you *smell* if you don't take a shower everyday?¹³⁴

(64) Yola Nash and her band in front of *ten thousand* people in the audience in NYC.¹³⁵

The verbal predicate *done* in example (62) is an example of lexical genericity. The information provided by the sentence activates a situational scenario, namely going to the hairdresser's. The speaker mentions a generic term ('done') to refer to more specific activities related to the hairdressing scenario, such as cutting, coloring, combing, etc. Therefore, an operation of generalization on the part of the speaker (the choice of a generic term, which is linguistically more economical) forces the hearer to perform the opposite parametrization operation. The same can be said about certain generic adjectives such as 'good': a *good* person meaning a person who has noble feelings and behaves nicely towards others, *good* reasons meaning that they are legitimate reasons, etc. In this respect, Paradis (2000) observes that adjectives are semantically underspecified and that we cannot grasp their full meaning potential in isolation. This is what we say in connection to the impressive polysemy of "good", whose actual interpretation needs contextual parametrization.

Parametrization also operates in the resolution of propositional truisms, as shown in example (63). Asking if a person smells would not

¹³³ http://miami.citysearch.com/profile/33483136/miami_fl/coco_s_day_spa_salon.html. Accessed on October 7, 2011.

¹³⁴ http://wiki.answers.com/Q/If_you_smell_do_you_take_a_shower. Accessed on November 11, 2011.

¹³⁵ <http://www.myspace.com/yolanash/photos/1342445#%22ImageId%22%3A1342445>. Accessed on October 24, 2011.

make any sense since the skin of every person gives off a more or less intense body odor. Nevertheless, parametrization allows us to make the generic concept of smelling stand for a more specific concept: smelling in socially undesirable ways.

Parametrization is also a necessary operation in the processing of semantically underdetermined expressions. A case in point is to be found in example (64), in which the more generic number ‘ten thousand people’ stands for the exact specific number of people attending the concert.

The analysis of many instances of parametrization suggests that this cognitive operation is a matter of degree. The following two uses of the generic term “someone” in (65) and (66) illustrate this assertion:

(65) *Someone* may object to the line of reasoning taken in this paper.

(66) [Mother to son in an accusing tone]: *Someone* has eaten the ice-cream!

In example (65), ‘someone’ refers to the reader, whoever the reader is, but it contains a small degree of parametrization: from “someone” meaning ‘any person in the world’ to a subdomain of this notion, i.e. ‘a reader’. Since a reader is a type of person, this places the former concept in a subdomain-matrix domain relationship with the latter.

Example (66) is usually offered as an instance of violation of one of the maxims of Quantity of Grice’s Cooperative Principle (Grice 1975). The speaker gives less information than is required for cooperative communication, with the expectation that the hearer will infer that the speaker believes that he has unduly eaten the ice-cream. Using “someone”

instead of directly pointing to the addressee' avoids making an explicit accusation. A complementary view for examples of this kind is offered by Relevance Theory, which deals with them in terms of "pragmatic adjustment", which requires extra processing effort that is offset by the derivation of pragmatic implications that are consistent with the context. Performing pragmatic adjustment involves our ability to parametrize meaning in application of the GENERIC FOR SPECIFIC metonymy. But here the degree of parametrization is greater than in the first example.

6.2. *Parametrization at discourse level*

Beyond the lexical level, parametrization is operational at level 4 underlying semantic relations of specification, exemplification, evidentialization, time and location (cf. Chapter 3, section 2.1). Note that parametrization in cases of discourse specification is not guided by metonymy, unlike in cases of lexical genericity, propositional truisms, and semantic underdetermination. This is so because the target of the parametrization operation is given explicitly, while metonymy has an implicit metonymic target. What is more, even if the discourse relation is not signaled explicitly through a discourse marker, the only inference that the addressee is required to make is about the nature of the connection, but never the nature of the target. Let us now discuss each of these discourse relations involving parametrization.

6.2.1. Specification

In this semantic relation, the second clause fleshes out some generic information given in the first clause. The parametrization operation makes use of the GENERIC-SPECIFIC propositional model. This is the same model that allows for the activity of the GENERIC FOR SPECIFIC metonymy discussed in various parts of this book. However, here the metonymy is not active since all information is explicit, as can be seen in example (67):

(67) And let me tell you something: the whole thing stinks to high heaven.¹³⁶

6.2.2. Exemplification

Part of the discourse singles out a member of the broader category invoked by previous or following discourse. Therefore, a pre-requisite of the parametrization operation in exemplification is the (cued) selection of the exemplifying items. See (68) and (69) below:

(68) There will be a high return to work skills that make you versatile and mobile—for example, computer and IT skills.¹³⁷

(69) Other Nobel laureates have been nitwits, for instance Lord Russell. (COCA, 2011).

In the first of these two examples, the *computer and IT skills* are a subset of general skills. In the second example, *Lord Russell* is a member of the category of Nobel laureates that satisfy the property of being foolish. The

¹³⁶ http://web.mit.edu/putz/Public/big_lebowski.txt. Accessed on November 28, 2011.

¹³⁷ http://www.frbatlanta.org/news/speeches/lockhart_060310.cfm. Accessed on July 19, 2011.

parametrization operation in the case of exemplification works on the basis of the CATEGORY-MEMBER propositional model. Again, this model, like generic-specific, can give rise to metonymic mappings when one of its two parts is implicit.

6.2.3. Evidentialization

Parametrization is also operational in evidentialization relations, which are to be added to the tentative taxonomy put forward by Mairal and Ruiz de Mendoza (2009) (cf. Chapter 3, section 2.1). Here, parametrization operations are based on an EVIDENCE-CONCLUSION cognitive pattern. In this semantic relation the content of part of discourse (the evidence) either proves or is at least strongly suggestive that the content of another part of the same discourse (the conclusion) is to be regarded as true (cf. Mann and Thompson 1988, p. 251). The conclusion part is in fact the result of a generalization judgment in which the evidence given is regarded as just one among other possible pieces of evidence that are not necessarily mentioned explicitly. The evidence given parametrizes the generic statement provided by the conclusion. As with exemplification, previous cued selection of the evidentializing items is necessary for parametrization to give rise to this semantic relation. Consider (70) below:

- (70) This threat is continuing to this day, as is evidenced by the recent attacks in Indonesia and Israel.¹³⁸

¹³⁸ <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+CRE+20021023+ITEMS+DOC+XML+V0//ENandamp;language=EN>. Accessed on July 19, 2011.

In this example, the recent attacks in Indonesia and Israel are given as evidence of the continuity of the threat of international terrorism. This conclusion is reached through a generalization carried out on the basis of partial evidence (two cases of attack) which parametrizes part of the generic statement that makes up the conclusion.

6.2.4. Time

Temporal relations at the discourse level also involve parametrization operations. When dealing with time, there are two modalities of parametrization. One, which we shall call *fixing*, does not operate at discourse level. A fixing operation allows speakers to determine the exact location in time of a given event (e.g. *Lunch will be served at 2*). The other, which we shall term *relating*, is operational at discourse level. It allows speakers to set up the timing of one event in connection to another (e.g. *After we have lunch, we'll have a cup of coffee*). Parametrization through the temporal relating of events can give rise to two different kinds of temporal relation: *temporal contiguity* and *temporal overlap* (cf. Mairal and Ruiz de Mendoza 2009: 176). Sentences in (71) and (72) below are examples of temporal contiguity (where one event precedes another) and temporal overlap respectively:

- (71) a. Where does Holden go right after he leaves the bar?¹³⁹
b. Before he left for the restaurant, he e-mailed Opel his cell phone number. (COCA, 2010).

¹³⁹ <http://answers.yahoo.com/question/index?qid=20110207170628AAAbH030>. Accessed on July 20, 2011.

- (72) a. Dad abandons daughter in hot car while he goes swimming¹⁴⁰.
- b. Gabriel washed the dishes while his father blew out the candles. (COCA, 2006).

Table 6 below provides a summary of the different types of parametrization that may be involved in the processing of temporal relations.

Table 6. Parametrization in temporal relations

PARAMETRIZATION IN TEMPORAL RELATIONS		
FIXING (not operational at level 4)	RELATING	
	TEMPORAL CONTIGUITY (operational at level 4)	TEMPORAL OVERLAP (operational at level 4)

One interesting characteristic of temporal overlap relations is that they can be used to give rise to fixing relations. For example, in *The clock hit twelve as she entered the room*, the first clause, which is simultaneous in time to the second (note that ‘hitting twelve’, though perfective, involves a certain amount of duration), also serves to fix the time slot in which the event of entering the room took place. Of course, the reverse situation is not possible: once a time slot has been fixed there can be no further specification of time relations for the same event except through further specification or cancellation in subsequent discourse. Examples (73) and (74) are illuminating in this respect.

¹⁴⁰<http://dastardlydads.blogspot.com/2011/07/dad-abandons-daughter-in-hot-car-while.html>. Accessed on September 15, 2011.

- (73) He went home at two o'clock in the morning, I mean a bit after two in the morning.
- (74) He went home at two o'clock in the morning or maybe a bit before two.

Parametrization, whether through fixing or through relating, is not necessarily marked linguistically, i.e. it can be achieved interpretively on the basis of contextual or previous discourse information. In any case, whether marked linguistically or not, parametrization of time reference is necessary for the development of what Sperber and Wilson (1995) have termed *reference fixation* in explicature-derivation tasks. The human processing system, when given a generic time characterization, will tend to make such a characterization more specific if there are sufficient contextual or discourse conditions to do so. In the absence of such a possibility (e.g. when speakers are intentionally vague), the addressee will not be able to carry out the parametrization operation and will have to be satisfied with the more generic characterization. An example of this is provided by the beginning of some tales, where there is only a vague indication of a supposedly remote past (e.g. *Once upon a time, there was a little girl who lived in a village near the forest*).¹⁴¹

6.2.5. Location

With semantic relations of location, parametrization also operates through fixing and relating. As we pointed out with respect to time relations, fixing

¹⁴¹ <http://www.dltk-teach.com/rhymes/littlered/1.htm>. Accessed on November 28, 2011.

(which does not work at the discourse level) specifies the exact location as in the sentence *Kevin's mom is in the room* (COCA, 2011).

In the case of parametrization through relating, we also distinguish between spatial overlap and spatial contiguity, which we exemplify in (75) and (76) below:

(75) I [...] found it where my geosenses [*sic*] said it would be.¹⁴²

(76) Sharissa Thule was below the window. (COCA, 2007).

Example (75) is an instance of spatial overlap, because the place where the object is and the place pointed out by the speaker's so-called "geosenses" coincide. Spatial contiguity allows us to determine the spatial location of an entity with respect to another, as illustrated in (76). Note that unlike temporal contiguity, spatial contiguity does not operate at level 4. This is so because prepositions, unlike relative pronouns, conjunctions and discourse connectives, do not introduce clauses. Table 7 resumes the different modalities of parametrization involved in spatial relations.

Table 7. Parametrization in spatial relations

PARAMETRIZATION IN SPATIAL RELATIONS		
FIXING (not operational at level 4)	RELATING	
	SPATIAL CONTIGUITY (not operational at level 4)	SPATIAL OVERLAP (operational at level 4)

¹⁴²http://www.geocaching.com/seek/cache_details.aspx?guid=8e1aef4e-447b-4c60-a778-5107018b07c&bandlog=yanddecrypt. Accessed on July 20, 2011.

Table 8 lists the various manifestations of parametrization operations across descriptive levels and domains of meaning representation, as discussed above.

Table 8. Parametrization

Operation	Lexical level	Implicat ional level	Illocution ary level	Discourse level
Parametrizat ion (A FOR B, where A is a generic domain and B a specific subdomain)	Lexical genericity (<i>I had my hair done</i>)	-----	-----	Specification (<i>Let me tell you something: it's over</i>)
	Propositional truisms (<i>Do you smell if you don't shower?</i>)			Exemplification (<i>Some of them were fired, for example, Mary</i>)
	Semantically underdetermi ned expressions (<i>There were ten thousand people in the audience</i>)			Evidentialization (<i>The threat continues, as is evidence by recent attacks</i>)
				Time (<i>Where does he go after he leaves the bar?</i>)
			Location (<i>I found it where I thought it would be</i>)	

7. Saturation

Saturation operations consist in the completion of missing information on the basis of contextual information and linguistic clues (grammatical consistency). In what follows, we proceed to analyze this cognitive operation in depth. In order to do so, we first address the working processes of this mechanism at level 1. Then, we proceed to account for the role of saturation operations at discourse level underlying certain semantic relations.

7.1. Saturation at level 1

At level 1 of the LCM, saturation operates in the completion of constructionally underdetermined expressions and minor clauses. Examples of both phenomena were provided in Chapter 5, section 3.7. Not much is to be added in relation to the completion of minor clauses. Colloquial expressions such as *Morning!* need to be saturated in order to acquire full meaning. Similarly, constructionally underdetermined expressions require a process of completion that is both contextually and grammatically coherent (remember the sentence *Are you ready?*, which can be completed, for example, into *Are you ready to go to church?*).

As with parametrization operations, saturation is a matter of linguistic economy on the part of the speaker, which places more cognitive effort on the hearer. Thus, the hearer is left with an open range of possibilities and the final interpretation depends on him to a large extent. The information that the speaker intends to transmit is usually evident from context. However, the hearer may choose an unexpected, though plausible, way of saturating. This circumstance is often exploited for humorous, ironical purposes. We have detected many instances in the American sitcom *Two and a Half Men*. One of them is transcribed in (77) below:

- (77) Alan Harper: [taken aback by Charlie's critique of his loud shirt he wants to wear to Las Vegas] Sh-Should I change?
Charlie Harper: Ah... You should, but after all these years, I doubt you will.

It is obvious from context that Alan is asking about the convenience of changing his clothes, so a contextually appropriate operation of saturation would yield the question *Should I change my clothes?* However, Charlie chooses to give Alan a hard time, and, ignoring contextual parameters (they were talking about Alan's shirt), he deliberately chooses to answer the unsaturated version of the question: when a person changes, he modifies his habits of life, his ways of thinking, acting, etc. Charlie's answer counts as sarcastic (remember that we distinguished irony from sarcasm in that the latter is generally more aggressive and directed against somebody). This is so because he takes advantage of his brother's unsaturated statement to make a remark about his dislike towards Alan's lifestyle.

Saturation at the lexical level may be combined with other cognitive operations. We have identified, for instance, the interaction of saturation with expansion and parametrization. The latter will be addressed in the next section (7.2) in example (79) with relation with saturation at discourse level. Needless to say, we do not intend to suggest that these are the only operation that saturation may cooperate with. In fact, we argue that further research focused exclusively on this topic would probably reveal the existence of other kinds of interaction. However, for the time being, we believe that these two combinations are representative enough to account for the operability of saturation in cooperation with other cognitive operations. Let us first analyze the expansion-saturation combination in the light of example (78):

(78) I asked her out and she said no.¹⁴³

¹⁴³<http://forum.wordreference.com/showthread.php?t=111965>. Accessed on October 7, 2011.

Example (78) provides an instantiation of the combination of saturation and metonymic expansion. In this sentence, ‘asking out’ needs to be saturated into ‘asking out on a date’. However, saturation by itself does not convey the whole range of meaning implications that we conventionally associate with the expression. In this case, the linguistic expression activates the situational scenario of dating, in which asking a person out conveys a number of implications related to the fact that people will only ask other people out on a date if there are feelings of attraction. The completion task mentioned above is the grounds for the activation of the dating scenario through metonymic expansion.

7.2. *Saturation at discourse level*

Saturation at discourse level can allow for very specific communicative strategies. Take, by way of illustration, example (79) below, which we have excerpted from the script of *Two and a Half Men*.

(79) Evelyn: So, Lydia, what do you do? I mean, besides my son.

In this part of the episode, Evelyn (Charlie’s mother) is introduced to Charlie’s new girlfriend. Evelyn’s use of the verb *do* is very frequent in conversations between two people that have just met, in which the speaker asks about the hearer’s job. In this context, asking ‘what do you do?’ calls for a default constructional saturation into ‘What do you do for a living’,

where generic *do* is parametrized into *do* ‘professionally’. However, in the example, Evelyn’s strategy is to cancel out the expected default saturation on the basis of subsequent discourse saturation based on the addition of a clarifying statement (*I mean, besides my son*). This example also shows that discourse-based saturation exploits semantic relations like those distinguished in the LCM (cf. Chapter 3, section 2.1). In example (79), the semantic relation is one of restatement, to achieve clarification.

When analyzing saturation in discourse relations, we may distinguish between *obligatory (or dependent)* and *non-obligatory (or free)* saturation. See (80) and (81) below:

(80) We all knew that a cyclone was coming.¹⁴⁴

(81) Nannie went to the sideboard and brought out a decanter of sherry.¹⁴⁵

Saturation is obligatory in those cases in which the syntactic structure forces the completion of the sentence, as in (80). The semantic structure of the verb *know*, in combination with constructional requirements, calls for a saturation operation in order to complete the sentence into a grammatically acceptable statement. Non-obligatory saturation operates in sentences that in principle do not need to be completed either conceptually or grammatically. This is the case of the semantic relation of addition at discourse level (that we will address below in more detail), in which the two sentences are syntactically independent, as in (81).

¹⁴⁴ <http://www.ncbi.nlm.nih.gov/pubmed/15569379>. Accessed on November 10, 2011.

¹⁴⁵ http://www.online-literature.com/james_joyce/965/. Accessed on November 11, 2011.

At discourse level, saturation is a common cognitive operation. Saturation is operational in comment, specification, addition, cause, condition, concession and consequence relations. Let us see each of them in turn.

7.2.1. *Comment*

The semantic relation of comment is a form of elaboration in which the second clause (usually syntactically dependent) constitutes a piece of extra information relative to the first, which is considered to be the main clause. We may contend that the second clause is an afterthought added to the initial statement. The kind of saturation that underlies this semantic relation is non-obligatory, since the main clause is both syntactically and semantically independent, as illustrated in sentences (82) and (83) below:

- (82) This reply was completely devoid of any sense of humour, which made me think that this person might actually be serious¹⁴⁶.
- (83) Viens (...) later admitted aiming his rifle at the tractor, which he thought was unoccupied. (COCA, 2007).

This semantic relation is also marked by iconicity: specifically, *which* marks a temporal sequence. Therefore, the sentence linguistically resembles the order of events in the real world situation.

7.2.2. *Specification*

Saturation is also operational in specification relations. It is necessary to point out that parametrization operations underlie this semantic relation in

¹⁴⁶ <http://www.solo1y.com/yd.htm>. Accessed on July 19, 2011.

the case of implicit specification, that is, sentences in which the relation is linguistically unmarked. Recall, in this connection, example (67) *And let me tell you something: the whole thing stinks to high heaven* above, in which the GENERIC-SPECIFIC propositional model is at work. In turn, saturation operations underlie explicit specification. See examples (84) and (85):

(84) Miho told me that she's returning to Japan next year.¹⁴⁷

(85) She thought that she must have been given another life. (COCA, 2009).

These are cases of obligatory saturation since the syntactic configuration and the semantic makeup of these examples call for the completion of the sentences (just saying *Miho told me* or *She thought that* is grammatically unacceptable).

7.2.3. Addition

This semantic relation licenses the juxtaposition of two sentences that make reference to two or more elements belonging to the same situational frame. The clauses joined by addition relations are generally semantically related, but also syntactically independent, so saturation is non-obligatory. This relation may or may not be iconically motivated, depending on whether the events joined through addition bear a temporal relation or not. Consider examples (86) and (87):

(86) He taught me step- by-step and gave me recipes for all types of occlusal issues.¹⁴⁸

¹⁴⁷ <http://esl.fis.edu/grammar/rules/repsspee.htm>. Accessed on July 19, 2011.

- (87) It is so crucial to do your research and also to keep up your health and your appearance in this business. (COCA, 2011).

These instances of addition do not necessarily reflect a sequence of events, so no iconicity is possibly involved. Nevertheless, there are examples in which iconic motivation does play a role: *He asked me out and we had such a wonderful time.*¹⁴⁹ However, there are cases in which it is not clear whether iconicity is present as in *He broke my heart and left me for another girl,*¹⁵⁰ in which leaving the speaker for another girl is likely to have happened before the heart breaking, probably causing it ('He broke my heart because he left me for another girl'). We may thus contend that, since addition is a fairly general way of connecting two or more clauses, it can be influenced by other semantic relations such as time and cause thereby adopting their underlying cognitive operations. A similar point has been made by Sperber and Wilson (1993) with respect to the pragmatic value of *and* as a mere marker of connection between states of affairs where the exact nature of the connection is to be determined on the basis of contextual and linguistic (obviously including intonation) clues put together (e.g. *We ate somewhere nice yesterday and we ate at McDonald's* may either suggest that the protagonists ate at McDonald's, which they like, or that they ate at a nice place and then at McDonald's, which is not that nice).

¹⁴⁸ <http://eubankinstitute.com/classes.php>. Accessed on July 19, 2011.

¹⁴⁹ <http://torontosnumber1datedoctor.com/blog/signs-that-say-your-ex-is-becoming-interested-again/>. Accessed on December 12, 2011.

¹⁵⁰ <http://answers.yahoo.com/question/index?qid=20111108153249AAgwtoz>. Accessed on December 12, 2011.

7.2.4. Cause

In causal relations one of the sentences provides one or more reasons that justify the claim made in the other one. This semantic relation operates on the basis of the CAUSE-EFFECT propositional model, which can give rise to metonymies, but not here. Note that a causal relation may be rendered as a comment. Let us take example (88) below:

- (88) I went there because this restaurant was flagged in the slow food guide.¹⁵¹

We can rephrase the statement in (88) by saying ‘This restaurant was flagged in the slow food guide, which made me go there.’ Note that the expression ‘made me’ triggers the process of cued inference, signaling an underlying causal relation. Interestingly enough, if we simply mention the cause (*this restaurant was flagged in the slow food guide*), the interpretation does not generally call for further details. Specifically, the mentioning of the cause does not evoke the causal frame as strongly as the mentioning of the effect does: saying *I went to this restaurant* is more likely to activate the causal frame (one may easily ask why, as in the example above *He broke my heart*). We may thus contend that while the cause is self-standing, the effect is not. Consequently, sentences linked by a causal relation generally mention the effect in the first place, thus forcing the process of completion (obligatory saturation) and violating the principle of iconicity (it is only logical that the restaurant being flagged in the slow food guide happened

¹⁵¹ http://www.tripadvisor.com.sg/ShowUserReviews-g187849-d1097476-r27235024-Ponte_Rosso-Milan_Lombardy.html. Accessed on July 20, 2011.

before the speaker visited it, in the same way as the heart breaking took place after the speaker was left for another girl).

7.2.5. Condition

Another semantic relation where saturation is operational is conditioning, in which one of the clauses pins down the necessary and sufficient conditions for the event denoted by the other to happen. The cognitive mechanisms underlying this semantic relation operate on the CONDITION-CONSEQUENCE cognitive model, which does not give rise to metonymy. In this case, the principle of iconicity would lead us to mention the condition in the first place. If we do so, the saturation operation is cued. Consider (89) below:

- (89) If you win we'll let you walk with fifty more dollars than you got right now¹⁵².

Mentioning the condition first (*If you win*) forces the speaker to elaborate a sentence that completes the utterance both syntactically and semantically. If we violate the principle of iconicity, i.e. we mention the consequence in the first place (*We'll let you walk with fifty more dollars than you got right now*), the necessity of completing the sentence is then unnecessary from the point of view of grammar and less evident from a semantic standpoint.

¹⁵² books.google.es/books?isbn=1416556265. Souljah, S. (2010). *Midnight: A Gangster Love Story*. Accessed on July 20, 2011.

7.2.6. Concession

The semantic relation of concession, which was not addressed in Mairal and Ruiz de Mendoza (2009), also works on the basis of the CONDITION-CONSEQUENCE cognitive model. However, it does so in a very peculiar way. Consider our common way of applying this pattern on the basis of our world-knowledge in the conditional sequences in examples (90) to (92):

- (90) If you feel better, then stop taking your medicine.
- (91) Take all of your medicine as directed even if you think you are better¹⁵³.
- (92) In fact, even if you're unemployed, you can still find some cool Christmas gifts¹⁵⁴.

Generally, it is not unreasonable to advise someone to stop taking his medicine if the medicine has done its job, which is what the speaker does in (90). However, we may be in a particular situation in which taking the prescribed medicine is necessary long after the disappearance of the symptoms (for instance, in antibiotic-based therapy). In this case, the condition part of the condition-consequence schema that we have used in (90) still holds, but the consequence part is different. This is evidenced by example (91). The same line of reasoning holds for example (92). Unemployed people are generally supposed to have little money (condition), which means that they are not able to buy fancy Christmas presents (consequence), but this potentially logical condition-consequence relation is

¹⁵³ <http://www.yalemedicalgroup.org/stw/Page.asp?PageID=STW013108>. Accessed on July 20, 2011.

¹⁵⁴ http://www.associatedcontent.com/article/6012208/how_to_afford_christmas_gifts_even.html. Accessed on July 20, 2011.

flouted by the concessive relation. Concessive sentences thus represent special circumstances in which the generally expected consequence does not occur.

Now, in terms of cognitive operations, concessive sentences display the same behavior as conditional sentences: mentioning the condition first calls for obligatory completion (e.g. **Even if you think you are better* cannot stand by itself), but this is not the case if we mention the consequence in the first place (e.g. *Take all of your medicine* makes sense without completion of the conditions part).

7.2.7. Consecution

This relation is also to be added to Mairal and Ruiz de Mendoza's (2009) initial classification. As is well known, consecutive sentences are closely related to causal sentences in that they share the basic semantic relation and one can be easily paraphrased into the other: *I went there because this restaurant was flagged in the slow food guide* vs. *This restaurant was flagged in the slow food guide, so I went there*. These two semantic relations are thus complementary. The choice of one or the other depends on the interest of the speaker in placing emphasis either on the cause or on the consequence.

All the above situations are summed up in table 9 below.

Table 9. Saturation

Operation	Lexical level	Implicational level	Illocutionary level	Discourse level	
Saturation (B COMPLETES A, where B is syntactically and semantically coherent with A)	Constructionally underdetermined expressions (<i>Are you ready?</i>)			Obligatory Saturation	Specification (X that Y)
	Minor clauses (<i>Morning!</i>)				Cause (X because Y)
					Condition (If X, Y)
	Saturation + metonymic expansion (<i>I asked her out and she said no</i>)			Non-obligatory saturation	Concession (Even if X, Y)
	Saturation + parametrization (What do you do, apart from my son?)				Comment (X, which Y)
					Addition (X and Y)
				Consecution (X, so Y)	

CHAPTER 8: FUNGRAMKB

1. Introduction

As we advanced in Chapter 2, section 4, FungramKB is a lexico-conceptual knowledge base for natural language processing (NLP) systems. This knowledge base, as discussed in Chapter 2, section 4, has two levels of representation. The first one is conceptual and includes an Ontology (declarative knowledge), a Cognicon (procedural knowledge) and an Onomasticon (episodic knowledge). The second level, which is linguistic, contains a Lexicon (grammatical information associated with each lexical unit realizing a concept), a Morphicon (morphological information) and a Grammaticon (constructional information).

The development of this chapter is mainly concerned with the grammatical module of FunGramKB, which falls within the linguistic (non-conceptual) part of the system. However, the linguistic and the conceptual modules are intertwined in such a way that the former largely depend on the latter; that is, the processing of information in the FunGramKB Lexicon, which deals with actual lexical items in particular languages, and in the Grammaticon, which incorporates constructional information, requires the retrieval of information from the conceptual module, more specifically, from the Ontology. Therefore, an outline of the most characteristic features of Ontology is in order, so the reader will be familiar with the terminology and the aspects that are linked to the linguistic module (section 2). It goes

without saying that a detailed description of the Grammaticon will also be provided (section 3). Also, the role of ARTEMIS in the representation of constructional schemata in the different levels of the Grammaticon will be discussed.

The present dissertation has offered, within the linguistic level, an exhaustive study of cognitive modelling that revolves around two main axes: (i) an exhaustive typology of cognitive models, and (ii) an in-depth study of cognitive operations. The combination of these two elements has allowed us to accurately define the meaning potential of the different ways in which cognitive mechanisms operate upon cognitive models in order to create meaning. We have given evidence that this happens at the four levels of description that articulate the LCM. As previously stated, FunGramKB has recently been enriched with a Grammaticon structured into the four levels of meaning construction taken from the LCM. Nevertheless, the LCM, up to the present moment, has only offered a programmatic outline of the kind of linguistic-conceptual material that belongs to each of these levels. The present study fills this gap, since it has developed this kind of content. Therefore, we propose that in order to achieve a fully-fledged articulation of the reasoning system of FunGramKB, we should go beyond the use of the architecture of the construction of the LCM. We should thus import as much information as possible from the descriptive apparatus based on the principles of cognitive modelling as developed in this dissertation. This means that, since the semantic basis of a construction at any level makes use of such principles, these should be used in order to populate the

Grammaticon of FunGramKB. With the aim of exploring to what extent this is possible, section 4 of this chapter will be devoted to the following tasks:

- (i) We will select three constructions from each of the descriptive levels of the LCM that have not been explored before in computational terms, i.e. levels 2, 3, and 4. These levels capture conventionalized meaning implications at the implicational, illocutionary and discourse levels respectively. Then, we will refine their linguistic description in order to adapt it to the computational requirements of FunGramKB. We need to bear in mind that this kind of project always involves a tension between the degree of refinement of the linguistic description and explanation and the requirements imposed by computational resources.
- (ii) We will make a semantic-conceptual description of each construction in generic terms. This kind of description will take into account the tension mentioned above: we try not to exceed the processing capacity of the computational system while also contributing as much information as is possible. This information is to be derived from the postulates we put forward in the linguistic part of this dissertation.
- (iii) The formulations obtained in the previous section will be translated into COREL. Then, they will be incorporated

into the architecture of the Grammaticon according to the level of processing they involve, corresponding to levels 2 to 4 of the LCM. This task may require the revision of the formulation mentioned in the previous point, since COREL is based on meaning postulates (cf. Chapter 2, section 4), which are structured in accord with a limited number of basic and terminal concepts. The linguistic description of the constructions invariably exceeds the descriptive possibilities of COREL. However, this representational metalanguage captures the essential meaning of each construction in connection to processing and inferencing with a degree of elasticity that is enough to surpass stochastic computational architectures.

- (iv) On the basis of the recent development of the automatic representation system of text in FunGramKB, namely ARTEMIS, we further improve previous work on argument-structure constructions carried out by Luzondo (2011) and Rosça (2012) by adding a simulation of processing at those descriptive levels which go beyond argument-structure representations, i.e. levels 2, 3, and 4 in the LCM. In this way, we provide a programmatic computational implementation of some of the constructions analyzed in the linguistic part of this dissertation.

2. The Ontology in FunGramKB

As we mentioned in our introduction to FunGramKB (Chapter 2, section 4), the Ontology, together with the Onomasticon and the Cognicon, conforms the conceptual level of the knowledge base.

Concepts in the Ontology are endowed with semantic information provided in the form of *thematic frames* (TF) and *meaning postulates* (MP). Thematic frames are conceptual constructs that specify the number (and type, when necessary) of event participants. Meaning postulates are sets of one or more logically connected predications ($e_1, e_2 \dots e_n$), which carry the generic features of concepts.

The semantic information contained within the Ontology is hierarchically organized into three types of concepts, which vary in their level of genericity: metaconcepts, basic concepts, and terminal concepts. *Metaconcepts* (headed by the symbol #), which have a higher degree of genericity, are organized into three main categories: #ENTITY, #EVENT, and #QUALITY. These subontologies contain nouns, verbs and adjectives respectively. Unlike basic and terminal concepts, metaconcepts are not endowed with semantic properties.

Basic concepts (headed by the symbol +) are the units that allow the definition and construction of meaning postulates for basic and terminal concepts. Also, they are used in the selection preferences (if any) of thematic frames. An example of basic concept is +THINK_00, as presented in figure 1 below:



Figure 1. The interface of the basic concept +THINK_00 in the Ontology

This image captures the hierarchical organization of FunGramKB: the basic concept +THINK_00 is subordinated to the terminal concept #COGNITION, which is in its turn subordinated to the terminal concept #PSYCHOLOGICAL. The structures of the TF and the MP are also shown. The concept +THINK_00 has two selection preferences that are reflected in its TF, i.e. the theme must be human and the referent must be a thought. These preferences are to be specified by means of basic concepts. The MP also makes use of basic concepts. The reading of this particular MP is that x1 (which must be human) uses his brain with the goal of creating x2 (which must be a thought).

Terminal concepts (preceded by the symbol \$) constitute the lower level in the taxonomy, as they are the most specific in meaning. The definition and semantic specifications of terminal concepts is also grounded in basic concepts. An instance of terminal concept, which is subordinated to

the basic concept +THINK_00, is \$CONSPIRE_00, is shown in Figure 2 below:



Figure 2. The interface of the terminal concept \$CONSPIRE_00 in the Ontology

Since it is a subordinate of +THINK_00, \$CONSPIRE_00 inherits its TF and selection preferences. The MP specifies the semantic attributes that differentiate the concept from its immediate superordinate.

3. The Grammaticon and ARTEMIS

The Grammaticon constitutes the grammatical module within the linguistic level of FunGramKB. As pointed out in the overview of FunGramKB, the Grammaticon has inherited its structure from the four levels of the LCM. Thus, the Grammaticon in FunGramKB has four Constructicons that roughly correspond to the four layers of the LCM. The Grammaticon contains argument-structure constructions (L1-Constructicon), implicational

constructions (L2-Constructicon), illocutionary constructions (L3-Constructicon), and discourse constructions (L4-Constructicon). The Grammaticon has thus been conceived as a repository of constructional schemata in a given language.

The representation of constructional schemata in the FunGramKB Grammaticon was at earlier stages restricted to argument-structure constructions. However, ARTEMIS is now able to deal with non-propositional meaning. There are substantial differences between the ways in which argument and non-argument constructions are represented in the Grammaticon. Let us outline the main aspects related to the representation of each type of constructional schemata.

(i) The representation of argument-structure constructions in FunGramKB is realized through *Attribute Value Matrixes* (AVMs). AVMs include a number of descriptors and constraints that regulate the unification of elements in such a way that the semantic plausibility of the result is guaranteed. The result of this unification process is the CLS. The completion of each AVM and the automatic generation of the CLS requires the collaboration of three types of production rules: (a) lexical rules, which specify the properties of lexical entries by retrieving information from the Lexicon and the Ontology; (b) constructional rules, which feed from the Grammaticon in order to determine the properties of constructional schemata; (c) syntactic rules, which do not draw knowledge automatically from FunGramKB, but need to be constructed by elaborating the layered structure of the sentence in the form of a syntactic tree.

Once the CLS has been created, ARTEMIS automatically generates the COREL scheme, which constitutes the input for the reasoning engine. The CLS includes the morpho-syntactic features of the construction (i.e. Aktionsart, number and type of variables, thematic roles, etc.), while the COREL representation provides a conceptual semantic description, which is language independent. For a more detailed discussion of the functioning of ARTEMIS at the level of argument-structure constructions, we refer the reader to Periñán (in press), and Periñán and Arcas (in press).

(ii) Idiomatic constructions are also expressed in terms of AVMs. However, the representation of these constructions does not include a CLS. Non-argument constructions have fixed and variable elements. The latter are represented by the letters X, Y, and Z, and may be parametrized in different ways. For instance, the X and the Y in the level-2 construction *It Wouldn't Kill X to Y* usually represent a volitional entity (X) and an action (Y), as in *It wouldn't kill you to have a haircut*. Once the text is introduced and the variables have been filled in, ARTEMIS retrieves the necessary information about these variable units from the Lexicon or from the L1-Constructicon. In our example, the information related to the X ('you') would be contained within the Lexicon, while the conceptual construct related to the Y ('have a haircut') needs to be drawn from the L1-Constructicon. The fixed part of the construction is matched to the corresponding construction in the L1-Constructicon, from which ARTEMIS imports the CLS, which is not altered. Also, the fixed part of the construction is a keyword that serves as an activator for the identification of the construction as idiomatic. The

idiomatic construction contributes the pragmatic reading of the sentence. In our example, the level-2 construction provides the implicated meaning that the speaker disapproves of some situation and wants it to be changed. This semantic description is represented in COREL. Next section provides a more detailed account of this process, along with examples from the implicational, illocutionary and discourse levels of FunGramKB.

4. The representation of constructional schemata at idiomatic levels of the Grammaticon

The Grammaticon in FunGramKB presents the following interface:

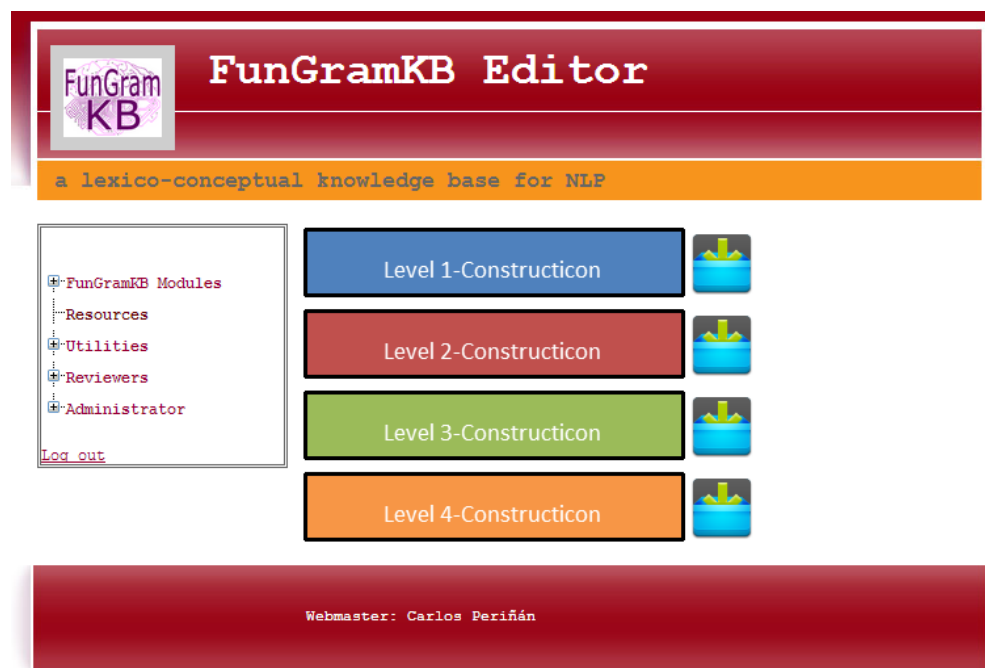


Figure 3. The interface of the Grammaticon in FunGramKB

In this section we address in detail the representation of idiomatic constructions in the Grammaticon. In order to do so, we will present three

constructions for each of the idiomatic levels of the Grammaticon. Furthermore, these constructions will serve as illustration of the functioning of ARTEMIS at these levels as sketched in the previous section.

4.1. Level 2-Constructicon

The constructional schemata to be stored within the level 2-Constructicon are those that represent implicational constructions, that is, those that correspond to level 2 in the LCM. The following subsections offer an account of the representation of the following constructions in the level 2-Constructicon: *Why Does X Have To Y?*, *Do I Look Like I X?*, and *It Wouldn't Kill X To Y*. Let us address each of them in turn.

4.1.1. The Why Does X Have To Y? construction

This constructional schema is generally used in contexts in which the speaker is upset about a given state of affairs. An instantiation of this construction is the sentence *Why do things have to be so complicated?* By uttering this sentence, the speaker is not enquiring about the reason that makes things complicated, but is rather expressing his discomfort about it. In much the same vein, the speaker of a sentence such as *Why does he have to call you every five minutes* is not concerned about what causes a third person to call the hearer every five minutes. Instead, he is making evident that he is bothered by the frequent calls. Figure 4 below captures the interface of this construction in the Grammaticon:



Figure 4. The interface of the *Why Does X Have to Y?* construction

As it is shown in figure 4, the interface for idiomatic constructions in FunGramKB has three parts: description, realizations and the COREL scheme. The description of the construction is a statement that captures the non-propositional meaning of the construction, in the present case, the idea that the speaker is upset. The realization box includes real instances of the construction as used by speakers of English. In turn, the COREL scheme comprises semantic information that matches the linguistic description provided for the construction. In other words, the COREL scheme is a conceptual representation of the non-propositional meaning of the construction:

(1) +(e1: +FEEL_00 (x1: <EVENT>) Agent (x2: <SPEAKER>) Theme (x3:

+ANGRY_00)Attribute)

The COREL proposition in (1) encodes the following information: an event (x1) causes the speaker (x2) to be angry (x3). This conceptual representation enriches the information contained within the COREL scheme of the level-1 construction from which ARTEMIS draws the CLS. Thus, the CLS of the text is not modified, but the COREL scheme is extended. The fixed part of the construction ('Why Does/Have to') allows ARTEMIS to (i) identify the construction as idiomatic, and (ii) identify, through pattern matching, the level-1 construction from which the CLS is to be retrieved. In turn, the X and Y elements are to be filled in by items in the Lexicon and the L1-Constructicon. Let us take the sentence *Why does Tom have to be aggressive?* The variables X and Y have been parametrized by 'Tom' and 'be aggressive' respectively. ARTEMIS will retrieve the information related to 'Tom' from the Onomasticon, which stores conceptual information about actual entities and events. In turn, 'be' and 'aggressive', which are lexical entries in the Lexicon, are connected to the concepts BE_01 and VIOLENT_00 in the Ontology. ARTEMIS draws the semantic information from the meaning postulates of these basic concepts.

4.1.2. *The Do I Look Like I X? construction*

In the linguistic analysis based on cognitive operations offered in Chapter 7, section 4.3, we contended that the use of this constructional pattern implicates that (i) the hearer presupposes the speaker's involvement in a given state of affairs, and (ii) the speaker is upset about the hearer's

presupposition, because it is evident that the content of such a presupposition is not the case. These two statements are included in the description of the construction in the interface of the Grammaticon:



Figure 5. The interface of the *Do I Look Like IX?* construction

These meaning implications, which go beyond propositional meaning, are comprised within the COREL scheme of this level-2 construction. Once ARTEMIS has identified that this is a level-2 construction, the implications conveyed by its COREL scheme add up to the propositional meaning obtained from the level-1 construction that matches the fixed elements. In this case, more than one predication is needed:

(2) +(e1: +FEEL_00 (x1: (e2: \$SUPPOSE_00 (x4: <HEARER>)Theme (x5: (e3: +DO_00 (x2: <SPEAKER>)Theme(x6)Referent)Referent))Agent (x2)Theme(x3: +ANGRY_00)Attribute) +(e4: n +DO_00 (x2)Theme (x5)Referent)

Two subordinate predications (e2 and e3) are embedded within the first predication. This predication encodes the conceptual information related to the first part of the linguistic description: what makes the speaker feel angry is the fact that the hearer presupposes that he is involved in the course of a given event. The last predication (e4) means that the speaker is not engaged in such a state of affairs.

4.1.3. *The It Wouldn't Kill X To Y construction*

As we advanced in section 3 above, the implicated meaning of this construction is that (i) the speaker thinks that it would be good that somebody (X) would carry out a given action (Y), and (ii) the speaker wants this person to do it. This construction, which is a hyperbolic variant of the *It Wouldn't Harm X To Y* construction, was analyzed as an instance of strengthening underlying hyperbolic litotes at the implicational level (see Chapter 7, section 5.2).

By using this construction, the speaker chooses an indirect way of expressing his approval for certain action, and his wish for this action to be carried out. These implications are captured in the COREL scheme, as we can see in Figure 6:



Figure 6. The interface of the *It Wouldn't Kill X To Y* construction

The different realizations of this construction show that the X variable may be filled in by other entities other than the hearer. However, the parametrization of this variable is restricted to volitional agents. Variable Y may be realized by any action that the agent (X) is able to perform.

As was the case in the *Do I Look Like I X* construction, the COREL representation of the non-propositional meaning of this construction requires several predications, as shown in (3):

(3) +(e1: +SAY_00 (x1)Theme (x4: (e2: +BE_01 (x2)Theme (x5: +GOOD_00 | +RIGHT_00)Attribute))Referent (x3)Goal)
 +(e3: +WANT_00 (x1)Theme (x6: (e4: +DO_00 (x7)Theme (x2)Referent))Referent)

The first predication e1, in which predication e2 is embedded, can be translated into natural language by saying that the speaker (x1) tells the hearer (x3) that something (x2) is good or right. Predication e3, complemented by predication e4, captures the information that the speaker (x1) wants someone (x7) to do something (x2).

Before we move on to the level 3-Constructicon, we would like to present a problematic case of an implicational construction that cannot be processed by ARTEMIS. It is the case of the *Don't X Me* construction (see Chapter X, section X). Recall from our linguistic analysis of this construction in terms of cognitive operations that the implicated meaning arises from the parametrization of the X variable through an echo of a previously uttered expression. When the X slot of the construction is filled in by a verbal predicate (which is generally the case), we have instantiations of a level-1 construction (e.g. *Don't leave me, Don't speak to me*, etc.). In other words, the *Don't X Me* construction only qualifies as a level-2 construction if the X is realized by the repetition of previous discourse (e.g. *Husband: But if this were Syracuse, we would be in the air, honey. / Wife: Don't 'honey' me*). This peculiarity poses a problem for ARTEMIS, which, to the present, is only able to process one sentence at a time. Therefore, for now, it is not viable to make the program recognize which realizations of the X variable are the repetition of a previous utterance. This means that, for ARTEMIS, the *Don't X Me* construction is always to be processed as a level-1

construction, so the potential non-propositional meaning of certain instantiations of the construction would be missed.

4.2. Level 3-Constructicon

At this level, constructions have been grouped according to their illocutionary meaning. Consider, for instance, the fact that every constructional realization that conveys a request (e.g. *Can You X?*, *Will You X?*, *Could You X?*, etc), shares the same non-propositional meaning, that is, the speaker asks somebody to do something. Therefore, the COREL scheme for all these level-3 constructions is the same. As the reader may be aware by now, the COREL representation is the most relevant part of the representation of idiomatic constructions in the Grammaticon. It would thus be unwise to create different entries for each construction. Rather, they are comprised within one single entry named after the illocutionary meaning shared by the constructions. The fixed part of the constructional realizations serves ARTEMIS in the identification of these patterns as illocutionary. Also, as with implicational constructions, the fixed part allows ARTEMIS to import the CLS from the corresponding level-1 construction, while the variables are to be filled in by retrieving information from the Lexicon of the level 1-Constructicon.

Let us now see the representation of illocutionary constructions for offering, promising and requesting in the Grammaticon.

4.2.1. Offering

The interface for Offering constructions (and every illocutionary construction) is the same as in implicational constructions:

Description:
The speaker says that he can do something about the hearer's needs.

a) Realizations:
Can I Offer You [NP]?
Do You Need Help [VP]?
Do You Want Me [VP]?
I Can [VP] You [NP].
Is There Anything I Can [VP]?
May I Help You [VP]?
May I Offer You [NP]?
There Must Be Something I Can [VP].
Would You Like Me [VP]?

Clear

Common [help]

Update Remove Add

b) COREL scheme:
+(e1: +SAY_00 (x1:<SPEAKER>)Theme (x2) Referent (x3:<HEARER>)Goal (f1: (e2: +DO_00 (x1)Theme (x4)Referent))Purpose (f2: (e3: NEED_00 (x3)Theme (x2)Referent)) Reason)

Figure 7. The interface of Offering constructions

The non-propositional meaning of Offering constructions, which is to be drawn from the COREL description shown in figure 7 above, is that the speaker tells the hearer that he (the speaker) can do something about the hearer's needs. The different constructions in the realization box convey the same illocutionary force, and therefore share the same COREL representation:

(4)+(e1:+SAY_00(x1:<SPEAKER>)Theme(x2)Referent(x3:<HEARER>)Goal (f1: (e2: +DO_00 (x1)Theme (x4)Referent))Purpose (f2: (e3: NEED_00 (x3)Theme (x2)Referent))Reason)

The predication in (4) can be translated as follows: the speaker (x1) tells something (x2) to the hearer (x3) with the purpose of doing something (x4) because the hearer is in need.

In the same way as with implicational constructions, the fixed part of these illocutionary constructions (e.g. ‘Can I Offer You’, ‘Do You Need Help’, etc.) constitutes the trigger that indicates that these are illocutionary constructions, so that ARTEMIS can recover the information from the COREL description. Furthermore, through pattern matching, ARTEMIS identifies the level-1 construction from which the CLS is to be imported. The information related to the realizations of the variable part is to be retrieved from the Lexicon or from the Level 1-Constructicon. Consider, for instance, the sentence *Can I offer you a drink?* In this case, ARTEMIS needs to go to the Lexicon in order to recover the necessary information about the element that has parametrized the X variable, i.e. ‘a drink’. This information is contained within the lexical entry ‘drink’. The lexical entry is linked to the basic concept +BEVERAGE_00 in the Ontology, from whose thematic frame ARTEMIS retrieves the conceptual information.

4.2.2. Promising

The constructions gathered under the label of Promising share the following description: the speaker says that he will do something for the hearer in the

future. Find in figure 8 below the interface of Promising constructions in the Grammaticon, which may have a wide range of realizations:

Description:
The speaker says that he will do something for the hearer in the future.

a) Realizations:
 I Assure You X
 I Can Assure You X
 I Can Guarantee X
 I Can Promise X
 I Guarantee X
 I Promise [VP]
 I Will Make Sure X
 I Will [VP]
 There Will Be [NP]

Clear

Common [help]

Update Remove Add

b) COREL scheme:
 +(e1: +SAY_00(x1: <SPEAKER>)Theme (x4: (e2: fut
 +DO_00(x1)Theme(x2)Referent))Referent(x3:<HEARER>)Goal)

Figure 8. The interface of Promising constructions

Each of the instantiations of Promising constructions in the realizations box carries the semantic load represented in the following COREL schema:

(5) +(e1: +SAY_00(x1: <SPEAKER>)Theme (x4: (e2: fut
 +DO_00(x1)Theme(x2)Referent))Referent(x3:<HEARER>)Goal)

The translation of this complex predication is that the speaker tells the hearer that he will do something in the future.

It goes without saying that the COREL description does not cover the whole range of meaning implications that we can derive from the statement of a promise. For instance, the moral obligation of the hearer to comply with his promise is missed out. As we advanced at the beginning of this chapter, the conceptual information represented by COREL descriptions is far from equalling the conceptual information available in a person's brain. However, the essence of the meaning implication is captured in the semantic description.

4.2.3. Requesting

Requesting constructions consist in the speaker asking the hearer to do something for him. See figure 9 below, which presents the interface of Requesting constructions:

Description:
The speaker says that the hearer can do something about the speaker's needs.

a) Realizations:
Can you please [VP]?
Can you [VP]?
Could you please [VP]?
Could you [VP]?

Clear

Common [help]

Update Remove Add

b) COREL scheme:
+(e1: +SAY_00 (x1:<SPEAKER>) Theme (x2) Referent (x3:<HEARER>) Goal (f1: (e2: +DO_00 (x3) Theme (x4) Referent)) Purpose (f2: (e3: NEED_00 (x1) Theme (x2) Referent)) Reason))

Figure 9. The interface of Requesting constructions

All the realizations shown above share the same semantic information, captured by the following COREL scheme:

```
(6) +(e1: +SAY_00 (x1:<SPEAKER>)Theme(x2)Referent(x3:<HEARER>)Goal
(f1: (e2: +DO_00 (x3)Theme (x4)Referent))Purpose (f2: (e3: NEED_00
(x1)Theme (x2)Referent))Reason)
```

This COREL representation means that the speaker (x1) tells something (x2) to the hearer (x3) with the purpose of getting the hearer to do something (x4) because the speaker is in need.

As we pointed out in our discussion of Promising constructions, not every detail can be encoded into the COREL scheme. Some information, mostly related to social conventions, is left out. For instance, the degree of politeness of the request is not reflected in the COREL representation. The degree of politeness is what differentiates, for example, the *Can You X* from the *Could You Please X* construction. However, we believe that, in order to keep a balance between the degree of refinement of the linguistic description and the requirements imposed by the program, the difference would not justify the creation of different entries for each constructional realization.

4.3. Level 4-Constructicon

So-called discourse constructions are stored at this level of the Grammaticon. Discourse constructions enclose some sort of semantic connection between two utterances.

The representation of constructions within the Level 4-Constructicon follows the same pattern as the rest of idiomatic constructions. Here, the word(s) that link the two sentences forming the discourse construction constitute(s) the indicator for ARTEMIS to catalogue it as a level-4 construction. As with illocutionary constructions, discourse constructions have been gathered into groups in the Grammaticon following the same criteria as in illocutionary constructions; that is, constructions that share their non-propositional meaning (and thus share the same COREL scheme) are to be part of the same entry. In this case, the entries have been labelled according to the clausal relation that holds between the utterances, i.e. cause, condition, and consequence.

4.3.1. Cause

The most typical instantiations of cause constructions are the *X Because Y* and the *X Because Of Y* constructions, as shown in the realization box of the interface in figure 10 below:

Description:
An event has caused the occurrence of another event.

a) Realizations:
[S], because of [NP]
[S], because [S]

Clear

Common [help]

Update Remove Add

b) COREL scheme:
+(e1: <EVENT> (f1: (e2: <EVENT>))Reason)

Figure 10. The interface of Cause constructions

The meaning of this construction is that an event has caused another event to occur. The X and the Y elements in the constructional realizations may be filled in by any sentences that bear a causal relation. The generic nature of this description is also reflected in the COREL representation:

(7) +(e1: <EVENT> (f1: (e2: <EVENT>))Reason)

In natural language, this COREL representation means that a given event has been caused by another event. An instantiation of this construction is to be found in the sentence *I went there because this restaurant was flagged in the slow food guide* (cf. Chapter 7, section 7.2.4 for an analysis of this construction in terms of cognitive operations, i.e. saturation).

The fixed part of each construction ('Because' and 'Because of') are the activators for ARTEMIS to retrieve the information represented in this COREL scheme.

4.3.2. Condition

The interface in figure 11 shows the description, constructional realizations and COREL representation of condition constructions:

Description:
An event will occur on condition of the occurrence of a prior event.

a) Realizations:
If [S], then [S]
[S] on condition that [S]
[S] provided that [S]

Clear

Common [help]

Update Remove Add

b) COREL scheme:
+ (e1: fut <EVENT> (f1: (e2: <EVENT>)) Condition)

Figure 11. The interface of Condition constructions

As with cause constructions, the fixed elements of the constructional realizations determine their status as level-4 constructions for ARTEMIS. Again, the COREL representation is the same for all the constructions,

because it captures the non-propositional meaning to be attributed to all of them:

(8) +(e1: fut <EVENT> (f1: (e2: <EVENT>))Condition)

This COREL scheme can be translated as follows: a future event will occur on condition of the occurrence of another event. An example of this construction, which encloses the semantic information encoded in the COREL representation, is the sentence *If you win, we'll let you walk with fifty more dollars than you got right now* (Chapter 7, section 7.2.5).

4.3.3. Consecution

The semantic relation of consequence dictates that the occurrence of an event results in the occurrence of a subsequent event (see Chapter 7, section 7.2.7). This description is captured in the interface presented in figure 12 below:

Description:
When an event takes place, another event occurs as a consequence.

a) Realizations:
[S], as a consequence [S]
[S], as a result [S]

Clear

Common [\[help\]](#)

Update Remove Add

b) COREL scheme:
+(e1: <EVENT> (f1: (e2: <EVENT>))Result)

Figure 12. The interface of Consecution constructions

As we can see in figure 12 above, consecution constructions, some of which are presented in the realization box, share the following COREL representation:

(9) +(e1: <EVENT> (f1: (e2: <EVENT>))Result)

The COREL scheme presented above is to be interpreted as follows: the occurrence of an event has the occurrence of another event as a result.

As a concluding remark, we want to contend that, despite the limitations pointed out in our discussion, a broad-ranging fine-grained semantic representation of an input text containing not only lexico-conceptual but

also constructional information, is possible in FunGramKB as an NLP system. We have shown throughout this chapter that the computer program ARTEMIS endows FunGramKB with a processing capacity that allows it to deal with non-propositional meaning, which is essential for the interpretation of natural language.

CHAPTER 9: Conclusion

This final chapter provides an overview of the main points developed in this dissertation. Also, we will suggest potential lines for future research that may further improve and complement the achievements of our work.

One of the aims of this dissertation has been to refine and provide a global, encompassing perspective on existing accounts of idealized cognitive models and cognitive operations. Our study of cognitive models and operations has been key for the explanation of the different facets of meaning-construction. At a later stage, we have shown that both propositional and non-propositional meaning can be represented and translated into a computer-readable meta-language by ARTEMIS in the environment of FunGramKB.

In order to supply the reader with the relevant background for the development of our proposal, Chapter 3 has provided an outline of the framework into which our analyses have been built up. We have discussed the aspects that are to be born in mind in order to regard a theoretical model as adequate, and have contended that the LCM is the most suitable model to frame our investigation. An overview of the main aspects of the model is to be found in this chapter. Furthermore, this chapter provides readers with an introduction to FunGramKB, which is a lexico-constructural knowledge base that has allowed for the computational implementation of some of our linguistic proposals in an NLP system.

We have reviewed the notion of cognitive model and the different taxonomic criteria that may serve classificatory purposes (Chapter 4). One

of the claims of this dissertation is that cognitive models are more than the result of cognitive operations. Our treatment of cognitive models endows them with the status of mental constructs which capture world knowledge in a structured way, thereby lending themselves to the activity of different kinds of cognitive operations. We have developed the two taxonomic criteria for cognitive models initially proposed in Ruiz de Mendoza (2007): their level of description (primary, low-level and high-level cognitive models) and their situational or non-situational nature. With respect to the latter, we have argued that propositional cognitive models may be further subdivided into eventive (dynamic) and non-eventive (non-dynamic). This distinction is key to the study of expansion and reduction operations in relation to the derivation of event-based implicatures (e.g. *You are dead*). Also, our account of cognitive models includes scalarity as a new classificatory criterion, which has been especially useful in the discussion of strengthening and mitigation operations in relation to hyperbolic statements. A finer-grained classification of cognitive models has allowed us to establish parallelisms between our account of cognitive models and Dik's (1989) well-known typology of states of affairs. Our proposal of cognitive models is rounded up by a table that illustrates the way in which a given cognitive model may be considered from the three different perspectives.

In Chapter 5 we have provided a preliminary discussion of cognitive operations. Ruiz de Mendoza's (2007) distinction between formal and content operations has been followed and enriched by adding further examples and insights. In addition, we have provided an encompassing account of the different patterns of conceptual interaction involving

metaphor and metonymy. We have explored previous proposals and put forward new patterns that arise from the cooperative activity of cognitive operations. We follow up from Ruiz de Mendoza's initial proposal, who put forward the notion of metaphoric complex, to be understood in a broad way as any combination between metaphors. Here, we propose two kinds of metaphoric complex: metaphoric amalgams and metaphoric chains. The former, which may in turn be subdivided into one-source and two-source metaphoric amalgams, involve the integration of the metaphors involved in the complex. On the other hand, metaphoric chains are combinations of two metaphors in which the target domain of one of them constitutes the source domain of the other. We also put forward the principles that regulate the activity of such cognitive mechanisms. As for metonymic chains, our proposal enriches previous accounts in that we provide new examples and put forward the combination of high-level and low-level metonymies into one metonymic complex.

As cognitive operations are more often than not involved in the unraveling of the meaning of non-literal uses of language, we have outlined and critically reviewed the most representative figurative uses of language in the literature in Chapter 6. We have demonstrated that the meaning of expressions involving metaphor, metonymy, irony, hyperbole and other figures of speech largely results from the activity of cognitive operations either in isolation or in combination.

Chapter 7 offers a thorough account of the cognitive operations that we have identified so far and the meaning implications arising from the activity of these mechanisms. Following the Equipollence Hypothesis –a

working assumption made in the context of the Lexical Constructional Model, according to which it is necessary to explore whether linguistic processes that are attested in a given domain of enquiry are also active in other domains— we explore the potential pervasiveness of each cognitive operation at the four levels of meaning construction identified in previous work on the Lexical Constructional Model: argument-structure implicational, illocutionary and discourse-structure representations. Our data provide evidence that the activity of cognitive operations goes beyond the lexical level.

We believe that a finer-grained taxonomy yields greater accuracy of analysis. One of the basic assumptions in our account of the role of cognitive operations in meaning interpretation includes breaking down metaphor and metonymy into more basic operations. For metaphor we propose the operations of comparison (either by resemblance or by contrast) and correlation. Thus, our account, although fully compatible with it, goes beyond the standard cognitive-linguistic view of metaphor as a mapping across discrete conceptual domains. Rather, we propose a set of cognitive mechanisms that operate on different cognitive models giving rise to different meaning implications. In this way, we contend that metaphor is not to be regarded as different from other figurative uses of language since its interpretation involves cognitive operations that may also be at work in the interpretation of other figures of speech.

Our approach to metaphor poses comparison as a broader notion that encompasses resemblance and contrasting operations as the two different perspectives from which two conceptual constructs may be compared. The

latter may work on either non-scalar or scalar concepts. Contrasting operations working on non-scalar concepts give rise to cases of full contrast (*but*) or partial contrast (*except for*) at the discourse level. At the discourse level, contrasting operations also underlie the semantic relation of alternation (*Either you come or we come and get you*). Contrasting operations working on scalar concepts result in different forms of understatement (litotes and meiosis; *It's just a scratch*) and overstatement (hyperbole and auxesis; *The lacerations inflicted in my client*). Paradox (*I am happy to be sad*) and oxymoron (*He is a wise fool*) are also instances of the working of contrasting operations.

In their turn, resemblance operations underlie some cases of metaphor (e.g. *His nose is an elephant's trunk*), all cases of simile (e.g. *The man's skin is like silk*), and the well-known phenomenon of iconicity (e.g. onomatopoeia). Our exploration of similes as repositories of stereotypical information has led us to postulate that resemblance operations often cooperate with echoing and contrast in the creation of ironic effects (e.g. *as sober as a Kennedy*). As for correlation operations, we have tackled the question of whether correlation metaphors should be regarded as cases of metonymy. We contend that typical examples of correlation (e.g. *warm embrace*) cannot be said to be metonymic since one of the domains is used to reason about the other, which is not the case in metonymic relations. We have also argued that correlation operations are involved in actuality implications, in which the ability to perform an action is a pre-requisite for the performance of the action itself (e.g. *I can guarantee/promise that you will have your money back*). At the implicational and illocutionary levels,

correlation is the basis for situational metonymies where events co-occur. The co-occurrence of events within low-level situational models falls within level 2 (e.g. *Did he finally give you the ring?*). The co-occurrence of events within high-level situational models takes place at level 3 (e.g. *Can you give me a hand here?*).

The notions of expansion and reduction are essential to understand metonymy. When these operations combine with the formal operation of substitution they give rise to metonymy: domain expansion underlies source-in-target metonymies and domain reduction underlies target-in-source metonymies. However, other cases of expansion and reduction have been pointed out at the lexical level (e.g. adding new elements of meaning to a conceptual configuration as needed for processing). In addition, we have identified cases of non-lexical expansion/reduction at level 1, as is the case of event-based implicatures (*You are dead*) and grammatical recategorization (*Don't you love her "I played all day" hair?*).

Expansion plus reduction metonymic chains have proved to be pervasive in pragmatic inferencing, i.e. at the implicational (A: *So...now what? Am I fired?* / B: *I think you should collect your things*), and the illocutionary (*This was red wine*) levels. We go as far as to say that this kind of metonymic complex is invariably involved in the processing of implicated meaning. In the case of implicature, metonymic chains underlie premise-conclusion patterns in the derivation of information. However, we may also come across level-2 utterances in which such patterns are not involved. This is the case of ironic remarks, in which implicated meaning rather than implicature derivation is involved.

At discourse level, we may find expansion in cases of anaphoric reference and, in general, sentences in which a word stands for a whole proposition previously uttered (e.g. *I told you so*, where ‘so’ stands for ‘that you would lose your money’). In turn, reduction operations are active in focalization phenomena, as in *He stole my WÁTCH* (i.e. not my wallet).

Echoing operations have been attested to be active at the four levels of meaning representation. Echoing at level 1 underlies direct (e.g. *Mark said: “I don’t want to go with you”*), and indirect speech reports (e.g. *Mark told me he didn’t want to come with us*). Echoing is also found at the basis of the metonymy TYPICAL VERBAL REACTION TO AN EVENT FOR THE WHOLE EVENT at the lexical level (e.g. *The “I don’t want to wear this shirt” phenomenon*). This metonymy has also been found to cooperate with metaphor in echoic utterances at level 1 (e.g. *Take a number*).

Echoing operates at levels 2 and 3, in combination with contrasting, in order to give rise to ironical effects. We have also postulated the cooperation of cross-domain metonymic chains in the creation and interpretation of ironic utterances (e.g. *She is an angel*). In addition, we have accounted for the activity of echoing operations at levels 2 and 3 that do not necessarily involve irony (e.g. the *Don’t X Me* construction), and at level 4 in the form of paraphrases (e.g. *Amounts don’t need to be consistent each day. In other words, you might eat 100g of protein one day and 50g the next*). Also, we have explored the relation of irony and simile, along with potential markers that indicate whether a given case of simile is ironic or not.

Our searches reveal that strengthening and mitigation operations generally work on the basis of scalar concepts. In English, the former operation involves the use of lexical and grammatical mechanisms such as the adverb *very* and emphatic *do* respectively, while the latter takes linguistic form through specialized pragmatic adverbs (*please*) and tags (*will you?*) among other possibilities. Also, strengthening and mitigation cooperate in the production and interpretation of hyperbolic utterances: the speaker strengthens the scalar nature of a proposition while the hearer needs to adjust the unrealistic magnitude down to a more realistic figure through the converse operation of mitigation (e.g. *This suitcase weighs a ton*). In addition, a contrasting operation is at work between the real scenario and the factual scenario created by the speaker. We have also attested the presence of mitigation operations in cases of understatement, whose interpretation requires the use of level-2 inferential activity (e.g. *I like him a little bit*). Furthermore, we have provided an example of hyperbolic litotes at the implicational level (*It Wouldn't Kill You to X*).

Parametrization and generalization operations are manifestations of the GENERIC FOR SPECIFIC and SPECIFIC FOR GENERIC metonymies respectively. Parametrization operations are involved in cases of lexical genericity (e.g. *I had my hair done*), and in the processing of propositional truisms (e.g. *Do you smell if you don't take a shower everyday?*) and of semantically underdetermined expressions (e.g. *Yoland Nash in front of ten thousand people*). At discourse level, parametrization underlies the semantic relations of specification (e.g. *And let me tell you something: the whole thing stinks to high heaven*), exemplification (e.g. *There will be a high*

return to work skills that make you versatile and mobile—for example, computer and IT skills), evidentialization (e.g. *This threat is continuing to this day, as is evidenced by the recent attacks in Indonesia and Israel*), time (e.g. *Where does Holden go right after he leaves the bar?*), and location (e.g. *Sharissa Thule was below the window*).

Our exploration has evidenced that saturation is also active and highly pervasive at level 4, underlying the semantic relations of comment (e.g. *Viens later admitted aiming his rifle at the tractor, which he thought was unoccupied*), specification (e.g. *Miho told me that she's returning to Japan next year*), addition (e.g. *He taught me step-by-step and gave me recipes for all types of occlusal issues*), cause (e.g. *I went there because this restaurant was flagged in the slow food guide*), condition (e.g. *If you win we'll let you walk with fifty more dollars*), concession (e.g. *Take all of your medicine as directed even if you think you are better*), and consecution (e.g. *This restaurant was flagged in the slow food guide, so I went there*). Also at discourse level, saturation may work in combination with parametrization operations (e.g. *So, Lydia, what do you do? I mean, besides my son*).

At the lexical level, saturation operations license the completion of constructionally undetermined expressions (*Are you ready?*) and minor clauses (*Morning!*). We have also found that saturation may cooperate with metonymic expansion, as in the sentence *I asked her out and she said no*.

Chapter 8 has been mainly engaged in illustrating the representation of constructional schemata at the idiomatic levels of the Grammaticon in FunGramKB, namely the L2, L3, and L4 Constructicons. We have discussed the general process that allows ARTEMIS to generate a computer-

readable representation (i.e. a COREL scheme), from text input. We have shown that this process varies from argument-structure to idiomatic levels of language, and we have focused on the latter. In order to do so, we have represented three instantiations of each idiomatic level, providing their linguistic description, realizations and COREL scheme.

All in all, we hope that the linguistic part of the present dissertation has offered the reader a thorough exploration of how cognitive models are exploited, through combinations of cognitive operations, to produce predictable meaning effects at different levels of meaning representation. Throughout our discussion, we have provided linguistic evidence that supports our argumentation, which has been carefully formulated on the basis of reliable data and tested against alternative hypotheses. Of course, empirical validation from other disciplines may lend further support to our contentions, thereby leaving an open door to complementary lines of research that for the time being are beyond the scope of our investigation (e.g. psycholinguistic and cross-linguistic studies).

With respect to the computational part of our work, in Chapter 8 we have provided a sample of how idiomatic constructional schemata are to be represented in FunGramKB. However, the four levels of the Grammaticon in FunGramKB need to be further explored and populated. The incorporation of more constructional schemata will raise new issues to be dealt with both at the linguistic and the computational levels. Furthermore, while the representation of constructional schemata has been shown to be a reality, the processing of COREL representation by the reasoning engine is

still in development. This point constitutes a promising line for future research.

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