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Modelling thought in language use: At the crossroads between discourse, pragmatics, and cognition[1]

This article studies a number of semantic and pragmatic phenomena with consequences for the development of discourse. Thus, our study of the way we make use of cognitive models in discourse allows us to postulate the principle of "Metaphoric Source Selection": the metaphorical extension of a concept can only select partial structure from this concept to construct the metaphoric source. The recognition of degrees of centrality in semantic specifications underlies the "Peripherality Principle", a discourse principle grounded in the "Principle of Relevance": when the most central characterization of a concept is not capable of creating discourse coherence, speakers turn to less central specifications and select the one that best satisfies the conditions of relevance. We then address the question of the pragmatic grounding of so-called cohesion and coherence in discourse. We claim that ellipsis and substitution are discourse phenomena subject to pragmatic constraints and argue for the existence of the "Conceptual Structure Selection Principle", which accounts for the semantic scope of ellipsis and substitution devices: these have within their scope as much structure as is not cancelled out by the discourse unit that contains the cohesion device. We have redefined the cohesion-coherence distinction as one between procedural and conceptual connectivity and have formulated two further principles of discourse connectivity: the "Princi-

ple of Iconicity" and the "Principle of Conceptual Prominence". There is a large amount of evidence that iconic arrangements are an important aspect of discourse coherence. Still, there is little work done with respect to the principles that regulate non-iconic arrangements. The Principle of Conceptual Prominence, which accounts for the special discourse status of prominent non-iconic information, fills this vacuum. The final part of this research work focuses upon the analysis of discourse strategies as non-conventional sets of procedures that allow speakers to create and interpret procedurally and conceptually connected texts. Two reverse discourse strategies are formulated, both related to the balance between procedural and conceptual markers of discourse connectivity. To this we add two other discourse principles, the "Principle of Internal Contrast" and the "Principle of External Contrast". The former is based upon explicit procedural operations, whereas the latter makes use of conceptual connectivity. Lastly, we distinguish two more discourse principles that constrain strategic discourse activity: the "Principle of Conceivability", which regulates conceptual links with situations in terms of the possibility of creating plausible mental scenarios for them; and the "Principle of Relative Distance", which helps sort out ambiguities in anaphoric operations on the basis of the relative distance between the anaphoric pronoun and its potential antecedent as licensed by the Principle of Conceivability.

Keywords: discourse; pragmatics; cognitive models, metaphor; metonymy; cohesion; coherence; discourse connectivity; relevance, ambiguity; iconicity.

1. Introduction

This article is concerned with the connections between semantics, pragmatics, and discourse. The underlying assumption for this enterprise is the belief that discourse processes cannot be independent of semantics and pragmatics.

Discourse analysis has been done with a number of different goals in mind. Some researchers have had information management as their main concern. By information management is meant how information is delivered, stored, and processed (cf. the work of Clark and Clark, 1977, or Johnson-Laird, 1983, 1988). This approach has evident links with work in psycholinguistics, especially in the field of human information processing (Aitkenhead and Slack, 1985; Lindsay and Norman, 1977; Smyth, 1987; Van Dijk, 1999). Other discourse analysts have worked with a varied array of languages; they have been involved in finding regularities and frequencies in the occurrence of certain phenomena, and in setting up a classification of discourse types (e.g. narrative, procedural, behavioural; see Longacre, 1976, 1983; see also Forster, 1977; Gläser, 1979; van Dijk, 1980; Werlich, 1983; Dressler and Eckkrammer, 2001; Lemke, 2001). Still others like Dowty, Wall and Petyers (1981) and Seuren (1985) take a formal approach to discourse and try to determine how sentences are mapped

onto their truth-conditions within a context. Finally, those working in the tradition of conversational analysis have been concerned with the structural properties of conversation and the rules that regulate how people take part in them (cf. Aijmer, 1996; Biber, 1988, 1989; Brown and Levinson, 1987; Brown and Yule, 1983; Cook, 1989; Gumperz, 1982; Halliday, 1989; Sacks, 1972; Sacks, Schegloff, and Jefferson 1974; Tannen, 1989).

The approach to discourse that will be taken here has strong links with the initial work on information management and with the studies on cohesion and coherence (cf. Beaugrande and Dressler, 1981; Harris, 1963; Dressler, 1972; van Dijk, 1977; van Dijk and Petöfi, 1978; Swales, 1990). There is one difference, though. Our proposal makes use of the connection between cognitive modeling (as part of semantics) and inferential pragmatics (especially relevance theory) in an integrated way. In this view, semantics supplies rich characterizations of conceptual structures and the way they combine, while pragmatics explains how the different forms of providing access to conceptual structure are exploited for communication purposes. Discourse, in its turn, focuses on how text is constructed and interpreted in a coherent manner as directed by the way conceptual structure is managed on the basis of pragmatic principles. Discourse activity is thus grounded in semantics and pragmatics.

2. Theoretical preliminaries

2.1. *Deriving meaning from utterances*

Consider the following conversational exchange[2]:

> A: What's that?
> B: It's a cat. A black cat.
> A: I can see it's a cat.
> B: Then why are you asking me?
> A: What's that cat doing here?

From the development of this piece of conversation, it is clear that speaker A was not asking B to identify a certain entity. Rather, he was trying to express his discomfort about a situation involving a black cat. In order to clarify his position, speaker A expands his initial expression "What's that?" into "What's that

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[2] Adapted from the opening dialogue in the book *Tsi-Tsa: The Biography of a Cat*, by George Mikes (1988, Harmondsworth, Penguin).

cat doing here?" However, neither the initial expression nor its paraphrase comes close to a literal specification of what speaker A wants to say. In fact, the actual meaning of his message could be paraphrased as: 'There is a cat here that disturbs me and you should have done something about it.' Speaker A is not actually asking for information about the actions carried out by the cat. This must be evident to both speaker and addressee in the context of production of the utterance.

What is more, there seems to be little doubt in speaker A's mind that his addressee will be able to determine with accuracy the real intent of his clarification, even though it is by no means explicit. We may wonder why this is so. In this connection, several observations are in order:

(a) Meaning derivation is usually not a matter of decoding a message; more often than not, meaning is obtained through what we may call cued *inferencing*, i.e. inferential activity carried out on the basis of prompts provided by the linguistic expressions in connection to a context.

(b) Linguistic expressions, or utterances in general, are usually underspecified or underdetermined. This is a fact that has often been pointed out by pragmaticists and philosophers of language alike. Frege (cf. the discussion in Perry, 1977) made a distinction between "sense" and "thought": the former was directly derived from the linguistic expression and had to be completed by means of *sense completers* which allowed speakers to derive full propositional representations or "thought". Ideas like this are at the basis of proposals like Sperber and Wilson's explicature-derivation mechanisms such as *disambiguation*, *fixation of reference*, and *enrichment* (Sperber and Wilson, 1995). In this way, in a sentence like *She's getting ready*, we obtain a full semantic representation, with its corresponding truth value, only after assigning a referent to the personal pronoun (e.g 'Mary') and after deciding upon what it is that Mary is getting ready for (e.g. 'Mary is getting ready to go to the party'). Other linguists have addressed this issue in some detail (cf. Carston, 1988, Recanati, 1989, Bach, 1994, Levinson, 2000).

Even though utterances are usually underspecified, speakers trust that they will make meaning in context. In Relevance Theory (Sperber and Wilson, 1995), it is generally argued that utterances are ideally designed by speakers to be optimally relevant, i.e. to achieve the intended range of contextual effects for the least amount of production and processing effort. This is indeed a rather risky enterprise but at the same time it gives speakers a fairly large amount of freedom to operate strategically. Speakers exploit semantic underdetermination for their

own communicative purposes. In the dialogue at the beginning of this section it is clear that speaker B was aware of the real communicative intent of the initial question of speaker A; however, speaker B chooses not to respond as A would have expected simply on the basis of the room provided by the inherent indeterminacy of A's turn.

Speakers are intuitively aware of the mechanisms that govern conversational behaviour. It is the analyst's task to determine what these mechanisms are and to inquire into their nature. So far, the pragmatics literature only reports on a few such mechanisms, like Sperber and Wilson's explicature-derivation devices mentioned above. However, these mechanisms are insufficient to account for many every-day non-explicit expressions like the following:

(1)   What's the time? – It's three [it is two minutes past three in fact]

(2)   Your brother is absolutely crazy! [the addressee's brother is in his right mind but his behaviour gets on the speaker's nerves]

(3) What's that child doing in the garden? [the child is doing something that disturbs the speaker]

(4) Where do you think you're going? [the speaker doesn't want the addressee to go]

(5) Who's been messing with my computer? [the speaker already knows the answer to his question; he's upset that someone has been using his computer without asking for permission]

(6) What's that metal taste in my mouth? - Maybe it's your silver fillings [the speaker wants to identify the source of the metal taste]

(7) This is Harry! [pointing to a mug of beer]

(8) I'm parked out back [the speaker holds out the key to his car]

(9) Nice day today! [it is pouring with rain]

(10) She's a lovely little doll! [speaker points to a little girl]

Interpreting expressions like these goes far beyond disambiguation, reference fixation and enrichment. Thus, (1) involves an intentional inaccuracy in a context in which being accurate would probably be not only unnecessary but also

odd; (2) is a common, every-day example of hyperbole where by *crazy* the speaker refers to a particularly irritating form of behaviour; (3) is not a question but an expression of surprise and uneasiness on the part of the speaker at whatever the child is doing; (4) and (5) also express irritation at the addressee's actions; (6) is a metonymic expression in which identifying the kind of taste stands for the source of the taste; (7) and (8) are also metonymic: in (7) *Harry* stands for Harry's drink, while in (8) *I* stands for the protagonist's car; (9) is a piece of irony (stating the opposite of what is evidently the case); and finally (10) is a metaphor whereby we see a little girl as having attributes comparable to those that a doll has.

We may legitimately wonder about what mechanisms allow us to interpret utterances like the ones above in no time, without much effort, and in an appropriate way in connection to the context in which they are produced. Relevance theorists would argue that it is all a matter of the speaker searching for the relevance of each utterance. But while it may be admitted that relevance is a global guiding principle, it is also true that relevance alone does not tell us why (3) should express annoyance, while (6) simply enquires into the origin a certain taste in the speaker's mouth. In fact, it may be argued that (3) and (6) are examples of different grammatical constructions with their own conventional meanings. In (3) we have an example of what Kay and Fillmore (1999) have labelled the *What's X doing Y* construction, which has a certain conventionalized meaning associated with it (e.g. speakers use this construction to refer to situations that bother them). It is very likely that this kind of added meaning was originally implicated meaning obtained on the basis of some implicature-derivation process like the following: if the speaker is asking about the identity of an action that is evident from context, then the hearer must assume that the speaker has a certain attitude towards that action. The idea is that if the speaker asks about an action that is evident to speaker and addressee, his question is to be understood as a way of calling the addressee's attention to the fact that he has neglected to act in accordance to what is expected of him. The whole inferential process takes the form of the following reasoning schema:

Implicated premises:

X shouldn't be doing A;
S knows that X is doing A;
H knows that X is doing A.
Both S and H believe that X shouldn't be doing A

Reasoning schema:

> If H believes that X shouldn't be doing A, H should have done something to prevent X from doing A.
> Since X is doing A, it follows that H has not prevented X from doing A.

Sentence: What's X doing?

Implicated conclusion: S's question cannot be a request for information, since A knows what X is doing, but a way of calling A's attention to the fact that H should stop X from doing A.

In (6) the search for relevance probably guides the addressee to understand that he is not being questioned about the kind of taste since that information is already provided by the speaker; the reason why the addressee chooses to interpret (6) metonymically is probably a matter of selecting the conventional construction that will allow him to make sense of the expression in its context: *What's that N?* may be used either to identify a referent or to ask about the origin of N.

So each expression above makes use of one of a number of mechanisms that facilitate meaning derivation: we have loose (or intently inaccurate) uses of language, metaphor, metonymy, hyperbole, irony, and conventional constructions incorporating formerly implicated meaning. It is possible to think of such mechanisms as cognitive operations of some sort.

As observed above, semantic underspecification, while being economical from the production/processing point of view, is a risky enterprise. Speakers know that the process may involve misunderstanding. However, this is a calculated risk. Linguistic systems have a number of resources to repair misunderstanding. Consider expressions like: *What do you mean by that?*, *Could you say that again?*, *Do you really mean ...?*, *Why are you asking me?*, *So?*, *What do you have in mind?*; and many others. Speakers often expect their addressees to be able to infer the meaning of what they say while remaining safely indeterminate. It is up to the addressee to come up with the full range of meaning effects of an utterance. The addressee may stop wherever he feels satisfied, i.e. when he feels that he has obtained the intended amount of meaning. If the addressee gives signs that he has not understood properly or that he is under too much of a processing burden, then it is up to the speaker to rephrase his message in a way that will produce the intended meaning.

2.2. *Semantics, pragmatics, and discourse*

For working purposes and in spite of the considerable amount of controversy around this topic, we will make the following assumptions:

(i) Semantics is concerned with assigning meaning to organized sound strings.

(ii) Pragmatics is concerned with the principles of language use: how speakers make intentional and skilful use of lexicogrammatical resources in order to communicate in an effective way.

(iii) Discourse focuses on the construction and interpretation of meaningful text, i.e. procedurally and conceptually organized text.[3]

Since semantics, pragmatics, and discourse share a common concern with meaning, i.e. with making sense of linguistic expressions, it is not farfetched to postulate a set of relations among these three levels of linguistic enquiry. Here it will be postulated that a full account of the meaning impact of utterances like (1)-(10) in the preceding section needs to be carried out from the vantage point of the convergence of semantics, pragmatics, and discourse. It will further be claimed that each of these levels of description carries with it a set of internal interacting principles and constraints that provide the input for the next level to become operative. By way of illustration, take an example of the *What's X doing Y?* construction mentioned above:

(11) Husband to wife: What's that child doing in the kitchen by himself?

At the level of semantics, the construction supplies a relevant part of the meaning of this utterance, i.e. the idea that the child is up to some mischief that worries or even annoys the speaker. At the level of pragmatics—although this will vary considerably depending on our assumptions about the speaker—the utterance may be interpreted as a way of asking the addressee to do something that she should have done to prevent the child from being in the kitchen by himself. At the level of discourse, we will focus on the potential that this example of the *What's X doing Y?* construction, pragmatically interpreted as a warning, has to create meaningful interaction. The speaker may expect a range of possible answers:

(12) (a) I don't know. I'm not really sure.

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[3] By "text" we will understand the result of communicative activity; the label "discourse" is more aptly applied to the way in which text is created. See in this respect Brown and Yule (1983).

(b) Do you want me to go and check?

(c) You know what he's doing.

(d) Does it bother you?

(e) Why should I take care of him?
(f) He's fine, don't worry.

(g) He's not doing anything wrong.

(h) You know kids will be kids.

(i) What can I do? I can't be looking after him all day long.

But not others:

(j) Mars is a red planet.

(k) I have bought some cranberries for dinner.

(l) Chomsky is a great linguist.

Each of the answers from (12.a) to (12.i) are instances of a different kind. Thus, (12.a) addresses the most literal aspects of the construction thereby ignoring the pragmatic interpretation of the utterance as a warning; (12.b) casts the addressee into the role of nonchalant acceptance of her duties with respect to the child; (12.c) and (12.d) challenge the speaker's right to tell off the addressee, one by restating what is obvious to both speaker and addressee (this is an indirect way of turning the responsibility for the child over to the speaker), the other by questioning what is evident from the constructional meaning itself, i.e. that the speaker is bothered by the situation (with the implication that the addressee is surprised about the speaker's complaint); (12.e) challenges the speaker's assumption that the addressee should be looking after the child; (12.f) works on the basis of the (constructional) assumption that the speaker is worried and tries to reassure the speaker about the child's safety; (12.g) reassures the speaker with respect to the child's potentially mischievous actions; (12.h) is an apparent tautology that is resolved by ascribing to the child the stereotypical values that we associate with children in general (i.e. children are always up to something, but they will rarely engage in forms of behaviour that will result in irreparable damage); finally, (12.i) challenges the speaker's assumption that it is the addressee's task to look after the child on a continuous basis.

There may be many other possible responses to the question *What's the child doing in the kitchen?* but all of them will have to fall into one the following general categories:

(i) Agree with the speaker as to the semantic (i.e. constructional) and pragmatic implications of his message (i.e. the addressee believes that since the speaker is bothered by the situation she has to do something about it)

(ii) Agree with the speaker as to the semantic but not the pragmatic implications of his message (i.e. the addressee is aware that the speaker is bothered by the situation but she won't accept that she has to do something about it).

(iii) Disagree with the speaker as to the semantic (i.e. constructional) and pragmatic implications of his message (i.e. the addressee does not believe the speaker is bothered by the child's potential mischief and therefore doesn't feel she should do anything about it).

There is a fourth theoretical possibility that the addressee disagrees with the speaker as to the semantic but not the pragmatic implications of the message. However, in practice this possibility is cancelled out by overriding pragmatic factors: if the addressee accepts that she has to do something about a negative situation, it is because she already agrees that there is such a situation.

If the foregoing account is correct, the general patterns of probably all discourse activity are predictable on the basis of semantic and pragmatic principles. This means that in order to understand discourse we need to have a thorough understanding of semantics and pragmatics. In this connection, it is our purpose to give an account of (i) how semantics and pragmatics interrelate; (ii) how such an interrelation affects discourse. In attaining these goals, we will be able to find out to what extent discourse principles and strategies are grounded in semantics and in pragmatics.

3. A note on methodology

As has just been noted above, our main goal is to explore, as systematically as possible, the semantic and pragmatic grounding of discourse activity. Our initial hypothesis in this connection is that in order to understand discourse activity it is necessary to understand not only the rich complexities of the structure of concepts (e.g. the principles of cognitive model theory) but also how this structure is exploited to make inferences.

This being the case, our first step will be to find the kind of approach to semantics and pragmatics that best suits our purposes. Some of the requirements of the approach to semantics that we are looking for are the following: (i) it has to be able to capture not only form-meaning relationships (such issues as homonymy and polysemy), but also how such relationships are handled by speakers to create conceptual relationships that capture the connectivity of texts; (ii) it has to be sensitive to such issues as the centrality of semantic characterizations (some attributes of concepts which are peripheral may have a role in creating discourse ties); (ii) it has to be broad enough to cover all forms of conceptual representation linked to linguistic expressions (e.g. conventional metaphor and metonymy) to the extent that such characterizations play a role in generating inferences. The details of these requirements will be dealt with in the following section.

With respect to pragmatics, we will favour an approach that sees meaning derivation as a matter of interpretation rather than decoding. This pragmatic approach will have to be largely compatible with the requirements that have been set up above for semantics. Where there is no compatibility between the two theories, this may require modifications in some of their postulates.

The second step will be to explore various levels of discourse activity where semantics and pragmatics play a significant role. For semantics, cognitive model theory, as originally expounded by Lakoff (1987), provides us with the most relevant levels of cognitive modelling with an impact on inferential activity: frame structure, metaphor, and metonymy will thus be examined is some detail. Johnson's image schemas (cf. Johnson, 1987), which are also regarded as a form of idealized cognitive model by Lakoff, will not be discussed since they are hardly likely to occur in non-metaphorical characterizations. Image schemas are abstract spatial (or topological) representations such as the notions of movement along a path, three-dimensional bounded regions (so-called containers), part-whole relations, and orientations like up and down, front and back, and left and right. There are other image schemas in Johnson's account, such as balance, circle, compulsion, blockage, centre-periphery, etc. They are used metaphorically in many expressions. For example, in *I'm in a good mood*, the abstract notion of 'good mood' is understood in terms of a bounded region in space where the speaker (or protagonist) is located; in *We are moving ahead*, progress is seen as forward movement along a path; in *Prices are going up* quantity is seen in terms of height (up-down schema); the expression *I'm scattered* (Lakoff, 1996) makes use of the part-whole schema to indicate some loss of intellectual functionality (in the same way as divided objects lose functionality).

For pragmatics, there are two crucial theoretical constructs that will allow us to look into how discourse is strategically managed. First, we have the two criteria of relevance (cf. Sperber and Wilson 1995): cognitive economy (i.e. economy of processing effort) and contextual effects (i.e. the impact on the addressee's mental context or cognitive environment). These criteria are expected to help us understand how conceptual structure is selected in terms of the balance between economy and effect (only relevant structure will be brought to bear upon some interpretation operations). Second, we have the balance between explicit and implicit information, which is expected to lie at the basis of some discourse strategies, since much of discourse activity has to do with the degree of explicitness of utterances.

The third and final step will consist in the study of the principles and strategies that follow naturally from looking into the semantic and pragmatic grounding of discourse phenomena. Since the distinction between cohesion and coherence is crucial to understanding how text is constructed, much of our enquiry will be focussed upon these notions.

4. Applications

4.1. *Semantics and discourse*

There are many ways of doing semantics. We have formal semantics, which makes use of principles of logic in looking at concepts in terms of classes of items subject to logical operations and definable in terms of intensional and extensional meaning. We have interpretive semantics, in which lexical items can be arranged according to their capability to combine with one another on the basis of selection restrictions (e.g. such atomic concepts as +/- human, +/-living, etc.). There are also paradigmatic approaches like Coseriu's lexematics whereby lexical items are arranged onomasiologically according to their inherent semasiological structure (cf. Faber and Mairal 1999). Other approaches, like Wierzbicka's (1996) analysis and the cognitive semantics approach come closer to providing rich semantic characterizations for each lexical item or for the conceptual constructs associated with them. Wierzbicka believes that the essentials of world knowledge can be captured in definitions by means of a set of universal, atomic concepts that she calls "semantic primitives" (e.g. *small, big, kind, good, do*, etc.). Cognitive semantics has taken two forms: idealized cognitive models theory (Lakoff, 1987), and frame semantics (Fillmore & Atkins, 1992, 1994). In cognitive semantics concepts are complex structures consisting of a number of elements and their associated roles (e.g. in a buying frame, we have a buyer, a seller, a market, merchandise, and money).

It is possible to divide all these different ways of dealing with semantics into two basic approaches: one, we will call the *minimalist* view, and the other the *maximalist* view. Only cognitive semantics fits the latter category, since it tries to capture all the complexities of conceptual organization. We will argue that, precisely because of these ambitious goals, only a maximalist approach can be productively used to account for discourse activity.

Let us consider Lakoff's account of the notion of mother (Lakoff, 1987). By way of contrast, we will start by providing Wierzbicka's definition of the same concept as created on the basis of her set of primitive universals (Wierzbicka, 1996: 154-155):

> *X* is *Y*'s mother. =
> (a) at one time, before now, *X* was very small
> (b) at that time, *Y* was inside *X*
> (c) at that time, *Y* was like a part of *X*
> (d) because of this, people can think something like this about *X*:
> > "*X* wants to do good things for *Y*
> > *X* doesn't want bad things to happen to *Y*".

Wierzbicka's definition, although apparently strange, has the value of being couched in terms of (primitive) universal notions like 'at one time', 'before', 'now', 'part of', 'small', 'inside', 'good', and others. It provides us with a way to identify the notion of the relation mother-child without making direct use of non-universal concepts like 'birth' or 'taking care of'. However, the definition, as it stands, misses a lot of the richness of what we know about mothers, as evidenced by a number of extensions of the concept: 'surrogate mother' (i.e. a woman that gives birth to a baby on behalf of another woman), 'biological mother', 'foster mother', 'adoptive mother', 'stepmother', etc. While biological mothers and surrogate mothers carried their babies inside their wombs, foster mothers and adoptive mothers only take care of them. Still, in a sense the different kinds of mother are mothers, although they do not comply with all the aspects of the definition. A surrogate mother bears a baby, but there is no reason why she should want good things to happen to the baby just because at one time the baby was inside her. However, a foster mother, who has not had the baby inside her, is expected to love and care for her child.

A maximalist approach also takes into account metaphorical and metonymic uses of concepts. For Lakoff (1987, 1993) a metaphor is a set of correspondences (what he calls a conceptual mapping) between two discrete conceptual domains: one of them, called the source, allows us to understand and reason about the other called the target. Thus, in ARGUMENT IS WAR we see people

arguing as contenders in a battle who plan tactics, attack, defend, counterattack, gain or lose ground, and finally win or lose (e.g. *She had been gaining ground throughout the debate, but then she faltered and her opponent was able to beat her*). A metonymy is considered a domain-internal conceptual mapping, as in *She loves Plato*, where *Plato* stands for Plato's work.

Now consider these sentences:

(13) (a) My wife mothers me.

(b) She mothers her children well.

(c) Necessity is the mother of invention.

(d) Spanish is my mother tongue.

(e) My mother is not married to my father.

(f) She's my grandmother on my mother's side.

Sentences (13.a) and (13.b) are based upon the idea that mothers take care of their children. The difference is that (13.a) is a metaphorical use of the notion whereas (13.b) is a literal use. In fact, in (13.b) it is taken for granted that the protagonist is the biological mother of the children that she takes care of (on some interpretations, there is the possibility that she is not the biological mother). In (13.c) the idea that mothers give birth to children is used metaphorically to help us reason about the relationship between necessity and invention (necessity is at the origin of invention). In (13.d), the mother tongue is the language that you learn from your mother as a native speaker: again there is a metaphor that exploits the birth connection between mother and child. In sentence (13.e) the speaker seems to take for granted that most people think that children are usually born within the bonds of marriage and it is in this context that his remark makes sense. Finally, (13.f) calls upon the idea that one's mother is the closest female ancestor.

The full meaning impact of all these sentences can only be accounted for on the basis of a richer description of motherhood than the one provided by a minimalist analysis. A maximalist analysis, like the one provided by Lakoff (1987), postulates at least five cognitive structures that seem to cluster in our minds to account for all aspects of our understanding of the notion of mother: the birth model (cf. *biological mother*, *mother tongue*, *Necessity is the mother of invention)*, the nurturance model (cf. *adoptive mother*, *foster mother*, *She mothers me)*, the marital model (*My mother is not married to my father*), the biologi-

cal model (cf. *surrogate mother*), and the genealogical model (cf. *She's my grandmother on my mother's side*). What is more, there are important pragmatics and discourse consequences of this form of maximalist analysis. Take the following extensions of the previous examples:

(13')(a) My wife mothers me; in fact, she spoils me and I just love that!

(b) She mothers her children well; while she prepares their meals, she bathes and puts them to bed.

(c) Necessity is the mother of invention, and, as everybody knows, a skinny woman named Poverty is the mother of Necessity.

(d) Spanish is my mother tongue but for me English is like a mother tongue too.

(e) My mother is not married to my father, but I don't care much.

(f) She's my grandmother on my mother's side, but in my mind she's closer to me than my own mother.

Mothers in taking care of their children often give them everything they ask for. This is generally regarded as negative since children also need discipline (note that mothering well is incompatible with spoiling a child); but this negative association does not carry over to the metaphorical extension (13'.a), since in the context of adults the discipline element is not present. Example (13'.b) makes some relevant connections with the standard notion of mothering a child well. However, note the impossibility of:

(13''.b) She mothers her children well; in fact she spoils them!

Explaining why (13'.b) is possible while (13''.b) is not requires a maximalist account in which genuine motherhood is connected not only to nurturance but also to the discipline of children. This apparently trivial aspect of the semantic organization of linguistic expressions, i.e. that metaphorical extensions of concepts only make use of partial conceptual structure for the metaphoric source, has important discourse consequences in terms of an account of the discourse potential of expressions. This is a semantic principle, which we will call the *First Principle of Metaphoric Source Selection*; as will be seen below, it is complementary of another principle that regulates source selection in the case of cluster models.

Example (13'.c) is based, just like (13.c), on the birth model to the extent that physical birth can be made to correspond to (non-physical) origin. In it, we have a conceptual association between necessity and poverty (the poor are people in need), which makes the discourse extension possible. Note, however, that while we can say that poverty is at the origin of necessity and necessity at the origin of invention, a metaphor like the following would be odd, to say the least:

(13''.c) [??]Poverty is the grandmother of invention.

The reason for this is that (13''.c) makes use of a different cognitive model from the cluster, i.e. the genealogical model (cf. Frieda is Mary's mother; Mary is Jane's mother; therefore Frieda is Jane's grandmother), while (13.c) and (13'.c) exploit the birth model (the idea of birth maps onto the idea of origin). The structure of the relationship between the notions of poverty, necessity and invention cannot enter into transitivity relationships; that is why the genealogical model may not apply. As a general principle, which will be explained in greater detail below, a metaphor may never override the logical structure of the concept to which it applies. This semantic principle places an important constraint on discourse activity: only literal uses of concepts may make use of all the models in a cluster in order to create discourse coherence; metaphorical extensions may only exploit one of the models in a cluster. This is the *Second Principle of Metaphoric Source Selection*.

Cognitive semantics has only identified one principle of metaphor production, called the *Invariance Principle* (Lakoff, 1990, 1993). This principle tells us that the (general topological) structure of the target domain (i.e. the tenor) of a metaphoric mapping has to be preserved in a way that is consistent with the structure of the source. In the case of a mapping from an animal to a person, the head will map onto the head, the body onto the body and the legs onto the legs. Non-corresponding structure from a topological perspective may not be mapped (we do not map tops onto bottoms). However, this principle focuses on the nature of correspondences. The principles of source selection focus on what elements of a cognitive model may be used as a metaphoric source.

Sentence (13'.d) illustrates not a semantic but a discourse principle that is firmly rooted in semantics. The statement that English is "like a mother tongue" for the speaker suggests that the speaker has an emotional attachment to English similar to the one people have with respect to their true mother tongues. Strictly speaking, a person's mother tongue is the language that that person has learned as a child from his parents. However, in a maximalist approach to semantics there is much more that we know about the notion of 'mother tongue': the mother tongue is usually mastered better that other languages learned at later

stages in life; people usually feel more comfortable (both emotionally and in terms of fluency) when they use their mother tongues. It is this knowledge, rather than the minimalist definition, that is used in the interpretation of (13'.d). This happens because of the application of the pragmatic Principle of Relevance (cf. Sperber and Wilson, 1995): since English cannot be the speaker's mother tongue in the strict sense of being the language that he learned as a child from his parents, then it is necessary to look into all other elements of the notion and find those that may be relevant. So (13'.d) is meaningful from a discourse standpoint because the central characterization of 'mother tongue' is discarded to the benefit of more peripheral features. We may call this the *Peripherality Principle*: if the most central characterization of a concept fails to make sense in discourse, the speaker, in an effort to achieve coherence, will look for the first non-central feature that satisfies the conditions of relevance (i.e. providing a satisfactory a meaningful set of contextual effects for the least processing effort).

Example (13'.e), in the same way as (13.e) above, makes use of the marital model whereby the mother is typically married to the father. However, in order to understand (13'.e) the addressee needs to have access to more information than this, in particular to the idea that having children without being married may not be socially sanctioned. The speaker's remark that he does not care much addresses this part of his world knowledge about social conventions. Again, coherence is achieved on the basis of peripheral information about one of the models in the cluster.

Finally, (13'.f) is based upon the genealogical model, like (13.f), but it exploits the model discursively in a significantly different manner. The expression *in my mind* opens up an alternative mental frame, where conditions are different from those in the initial cognitive model. Fauconnier (1985) has termed such alternative cognitive structures *mental spaces* and linguistic expressions that call for the creation of mental spaces *space builders*. Here are some examples, where *in the picture*, *John believes*, and *in his story* have the function of introducing alternative mental spaces:

(14) (a) In the picture, the girl with blue eyes has green eyes.

(b) John believes that the girl with blue eyes has green eyes.

(c) In his story, the girl with blue eyes has green eyes.

A mental space thus created presents us with figurative, even impossible reality, as is the case with counterfactual statements:

(14) (d) If I were a young woman, I would dye my hair red.

In the mental space created by the speaker in (13'.f) his grandmother is figuratively closer to him than his own mother. However, 'closeness' in this example is different from closeness within the genealogical model of mother-child relationships. Since we know that the speaker cannot be closer to his grandmother than to his mother in terms of the number of generations that separates them, the Peripherality Principle will lead us to look for a different interpretation of *close*, in this case in terms of affection. Affection and closeness correlate experientially: people who have affection for each other have greater physical contact than strangers. Thus, emotional intimacy is often seen as physical closeness, as evidenced by metaphorical expressions like *I feel very close to her*, *He always distances himself from me*, *We are closer than ever before*, *They have developed an attachment*, *We are drifting apart*, *He won't let me get near him*, and many others.

So what is really interesting about example (13'.f) in terms of the Peripherality Principle is that we have two different metaphorical interpretations of *close*: one applies to the central characterization of generational relationships within the genealogical model (i.e. 'close' in terms of the number of generations between two relatives); the other applies to the non-central characterization of emotional relationships within the same model. Children feel naturally closer to their parents (who usually take care of them on a constant basis) than to their grandparents. It is this non-central part of the genealogical model that is addressed by the speaker in (13'.f). In terms of the discourse potential of linguistic expressions we learn that a peripheral feature of a concept may be accessed on the basis of metaphor and that this requires the creation of an alternative mental space where the metaphorical extension may make sense.

The study of metonymy is also part of the maximalist approach to meaning to the extent that it is possible to argue that metonymic connections are part of our conventionalized knowledge of the world. Think of the metonymic association between hands and labourers (*We need two more hands here*), instruments and players (*The piano has the flue*), customers and orders (*The ham sandwich is waiting for his bill*), authors and their works (*I like Shakespeare*), a controlling entity for the entity that is controlled (e.g. *The buses are on strike*), and actors and their roles (*Hamlet was superb last night*), among many others.

One of the main concerns of cognitive linguists working on metonymy has been to provide clear definitional and typological criteria which separate metonymy from metaphor and from literal uses of language (cf. Barcelona 2000; Ruiz de Mendoza 2000). More recently, some work has been devoted to the connec-

tion between metonymy and pragmatic inferencing (cf. the collection of papers in Panther and Thornburg 2003). There now follow some of the crucial findings in these studies.

Metonymy is a pervasive phenomenon in language that goes beyond cases of referential shifts commonly attested the literature (e.g. ORDER FOR CUSTOMER, INSTRUMENT FOR PLAYER, CONTROLLER FOR CONTROLLED, etc.). Thus, it is proposed that there are several kinds of non-referential metonymy: (i) predicative metonymies like *Mary is just a pretty face* (meaning 'Mary has a beautiful face' and implying that her beauty is her only relevant attribute to the exclusion of others like intelligence; cf. Ruiz de Mendoza, 2000); (ii) propositional metonymies like *She waved down a taxi* (meaning that she stopped a taxi by waving at it) (cf. Lakoff, 1987); (iii) illocutionary metonymies (e.g. *I can buy you a bicycle*, where the speaker's ability to buy an item stands for his guarantee that he will buy the item; cf. similar proposals in Thornburg and Panther 1997; Panther and Thornburg 1998); (iv) and situational metonymies (e.g. *The poor dog left with its tail between its legs*, where part of a conventional scenario stands for the full scenario in which the dog is beaten and probably humiliated in such a way that the animal has to leave to avoid further harm; cf. Ruiz de Mendoza and Otal 2002).

Kövecses and Radden (1998) introduce for the first time the notion of high-level metonymy, where both source and target are generic cognitive models (e.g. INSTRUMENT FOR ACTION as in *He hammered a nail into the wall*). Ruiz de Mendoza and Pérez (2001), and Ruiz de Mendoza and Otal (2002) have studied the full semantic import of many grammatical phenomena on the basis of possible underlying high-level metonymies. Thus, it is possible to explain some asymmetries in the use of resultative predicates on the grounds of the semantic constraints imposed by high-level metonymic mappings. Consider the application of the high-level metonymy RESULT FOR ACTION (first identified by Panther and Thornburg 2000) to account for the infelicity of **Fall asleep* versus *Don't fall asleep*. The difference in meaning between the two sentences (and their degree of felicity) is evident from the following respective paraphrases based upon the proposed metonymy: 'act in such a way that as a result you will fall asleep' (which is hardly feasible), and 'act in such a way that as a result you won't fall asleep'. It is also possible to find a metonymic motivation for such phenomena as the subcategorial conversion of nouns (e.g. *There were three Johns at the party*, ENTITY FOR COLLECTION), the recategorization of adjectives (e.g. *blacks*, *nobles*, PROPERTY FOR ENTITY), and modality shifts (POTENTIALITY FOR ACTUALITY, as in *I can see the mountain from my window*, where *I can see* means 'I actually see because the conditions allow me to see').

Metonymy interacts with metaphor in significant ways. Goossens (1990) was the first cognitive linguist to address this issue in his article *Metaphtonymy*. However, he used limited evidence coming from a small body-part corpus and his findings have only partial value. Ruiz de Mendoza and Díez (2002) have provided the most detailed and systematic account of interaction patterns in which metonymy plays a role. Their proposal is based upon the formal distinction between two basic metonymy types and the conceptual operations which hinge upon them. In *Nixon bombed Hanoi*, *Nixon* stands for the United States air force under his command, a subdomain of 'Nixon'; this is a case where the metonymic target is a subdomain of the source, or a target-in-source metonymy. In *The ham sandwich is waiting for his bill*, the order is a subdomain of the customer who has placed the order; this is a source-in-target metonymy. In the first case, we have a cognitive operation of reduction of the amount of conceptual material that is needed to find the right referent for the expression (since the actual referent is a subdomain of the source, the target is conceptually smaller for the purposes of the metonymic operation). In the second case we have an operation of conceptual expansion (the source gives us access to a conceptually richer target). Within the framework of a metaphoric mapping, Ruiz de Mendoza and Díez (2002) postulate that metonymy plays a subsidiary role. It may either expand or reduce the metaphoric source or the metaphoric target.

These examples will illustrate the four patterns (there are of course a number of subpatterns, since the reduction operation may work on the whole source and target or on just part of it):

- Metonymic expansion of the metaphoric source: *He beat his breast*, uttered in a situation in which the protagonist has not actually beaten his breast. The source has the underspecified situation in which a person beats his breast as an open show of sorrow about something wrong that he has done.

- Metonymic reduction of the metaphoric source: *She's my soul*, where 'soul' stands for a subdomain of 'soul', i.e. 'the essence of my existence', in the metaphoric source. The target has the person that we are talking about.

- Metonymic expansion of the metaphoric target: *She caught my ear*, where 'ear' in the metaphoric target is the instrument of hearing that stands for 'attention'; catching an object is a way of getting hold of it and maps onto the idea of obtaining someone's attention.

- Metonymic reduction of the metaphoric target: *She won my heart*, where 'heart' stands for a cultural subdomain of heart, i.e. 'love'. The source has a

person that wins a prize while the target has a lover that obtains someone's love.

What is missing in current research on metonymy is the study of the discourse potential of metonymic activity. The reason for this is to be found, in all likelihood, in the still dominant idea that metonymy is simply a local cognitive phenomenon, of a mainly referential nature. However, the evidence suggests, as pointed out above, that metonymy is pervasive in much of our cognitive activity. Thus, it may underlie the generation of conversational implicatures and the interpretation of indirect speech acts (Ruiz de Mendoza 2007):

(15) (a) How did you go to the airport? - I stopped a taxi.

(b) It's getting colder here [addressee closes an open window]

In (15.a) the answer *I stopped a taxi* does not fully address the first speaker's question. But we know that it is part of a conventional scenario (or idealized cognitive model) pertaining to the use of taxi services: within that scenario, stopping a taxi is a precondition to take the taxi and ask the driver to take you to your destination. From the point of view of metonymy, the act of stopping a taxi provides us with a point of access to the whole scenario, in such a way that the person asking the question may reason:

[1] 'If he stopped a taxi, this means he took a taxi and he gave the driver instructions to take him to the airport; so, he took a taxi to go there'

In (15.b) we also have a conventional scenario that differs in quality from the one specified for (15.a). In effect, what we have in (15.b) is an action scenario based upon what Leech (1983) called the pragmatic cost-benefit scale, i.e. the idea that, because of accepted social norms, we are required to minimize cost and maximize benefit for others while maximizing cost and minimizing cost to selves (cf. Pérez and Ruiz de Mendoza 2002, Ruiz de Mendoza and Baicchi 2007). In the context of that action scenario, the addressee of an utterance like (15.b), which seems to point to the speaker's discomfort, is expected to do all he can to change the situation to the speaker's benefit. What speech act theorists call the "illocutionary force" of this utterance is ultimately calculated on the basis of a metonymic operation whereby part of an action scenario stands for the whole of it. The reasoning process may take the following form:

[2] 'If the speaker makes a remark about a costly state of affairs that affects him negatively, this means that he wants to draw my attention to such a state of affairs so that I have the opportunity to act in such a

way that cost to the speaker is minimized even if I have to maximize cost to myself; since I think it is an open window that makes him feel cold, the speaker expects me to close the window for him'

Gricean pragmaticists, (cf. Bach and Harnish, 1979; Grice, 1989) would address the problem of the inferential process used by the first speaker in (15.a) by postulating a pragmatic principle or maxim that regulates the process and produces an implicature. In this case, the maxim of relation ("be relevant") would apply and direct the addressee to look for a relevant answer connected to the information explicitly given.

Neo-Gricean pragmaticists, like Levinson (2000) would deal with this implicature-derivation process on the basis of some sort of conventional heuristics that is part of our reasoning equipment. More specifically, Levinson (2000: 31-35) proposes three heuristics (i.e. reasoning systems) that lie at the basis of implicated meaning:

(i) First heuristic: "What isn't said, isn't"; e.g. in *There is a blue pyramid on the red cube*, this heuristic licenses inferences like these: 'There is not a cone on the red cube'; 'There is not a red pyramid on the red cube'.

(ii) Second heuristic: "What is simply described is stereotypically exemplified"; e.g. in *The blue pyramid is on the red cube*, this heuristic licenses inferences like the following: 'The pyramid is a stereotypical one, on a square, rather than, e.g., a hexagonal base'; 'The pyramid is directly supported by the cube (e.g. there is no intervening slab)'; 'The pyramid is centrally placed on, or properly supported by, the cube (it is not teetering on the edge, etc.)'; 'The pyramid is in canonical position, resting on its base, and not balanced, e.g. on its apex'.

(iii) Third heuristic: "What is said in an abnormal way, isn't normal; or marked message indicates marked situation"; e.g. in *The blue cuboid block is supported by the red cube*, this heuristic licenses the inferences: 'The blue block is not, strictly, a cube'; 'The blue block is not directly or centrally or stably supported by the red cube'.

Examples like (15.a) and (15.b) above would seem to be explainable by the third heuristic, since they are marked messages that call for a special interpretation procedure.

Relevance theorists, following Sperber and Wilson (1995), would account for (15.a) and (15.b) in a different way. For them, the answer *I stopped a taxi* is meaningful in context provided that the second speaker has the intention of putting particular emphasis on the fact that he had to take a taxi. There may be a number of reasons. Imagine a context in which the speaker would have preferred to be given a lift by a friend and felt frustrated that he had been turned down. The sentence *I stopped a taxi* is more meaningful (i.e. it creates a broader range of what Sperber and Wilson call "contextual effects" in the addressee's mind) in this context than simply stating the less marked form "I went by taxi". In Relevance Theory it is taken for granted that when we communicate we try to strike a balance between processing economy and contextual effects (i.e. modifications of the addressee's cognitive environment by adding, taking away or changing the information that is manifest to him). An utterance like *I stopped a taxi* requires greater inferential activity than the more straightforward *I went by taxi*; the greater effort involved has to be compensated by extra contextual effects.

Even this brief account of the Gricean and post-Gricean standard explanations of inference reveals one fundamental problem: the three accounts are capable of accounting for the outcome of inferential activity, but have nothing to say about the nature of such an activity. Thus, in all cases we know (because a conversational maxim is violated, or because there is a conventional heuristic, or because the speaker tries to achieve relevance) that we have to engage in special interpretative procedures when faced with examples such as (15.a) and (15.a), but we are not told what those procedures are like. We suggest that metonymic mappings, like those postulated by cognitive linguists, are a clear case of such procedures.

This proposal is consonant with another previous proposal made by Ruiz de Mendoza and Pérez (2003) in the sense that metaphor and metonymy are to be listed among the cognitive mechanisms used by speakers to produce explicatures. In standard Relevance Theory, it is postulated that explicatures are derived on the basis of the development of the initial assumption schema provided by the utterance. Thus, in *We are ready*, finding a referent for *we* (e.g. 'my brother and I') and completing the utterance to specify what it is that the protagonists are ready for (e.g. 'for the show'), is part of the explicature-derivation activity. Implicatures, on the other hand, require more complex reasoning schemas with implicit premises and implicated conclusions, as in the following exchange uttered in the context of a party:

(16) What time is it? - Most of the guests are leaving now.

The answer to the first speaker's question is relevant only if we bring into the reasoning schema the implicit assumption that guests will leave when they feel that it is getting too late for them or they have had enough. The conclusion is that it is time to finish the event.

Ruiz de Mendoza and Pérez (2003) have argued that metaphoric and metonymic mappings produce explicatures based on the blueprint provided by the linguistic expression. Thus, the shift from 'shoe' to 'shoelaces' in *He didn't tie his shoes well*, would be a development of the initial assumption schema provided by the expression and would not need to import implicit premises from the context to fill in a reasoning schema.

However, in our proposal, even implicature-derivation is a matter of metonymy. The difference is that the metonymy is not of the referential kind, but simply a situational metonymy. In the case of reasoning schema [1], it is a low-level situational metonymy, based on a specific scenario with specific conventional information about taking taxis. However, in the case of [2] we have a high-level situational metonymy based on a generic action scenario, i.e. the result of abstracting away common structure from many situations in which speakers are directed (requested, order, suggested, etc.) to do things (cf. Pérez and Ruiz de Mendoza 2002, Ruiz de Mendoza and Baicchi 2007).

Understanding metonymy is also crucial in order to explain some phenomena of discourse cohesion. It may be useful to consider the GENERIC FOR SPECIFIC and the EFFECT FOR CAUSE metonymies, which have been identified by Panther and Thornburg (2000) as a high-level metonymies with an impact on English grammar. Compare:

(17)

    (a)

        A: What's that bird?
        B: It's a robin.

    (b)

        A: What's that noise?
        B: It's a burglar.

As Panther and Thornburg (2000) point out, the *What's that N?* construction, when used metonymically, has two senses, the taxonomic, as in example (17.a), and the causal, as in (17.b). The taxonomic sense is regulated by the metonymy GENERIC IS SPECIFIC: this allows us to paraphrase A's utterance in (17.a) as 'What kind of bird is that?' The causal sense has a metonymic grounding in the

EFFECT FOR CAUSE mapping, which yields a different kind of paraphrase for A's utterance in (17.b): 'What's the cause of that noise?'. Panther and Thornburg note that while the English grammar makes it possible to repeat the Noun Phrase instead of making use of the anaphoric pronoun in (17.a), this is not the case for (17.b), and correlate this difference in grammatical behaviour with the difference in the underlying metonymic mappings:

(18) (a) That bird is a robin.

    (b) *That noise is a burglar.

To Panther and Thornburg's account, it is possible to add one more observation in terms of discourse connectivity. Cohesion has often been treated as a grammatical phenomenon, in contrast to coherence that was based on world knowledge (e.g. frames) and was therefore purely conceptual. However, the fact that anaphora, one of the procedures to create cohesion (Halliday and Hasan, 1976, 1989), may depend on metonymic activation, seems to point to a different treatment of the issue, one in which cohesion is seen as being conceptually grounded (cf. Minsky, 1975; Reinhart, 1980). This may apply to all other cases of anaphora:

(19) I love my family. They do all they can for me.

It is very well known that singular words that refer to groups of people (e.g. *police*, *family*, *government*, *team*) can often be used as if they were plural. They can also be used in the singular form, depending on how we want to think of them. Note that using the singular anaphoric pronoun in (19') would not be as appropriate:

(19') I love my family. ?It does all it can for me.

However, the singular form is better on other occasions:

(20) My family is great (cf. ?My family are great)

There is a relationship between the foregoing discussion and one crucial finding in the context of what has been called metonymic anaphora (e.g. Stirling, 1996), i.e. anaphoric reference to a metonymic noun phrase. The finding was first made by Ruiz de Mendoza (2000) and has been considerably refined in Ruiz de Mendoza and Otal (2002) and in Ruiz de Mendoza and Díez (2004). It is the fact that anaphoric reference to a metonymic noun phrase always makes use of the matrix (or most encompassing) domain of the metonymic mapping. Ruiz de Mendoza

and Otal (2002) have coined the label *Domain Availability Principle* (or DAP) to capture this idea: only the matrix domain of a metonymic mapping is available for anaphoric reference.

The issue of anaphora in connection to metonymy was first raised by Fauconnier (1985) and Nunberg (1995) who give partial answers to the problem. Thus, Fauconnier believes that there is a pragmatic function that connects a metonymic source and its corresponding target, and that anaphora usually selects the metonymic target (i.e. the intended mental representation), especially if the target is animate (e.g. in *The ham sandwich is waiting* for his bill, the target is animate and would be selected as the antecedent for an anaphoric pronoun, as in *The ham sandwich is waiting for his bill and he is getting restless*). If the source is animate, then it serves as the antecedent (e.g. 'Napoleon', rather than 'Napoleon's navy', is the antecedent in *After Napoleon lost at Waterloo, he was banished to St. Helena*). However, this analysis is incapable of determining the potential antecedent when both source and target are either animate or inanimate:

(21) Terminator (i.e. Arnold Schwarzenegger) has just been elected governor of California. Will he be up to the job?

(22) I love the book (i.e. its contents). I'll read it a second time.

Nunberg (1995) tries to come to terms with the issue of metonymic anaphora by making a distinction between two different types of linguistic mechanism: "deferred indexical reference" and "predicate transfer". The former is the process by means of which an indexical is used to refer to an object that corresponds somehow to the contextual element chosen by a demonstrative. The latter occurs whenever the name of a property that applies to something in one domain is used to refer to the name of a property that applies to things in another domain (Nunberg 1995: 111). He gives the following examples:

(23) (a) This is parked out back.

(b) I am parked out back.

The two sentences are produced while the speaker is holding out a key. Sentence (23.a) is a case of deferred indexical reference, where the demonstrative pronoun *this* is used to refer to a car. Sentence (23.b) illustrates predicate transfer since a property of cars (i.e. cars may be parked) is attributed to a person. According to Nunberg, the distinction between deferred indexical reference and predicate transfers is enough to explain cases of metonymic anaphora:

(24) (a)   This is parked out back and may not start.

(b) [??]This only fits the left front door and is parked out back.

(c)   I am parked out back and have been waiting for 15 minutes.

(d)   *I am parked out back and may not start.

In deferred indexical reference, a conjoined predicate must be semantically connected to the deferred referent, like 'the car' in (24.a), whereas in predicate transfer the conjoined predicate must express a property of the element that receives the property, i.e. the driver/owner in (24.c). However, this account cannot be applied to all cases of metonymic anaphora. The main problems lie with the notion of predicate transfer:

(25) (a)   Shakespeare (i.e. a book by Shakespeare) is right there on the top shelf. Could you please hand it over to me?

(b)   The kettle (i.e. the contents; the water in the kettle) is boiling; please, turn it off.

In (25.a) we have a case of what Ruiz de Mendoza and Otal (2002) have called double metonymy, AUTHOR FOR WORKS FOR MEDIUM, where AUTHOR and MEDIUM are matrix domains, so *it* in (25.b) refers back to the medium of presentation of Shakespeare's works (e.g. a book). It must be borne in mind that semantic compatibility between the metonymy and the predicate of the expression is what makes us select the second and not the first matrix domain for the anaphoric operation (cf. *Shakespeare is on the top shelf; I would read him/it if I were you*, where *him* has the matrix 'Shakespeare' as its antecedent, and *it* the book, but in the two cases we mean 'Shakespeare's work'). If we wanted to apply Nunberg's analysis to (25.a) we would have to postulate a predicate transfer whereby a property of books (i.e. being stored on shelves) is applied to Shakespeare. The adjoined predicate 'hand over' would have to express a property of Shakespeare, since it is 'Shakespeare' that has received the new property. But evidently this is not the case. The adjoined predicate expresses a property of books (books can be handed over).

In (25.b) the predicate transfer would give the property of 'boiling' to the kettle; the adjoined predicate 'turn off' would have to express a property of kettles. However, it is not kettles but the fire that we use to heat the water that is turned on or off.

The Domain Availability Principle captures all cases of metonymic anaphora. In the case of Nunberg's example *This is parked out back and may not start, this* points to an object (the key) that is to be considered a subdomain of the car to which it belongs, the car being the matrix domain. In this interpretation, *(it) may not start* makes use of the matrix domain for the anaphoric operation. Note that because we have deferred reference, it would be impossible to say

*This key is parked out back.

The case of *I am parked out back and have been waiting for 15 minutes* is different. The car is a subdomain of the owner of the car, so we have a metonymy from owner to possession, where the matrix domain 'owner' is referred to anaphorically in the conjoined sentence.

Example (25.a) is a clear case of the DAP: one of the two matrix domains, i.e. the one that combines with the predicate 'be on the top shelf' (the medium of presentation of Shakespeare's work) is used for the anaphoric operation.

Finally, (25.b) is a more complex case. In principle, it is the matrix domain 'kettle' that is referred to by *it* in *turn it off*. However, when we say *turn the kettle off* what we mean is turn the heating source off (e.g. the fire). However, the concept 'kettle' still retains its status as the matrix domain in the case of the conceptual association between 'kettle' and 'fire', so the use of *it* is appropriate and abides by the DAP.

4.2. *Pragmatics and discourse*

In the previous section, we have made reference to the connection between semantics and discourse in terms of the study of cohesion and coherence. In this section, we will consider how achieving cohesion and coherence is influenced by pragmatic principles. In fact, our main contention will be that some discourse principles pertaining to what is known as cohesion and coherence phenomena are grounded in pragmatics.

Let us first take another linguistic mechanism commonly accepted to be a (grammatical) cohesive device, i.e. nominal ellipsis (cf. Halliday and Hasan, 1976: 150):

(26) Here are my two white silk scarves.

    1. Where are yours?

2. I used to have three.

3. Can you see any black?
4. Or would you prefer cotton.

Halliday and Hasan observe that *yours* presupposes 'two white silk scarves'; *three* presupposes 'white silk scarves'; *any black* presupposes 'silk scarves'; finally, *cotton* only presupposes 'scarves'. The conclusion is that the range of possible presuppositions is dependent on the structure of the nominal group (i.e. noun phrase): it extends to cover only that part of the presupposed group that would follow the Head of the elliptical group. However, consider the following related examples:

(27) (a)   Here are my two white silk scarves. They look very much like yours but are yours made of silk too?

(b)   Here are my two white silk scarves. Yours are brown linen scarves, aren't they?

If *yours* actually presupposed 'two white silk scarves', the extension in (27.a) would be incongruent. This is more evident if we consider the following paraphrase of (27.a):

(28) [??]Here are my two white silk scarves. They look very much like your two white silk scarves but are they made of silk too?

The same can be said of (27.b):

(29) [??]Here are my two white silk scarves. Your two white silk scarves are brown linen scarves, aren't they?

Actual presupposed meaning, as is well known, may be cancelled out but not in the same way. To give an example, the sentence *I regret stepping on your toe* presupposes that the speaker stepped on the addressee's toe. But compare:

(30) I don't regret stepping on your toe because I didn't step on your toe

Note that it would be impossible to cancel out the purported presupposed meaning of *yours* (i.e. "your white silk scarves") by following a similar procedure:

(31) (a)   [??]Here are my two white silk scarves. Yours are not white silk scarves.

(b) ??I don't regret spoiling your white silk scarves because yours are
not white silk scarves.

What this discussion seems to suggest is that the actual scope of nominal ellipsis
is not governed by hard-and-fast lexicogrammatical rules, as Halliday and Hasan
claim. Our own claim is that ellipsis is subject to pragmatic constraints. Thus,
we propose that *yours* in the examples above only codes a very generic meaning
which stems from its pronominal nature, viz. the idea that it substitutes for a
whole noun phrase whatever its actual make-up. Thus, in (27.a) *yours* takes the
place of *scarves*, while in *Where are yours?* in (26) *yours* stands for 'two white
silk scarves', even though we have the same initial description for the two cases
of ellipsis. What conceptual material is to be supplied is a matter of co-textual
and contextual requirements. Let us look into example (27.b) above in greater
detail by considering different discourse developments of it:

(32) Here are my two white silk scarves.

(a) Yours (= your scarves) are brown linen scarves, aren't they?

(b) Yours (= your two white scarves) are not silk, are they?

(c) When I saw yours (= your white silk scarves) I though they were
three.

Between brackets we simply have a default assumption, that is, the most acces-
sible assumption in the absence of a specific context. The context may override
all or part of a default assumption. For example, (32.b) would still make sense if
the addressee had three scarves and the speaker was pointing at them with his
finger. In any case, the interpretation of *yours* and consequently its scope as a
nominal ellipsis device, hinges upon the way information is contrasted. Since, as
Halliday and Hasan (1976: 144) themselves point out, ellipsis is an anaphoric re-
lation, we will refer to the conceptual material within the scope of ellipsis as its
antecedent. The antecedent, as it were, sets the stage. It supplies all possible
conceptual material for reference through ellipsis. The rest of the discourse unit
containing the ellipsis selects, in combination with contextual information, what
part of the antecedent is to be invoked by providing degrees of contrast with the
antecedent. We will postulate here a discourse principle, the *Conceptual Struc-
ture Selection Principle* (CSSP), which is grounded in the pragmatic principle of
Relevance. The principle has the following formulation: ellipsis or substitution
mechanisms select as much structure as is not cancelled out by the discourse
unit containing the ellipsis or substitution. The grounding in relevance is evi-
dent: only relevant conceptual structure is brought to bear upon the referential

operation on the antecedent; of course, by "relevant" is meant, in consonance with Sperber and Wilson's approach to communication, meaningful in terms of the balance between processing effort and contextual effects. Supplying conceptual structure that will not produce the intended quantity or quality of effects is contrary to the Principle of Relevance. Thus, in (32.a), *yours* refers to *your scarves* because, in terms of quality, supplying more conceptual material would create a semantic contradiction (cf. **Your two white silk scarves are brown linen scarves*). Similar explanations apply to (32.b) and (32.c), which select material from the antecedent differently. In the default interpretation of *Here are my two white silk scarves. Where are yours?*, the whole noun phrase is supplied in terms of quantity because less material would not create the exact amount of meaning effects sought by the speaker.

The Conceptual Structure Selection Principle is formulated in such a way that it can deal with cases of ellipsis like the ones discussed above, where it is possible to have various interpretation possibilities, and with more straightforward cases like (33) below:

(33) John brought some sweets, and Mary some chocolates.

In (33) the ellipsis mechanism can only select the predicate 'brought', since the rest of the structure ('some sweets') is cancelled out by the discourse unit containing the ellipsis in virtue of the way the information is contrasted. Relevance, in its turn, predicts that, since sweets and chocolates are the items explicitly mentioned and set in contrast, it is the predicate 'brought' that will produce the intended set of contextual effects. Selection of the adequate predicate is guided by the Principle of Relevance.

Substitution mechanisms abide by the same principles. Consider the following case of substitution (Halliday and Hasan 1976: 134):

(34) Is this mango ripe? - It seems so.

Halliday and Hasan point out that the answer *It seems so* is ambiguous between two options:

(i) The interpretation 'this mango seems ripe', where *it* refers to 'this mango' and to 'ripe'.

(ii) The interpretation 'it seems that this mango is ripe', where *it* is an impersonal non-anaphoric pronoun and *so* is a clausal substitute.

For interpretation (i), the Conceptual Structure Selection Principle works on the basis of the assumption that *it* is a substitution device and 'seems so' contrasts with the idea of 'being ripe' in the first clause. *So* substitutes for 'ripe' on the basis of the contrast between 'this mango seems' and 'this mango is'. Interpretation (ii) only handles this latter contrast (the rest of the structure is cancelled out by the contrast).

Or consider the following more complex examples of clausal substitution:

(35) (a) Everyone seems to think he is guilty. If so, no doubt he'll offer to resign.

(b) Everyone seems to think he is guilty. If so, we will have to change their minds.

In (35.a) *so* only substitutes for 'he is guilty', while in (35.b) *so* is broader in scope and refers to the whole first clause ('everyone seems to think he's guilty'). The clue for the Conceptual Structure Selection Principle to select the correct amount of conceptual structure from the first clause is given by the main clause in the conditional sequence, since it provided the point of contrast with the relevant parts of the first clause.

It is necessary to note that there is no grammatical indication either in (35.a) or (35.b) of the scope of the substitution device. It follows that substitution, like ellipsis, is not a grammatical phenomenon but a discourse phenomenon grounded in pragmatics. Contrast between the relevant parts of the clause supplying the antecedent and the clause containing the anaphoric device is based upon world knowledge, just like coherence.

Our discussion in this section keeps pointing to the fundamental role played by pragmatic principles, discourse principles, and world knowledge when considering the question of (textual) cohesion. In the previous section we also identified some semantic factors, like the existence of metonymic mappings, which suggested that cohesion had a strong conceptual grounding. Since coherence is also based upon principles of comparable nature and exploits world knowledge, it may be legitimate to ask what the difference is, if any, between the two phenomena. One possible answer to the problem would be to discard the cohesion/coherence dichotomy and talk instead of discourse connectivity. However, this solution would ignore one crucial question. Some forms of achieving connectivity seem to have greater dependency on the internal configuration of concepts. For example, in the sequence *I saw a mouse in the kitchen last night; I think I'm going to buy a cat*, it is the world knowledge connection between cats

and mice that allows us to infer that the speaker is going to use a cat to get rid of the mouse. The information that cats chase mice is part of our idealized cognitive models about cats and mice. In contrast, ellipsis or substitution mechanisms, although ultimately conceptual, exploit world knowledge differently, as is evident from examples like (35.a.) and (35.b) above. How world knowledge is to be handled seems to be determined to a large extent by the ellipsis or substitution mechanism, which has a procedural nature. Thus *so* in (35.a) and (35.b) serves as an indicator that some conceptual material that was mentioned before has to be called up. However, finding what material is relevant is beyond the power of the substitution device itself; here we need to make use of discourse principles, pragmatic principles, and world knowledge in the way that has been discussed above. On the basis of this difference, it seems safe to preserve the distinction between cohesion and coherence and redefine it as a distinction between procedural versus lexical or conceptual connectivity.

The distinction between procedural and conceptual (or lexical) connectivity ties in with the relevance-theoretic idea that lexical items encode concepts while grammatical words encode procedures. This idea has been discussed in some detail by a number of relevance theorists (e.g. Blakemore 1987, Blakemore 1992, Wilson and Sperber 1993; see also Blass 1990; Gutt 1991; Moeschler 1989a, 1989b; Luscher 1989). Let us take one clear example of their position. According to Blakemore (1992), utterance (36) below has the two possible interpretations specified in (37):

(36) (a)   Peter's not stupid.

  (b)   He can find his own way home.

(37) (a)   Peter's not stupid; so he can find his own way home.

  (b)   Peter's not stupid; after all, he can find his own way home.

On the first interpretation, (36.a) provides evidence for the conclusion in (36.b); on the second, the statement in (36.a) is confirmed by evidence provided in (36.b). Blakemore argues that discourse connectives like 'so' and 'after all' do not encode concepts since they do not contribute to the truth conditions of utterances. They are procedural in nature: they have the function of constraining the inferential phase of comprehension by indicating the type of inference process that the addressee is expected to go through. Discourse connectives contribute to relevance since they guide the addressee towards the intended contextual effects, thus reducing the total amount of effort required to derive them.

If Blakemore's account is correct, utterances like (37.a) and (37.b), which contain discourse connectives, would require less effort to process than ambiguous utterances like (36) where there is no indication as to the way its two constituting clauses have to be connected. However, there are two crucial differences between the relevance-theoretic understanding of procedural connectivity and the one that has presented above in connection with textual cohesion. First, in our own account procedural activity is not encoded; lexical connectivity is not encoded either. Words, whether grammatical or not, do not encode anything; they simply work as clues for the activation of concepts: concept activation is a function of words in context and varies with the context in hand. Meaning derivation is a matter of interpretation, not of decoding. That there is not such a thing as a direct connection between a word form and its senses has been evidenced in our discussion of how central and peripheral aspects of words meaning, selected in terms of their compatibility with contextual information, as illustrated by the various uses of the word the *mother*, are exploited discursively. Rather than a direct mapping from form to meaning, what we have is an interpretation task that is regulated by semantic, pragmatic, and discourse principles. This interpretation task goes far beyond what is commonly understood by "decoding". Much the same can be said of procedural connectivity. Procedures are not coded but suggested. Again, as with lexical interpretation, there are pragmatic and discourse constraints that determine the actual form of an interpretation procedure. Second, discourse connectors such as *so* and *after all* in (37.a) and (37.b) respectively seem to have a different status from substitution, ellipsis, and anaphoric mechanisms. These mechanisms are ways of directing the addressee to perform a mental operation that results in what we have called procedural connectivity. Discourse connectors are not procedural in this sense. In fact, it may be argued that they are conceptual. Consider the case of *so* in (37.a.) again. What this connector does is activate an abstract or generic-level cognitive model that may be called the *evidential model*. The internal make-up of this cognitive model is derived from much of our every day experience where we are led to believe that something is the case on the basis of information that we consider reliable, either because we have had direct sensory access to it or because we trust the source that has provided us with it. For example, if we see someone climbing through a window into somebody else's house in the middle of the night, we have grounds to believe that the house is being burgled. In the case of example (37.a) the evidential model allows us to interpret that the speaker is caused to believe that Peter can find his way home because the speaker relies that Peter has enough intelligence to do so. The evidential model is activated by the discourse connector *so* in such a way that the grounds precedes the conclusion. In the case of (37.b) we have a different use of the same model, since the conclusion statement precedes the grounds statement. The (attested) fact that Peter can find his own way home allows the speaker to conclude that Peter is not

stupid. When the evidential model is activated by *after all*, the conclusion precedes the grounds. If we are faced with an utterance like (37) the evidential model will be activated in one way or the other depending on other contextual factors that allow us to determine which statement was intended as evidence for the other.

There are other generic-level cognitive models that may have an impact on discourse activity. In a previous section, we have discussed the high-level EFFECT FOR CAUSE metonymy. The meaning impact of this metonymy relies on a *causal model* of events, based on our experience with every-day life and nature, in which for every event we assume that there is an underlying cause. In fact, one of our main worries is to find about the causes of illness, death, destruction, behaviour, and so on. A causal model consists of caused events, instigators, and causing events. This model is usually activated by subordinating conjunctions such as *because* and *since*, and by discourse connectors (also called conjuncts) such as *because of this, consequently*, *accordingly*, *so*, *therefore*, *as a consequence*, *as a result*.

It is possible to postulate other generic-level models but they have no consequences in terms of discourse connectors. Thus we may have an *action model*, with such elements as agent, instrument, goal, object, beneficiary; or we may have a *perception model*, with a perceiver and the object of perception; or a *control model*, according to which some entities have the power to determine whether certain events, states, and situations will hold or not. But we believe that the discussion provided above is enough to understand the relevance of the distinction between conceptual and procedural connectivity in discourse.

There is another dimension of discourse connectivity that has been ignored in our discussion, i.e. the fact that discourse relations may be guided by iconicity (cf. Haiman 1985; Simone 1995; Nänny and Fischer, 1999). It is of course easy to find iconicity when we are dealing with temporal sequences:

(38) (a)   There was a flash of lightning. A thunderclap followed.

(b)   They hit the dog with a stick. The animal turned against its attackers.

(c)   They first did a thorough search for the missing file. Then they called customer's service.

(d)   Eight children were sent to hospital after they played with mercury dumped in an alley in Montreal's north end.

Examples (38.a)-(38.c) observe iconicity. Temporal sequence is only marked by means of grammatical devices in (38.c). In (38.d) the presentation of information in the utterance violates iconicity. Iconic utterance configurations, as has been shown by psycholinguistic experiments (cf. Noordman and de Blijzer, 2000), are processed faster. If this is so, in terms of the Principle of Relevance, there must be a reason to use non-iconic configurations which offsets the extra processing effort. Compare (38.d) with (39):

(39) Eight children played with mercury dumped in an alley in Montreal's north end. They were sent to hospital.

The iconic arrangement of facts in utterance (39) does little to draw the addressee's attention to the most relevant information, i.e. the dramatic consequences of someone's negligence. Thus (38.d) has meaning implications that are absent from (39) in terms of the seriousness of someone's carelessness in dealing with such a toxic substance as mercury, and subsequent measures to determine liability and to prevent something similar from happening again.

The pragmatic Principle of Relevance predicts that there must be a number of extra meaning implications in the non-iconic arrangement of utterances, but it is insufficient to determine the interpretative path that the addressee is expected to follow. Again, discourse principles come into the picture. Here it will postulated that iconicity, at this level of analysis, has discourse principle status and is counteracted by what we will term the *Principle of Conceptual Prominence*. The *Principle of Iconicity* preserves the actual ordering of events in the world. The Principle of Conceptual Prominence presents information in such a way that non-iconic prominent information enjoys privileged status. This can be achieved by simply presenting the information in a non-iconic ordering, as in (40) below, which can be reinforced by grammatical marking, as in (38.d) above where the temporal conjunction *after* makes explicit the non-iconic ordering:

(40) Eight children were sent to hospital; they had played with mercury dumped in an alley in Montreal's north end.

Iconicity in discourse is not limited to temporal sequences. Noordman and de Blijzer (2000) have explored this principle in cause-effect sequences or, in our terminology, causal models. These authors have made a distinction between iconic and non-iconic cause-effect sequences. Consider these examples:

(41) (a)   Norman skipped the red light. His car collided with my car.

> (b) Norman's car collided with my car, (because) he skipped the red light.

In (41.a) there is an iconic cause-effect construal:

> Sequence of events: Norman skips the red light; his car collides with the speaker's car.

> Cause-effect order: Norman skips the red light; therefore his car collides with the speaker's car.

In (41.b) there is no iconicity:

> Sequence of events: Norman skips the red light; his car collides with the speaker's car.
> Cause-effect order: Norman's car collides with the speaker's car as a result of his skipping the red light.

From a conceptual point of view, the iconic order of cause-effect is about relations in the world, while the non-iconic representation is about our judgement of the relations that hold in the world.

Following Sweetser (1990), the iconic relation would be classified as a *content relation*, whereas the non-iconic relation would be considered an *epistemic relation*. This distinction also applies to examples of temporal iconicity where non-iconic formulations are ways of giving conceptual prominence to relevant parts of the representation thereby revealing the speaker's personal judgement about the relative prominence of each item of information. On the other hand, the Principle of Conceptual Prominence regulates the meaning import of non-iconic examples like (41.b), where relative prominence is given to the second item in the sequence of events, i.e. the collision of Norman's car with the speaker's car, with the implication that Norman is fully responsible.

4.3. *Discourse strategies*

By a discourse strategy we will understand a non-conventional set of procedures that allow the speaker to create a fully meaningful text. Discourse strategies are, in this view, subservient to more general communication (or pragmatic) strategies.

Ruiz de Mendoza and Otal (1997) and Otal (2004) have addressed the issue of communication strategies from the relevance-theoretic perspective of communication. For them, a communication strategy is a set of procedures aimed at achieving a certain communicative goal. They distinguish between generic and local communication strategies. The former strategies, which are prerequisites for the latter, derive from the general balance that we find in linguistic communication between explicit and implicit information. The latter strategies consist in specific sets of procedures used by the speaker to get the addressee to modify his cognitive environment (i.e. the set of assumptions he has in his mind) in such a way that the speaker's communicative goals are achieved. Let us illustrate how this works. Imagine that a young, creative entrepreneur, Richard, has the goal of getting Geoffrey, a close friend of his, to join him in a potentially very profitable business venture. Geoffrey is hesitant because he is aware of the risks involved, but Richard thinks he knows how to strike the right chord in order to get his friend to accept the deal. Richard is aware that Geoffrey is not overly ambitious personally, but he also knows that Geoffrey's wife, Margie, has always had the desire to see her family climb up the social ladder. In this context, Richard produces utterance (42) below:

(42) Margie will really love it, and she'll be so proud of you. You know that.

Non-communicative goal	Get Geoffrey to disregard his fears so that he will join Richard in his business venture
Communicative goal	Have Geoffrey build into his cognitive environment the assumption that Richard really wants Geoffrey to take part in the business venture and that he can please his wife if he does that
Communicative strategy	Make an indirect request to Geoffrey based upon the idea that Geoffrey's wife will be pleased and proud of her husband if he goes into business so that he feels there is an additional reason to accept Richard's proposal. Reiterate the idea in such a way that it looks as if Richard is only making manifest what Geoffrey already had in mind.
Realization procedure	Make a statement of fact that specifies that Margie will be predictably happy about the venture and proud of her husband joining in. Indicate that the speaker is aware that the addressee can make the same prediction about his wife's attitude.

Utterance (42) is one possible way of fleshing out the realization procedure. There could be others:

(43) (a) Your wife will really be happy that you are part of all this, and she'll be very proud of you too. I know you know.

     (b) You know and I know that Margie will love this whole idea and think of how much pride she will take in you.

     (c) Margie is gonna like all this stuff a lot and she sure is gonna be so proud of you. You know.

Language use is not a fully constrained, stilted form of behaviour, but allows for a degree of variation provided that the essential aspects of the communicator's goals are met. The lexicogrammar is a complex system of resources that works in consonance with the full context of assumptions that speaker and addressee are presumed to have in their minds.

Discourse strategies are concerned with the creation of meaningful text. There are at least two crucial aspects in which discourse may be said to be strategic:

1. Speakers have to decide how to make discourse achieve a sufficient degree of connectivity.

2. Speakers need to take control of the way discourse is managed interactively (follow the rules of the turn-taking system).

Think again of utterance (42) above. We have specified the underlying communication strategy which exploits common pragmatic principles of social interaction. Thus, an indirect request gives the addressee greater leeway to accept or reject what the speaker wants; so the addressee of (42) cannot complain that he is being put pressure on. But at the same time, the speaker is skilfully using the pragmatic cost-benefit scale to his advantage: he is reminding the addressee that it would be a good idea to make Margie happy (benefit to Geoffrey's wife) in such a way that this also turns beneficial to the addressee himself (the addressee will be in good terms with his wife). Indirectly, this is expected to turn beneficial for the speaker himself (he has a greater chance of getting what he wants), but it is more difficult for the addressee that the speaker is being selfish, since the speaker's benefit has been carefully disguised as an altruistic act.

This is how the strategy works at what we shall call, for reasons that will become apparent below, the local level of pragmatic activity. But the strategy also

exploits discourse principles. In the example under discussion, the communication strategy consists of a fairly large amount of conceptual material, as is evident from the specification given above. Since the speaker has decided to make an indirect request that exploits the idea that Geoffrey's wife will be pleased and proud, the first procedure selected to realize this strategy is to make a statement that will give the addressee inferential access to all of the remaining material in the communicative strategy in terms of the conventional cost benefit-scale. The second (complementary) procedure consists in treating all of the conceptual structure in the communicative strategy as if already known by the addressee. Part of the information is made explicit while the rest is to be inferred. In this connection, Ruiz de Mendoza and Otal (1997), and Otal (2004) have made a distinction between three general (i.e. non-local) level or high-level communication strategies that are derived directly from the relationship between explicit and implicit information is verbal messages: (i) information strategies; (ii) contextual strategies; (iii) negotiation strategies.

There are two information strategies:

[1] Use a signal that is poor in explicit assumptions and leaves a lot to inferencing;

[2] Use a signal that is rich in explicit assumptions so that inferential activity is reduced to a minimum.

These two are speaker's strategies and they represent ends of a continuum: speakers may want to strike a balance between the amounts of explicit and inferred material involved in processing an utterance.

There are also two contextual strategies:

[1] Make use of the minimum contextual information and rely maximally on textual features;

[2] Make use of the maximum contextual information and rely minimally on textual features.

These two are also ends of a continuum, like information strategies, but they work from the addressee's point of view.

Finally, negotiation strategies are made up of a number of repair procedures plus some (optional) cooperative attempt(s) by the interlocutor(s) either to make the repair or to make manifest where they believe the repair is needed.

High-level communication strategies constrain realization procedures. Once a local or low-level communication strategy has been set up, the speaker will have to decide on the degree of explicitness (and/or subsequent formal complexity of his message). This involves the selection of a high-level strategy and, from a discourse point of view, a careful management of the information. Thus, an excessive lack of cohesive ties (procedural devices) will place a heavy processing load in terms of coherence (conceptual connectivity). Conversely, placing all the emphasis on procedural connectivity may not take sufficient advantage of the range of communicative interplay possibilities that may be triggered off by leaving it up to the addressee to work out what connections are to be made. Imagine utterance (42) without the use of the conjunction *and*:

(42') Margie will really love it. She'll be proud of you. You know that.

The conjunction *and* has a pragmatic value that has been explored by Carston (1988, 1993) within the relevance-theoretic framework. For her, the role of *and* is not to set up causal or precedence relationships; rather, this conjunction serves as an indication to the addressee that he has to process the resulting complex sentence as a single pragmatic unit. One of the examples she gives is illustrating (cf. Carston 1993: 42):

(44) (a) I ate somewhere nice last week; I ate at Macdonalds.

(b) I ate somewhere nice last week and I ate at Macdonalds.

In the case of (44.a) the second clause is a specification as to where the speaker went to have his dinner. In contrast the second clause in (44.b) has an amplifying function with respect to the first. It is like saying 'I ate somewhere nice last week and, just in case you want to know where, I ate at Macdonalds'. Utterance (44.a) leaves open how the first and second clause could be connected; it is up to the hearer to work it out.

A similar reasoning applies to the connection between the two clauses *Margie will really love it* and *She'll be proud of you*. In (42) the conjunction has a procedural function that constrains the addressee to consider the two clauses as a single pragmatic unit. This constraint does not hold for (42'), however, where it is up to the addressee to think of the two clauses as combining into one complex conceptual unit. Note that the antecedent for *that* in (42) is the whole clause complex (*Margie will really love it and she'll be proud of you*), whereas in (42') *that* may either refer only to the second clause (*She'll be proud of you*) or to the conceptual combination of the two, as in (42). Because of the greater distance

between *that* and the first clause, this clause will not be a likely candidate for the anaphoric operation.

Discourse strategies not only depend upon the nature of a speaker's communicative strategies, whether higher or lower level. Crucially enough, they are also tied to specific realization procedures whereby the speaker determines the kind of pragmatic acts that will be used to achieve a specific communicative strategy. There are two reverse options in terms of connectivity:

[1] Maximize the amount of conceptual connections and minimize the amount of procedural connections.

[2] Maximize the amount of procedural connections and minimize the amount of conceptual connections.

However, the issue is a bit more complicated than appears at first sight since connectivity is constrained by discourse principles that limit the extent of application of the two reverse strategies above. Consider the following example presented by Blass (1990: 17) as creating coherence by means of relations of antonymy or semantic opposition:

(45) The wise master makes his servants respect him. The unwise master makes his servants despise him.

But there is much more that we can say about the nature of the coherence relations in (45). It is apparent that the meaning impact of this text is based upon contrast between the opposing behaviour of the wise and the unwise master and that contrast relations can be made explicit:

(45') a. The wise master makes his servants respect him. However (in contrast, etc.), the unwise master makes his servants despise him.

b. While the wise master makes his servants respect him, the unwise master makes his servants despise him

Text (45) follows strategy [1] and the texts in (45') follow strategy [2]. This has consequences in terms of what is communicated. In (45) the contrast between the wise and the unwise masters is sharper than in (45'.a) and (45'.b). This is so because such discourse connectors as *however* or *in contrast*, or the subordinating conjunction *while*, contrast whole propositions, but in (45) the contrast is not only between two propositions but very markedly between different components of each proposition ('wise' versus 'unwise', 'respect' versus 'despise'). The dis-

course principle that accounts for coherence or conceptual connectivity in (45) is therefore different from the principle that underlies the examples in (45'). We shall refer to the former as the *Principle of Internal Contrast*, and to the latter as the *Principle of External Contrast*. Focus upon external contrast demands explicitly invoked procedural operations. The greater prominence of internal contrast, however, calls for conceptual connectivity.

Let us now take an example of somewhat problematic procedural connectivity or cohesion:

(46) The baby cried. The mommy picked it up.

This example from Sacks (1972) is very well known in the literature on conversation management. The usual claim is that (46) illustrates the claim that the interpretation of later utterances in discourse is highly influenced by earlier ones. For Sacks, it would be normal to interpret *it* in (46) as referring to the baby. However, there may be contexts where *it* refers to an object, such as a toy that the baby has dropped. In order to cope with this problem, Brown and Yule (1983: 65) proposed a discourse principle that they called the "principle of analogy". The explanation they give of this principle is rather abstruse: unless we are given specific notice that something has changed, we assume that everything remains as before. This seems to mean that we interpret some utterances on the grounds of their analogy with what we conventionally know about the world. In the case of (46) *the mommy picked it up* refers to the baby because picking up a bay when it cries is conventional behaviour. In the absence of other linguistic clues, it is this interpretation that would be favoured by the addressee.

Brown and Yule's principle of analogy is simply a principle that matches utterances and corresponding world knowledge (idealized cognitive models in cognitive linguistics terminology). However, it is difficult to see how this principle is capable of selecting the right referent for a potentially ambiguous pronoun when we have two conventional scenarios that may equally apply to it on the basis of analogy. Imagine the following extension of (46):

(46') The baby dropped the toy and cried. The mommy picked it up.

In (46') we have the problem that picking up a toy that has been accidentally dropped (and giving it back to the baby) is just as conventional as picking up a crying baby. So, there is no way in which the principle of analogy can solve the ambiguity of *it* here.

Another discourse principle proposed by Brown and Yule (1983: 59) is the "principle of local interpretation". This principle instructs the hearer not to construct a context "any larger than he needs to arrive at an interpretation". If the hearer hears someone say *Shut the door!*, he will look towards the nearest door available for being shut. This principle is problematic, as we shall see, but even if it were a correct principle, it would still be of no use to explain (46'). Thus, both the context in which the baby is picked up and the context in which the toy is picked up are not any larger than needed for interpretation.

The following example has been taken from Leech (1983):

(47) If the baby won't drink the milk, it should be boiled.

This example is discussed by Leech in the context of his proposal of textual maxims regulating the processability of texts. The maxims are not our concern here, but rather the question of the (probably unintended) ambiguity of *it* in (47) in comparison with the ambiguity of *it* in (46'). There are two reasons why *it* in (47) is readily taken to refer to the milk and not the baby (in spite of the pun). One is because of the relatively short distance between *it* and *milk* in the expression. The other is a matter of matching the information in the text with what we know about the world but in a different way from what is suggested by Brown and Yule's analogy principle. There is no conventional context in which people boil babies. So the issue here is one of conceivability: a situation in which people will boil the baby rather than the milk is not conceivable. The *Principle of Conceivability* provides a better explanation of (46') than analogy: it is equally conceivable to have a situation in which the mother will pick up the baby as a situation in which the mother will pick up the toy. This discourse principle licenses the two possible interpretations of (46'). As for (46), where there may or may not be a toy, the analysis of the relationship between the utterance and its context of production will determine whether *it* refers to the baby, to the toy, or even to another object.

In (47) both the inconceivability of a situation and the *relative distance* between pronoun and antecedent help us to resolve a potential ambiguity. But these two reasons do not necessarily work in combination. Compare:

(48) The engine came to a stop and a loose screw fell off.

    (a) Bill tried to put it back in place

    (b) Bill tried to fix it.

(c) Bill didn't say anything; he just pointed at it.

The Principle of Conceivability licenses anaphoric reference of *it* to the screw in (48.a) and to the engine in (48.b). Utterance (48.c) seems to favour reference to the screw on the basis of relative distance, although from the point of view of conceivability both the screw and the engine could be referred to. Like conceivability, *Relative Distance* has the status of a discourse principle since it constrains discourse activity.

5. Conclusion

Discourse is a tightly controlled strategic activity, regulated by principles that are grounded in semantics and pragmatics. We have thus studied a range of semantic and pragmatic phenomena that have evident consequences for the construction of discourse. These phenomena have been recognized with the help of some of the analytical tools provided by cognitive semantics (e.g. such notions as cluster models, metaphor, metonymy, and the relevance of the distinction between centre-periphery in semantic specifications) and by the varied implications of the pragmatic Principle of Relevance, crucially those concerned with the balance between efforts (i.e. cognitive economy) and effect (i.e. meaning impact), on the one hand, and between implicit and explicit information, on the other.

Our study of the way we make use of cognitive models in discourse, has allowed us to postulate two principles, related to metaphor, that so far have been not taken account of in the cognitive linguistics literature: the first and second principles of *Metaphoric Source Selection*. The literature on metaphor has only postulated principles that focus on the way correspondences are made, like Lakoff's (1990, 1993) well-known Invariance Hypothesis. These principles have important consequences in order to understand the discourse potential of metaphorical expressions: the metaphorical extension of a concept can only select partial structure from this concept to construct the metaphoric source, that is, not all meaning components are exploited; if we have a cluster of models, metaphorical extensions may only use partial structure from one of the models in the cluster. This means that it is only such selected structure that is available to create conceptual ties in discourse.

The recognition of degrees of centrality in semantic specifications underlies the *Peripherality Principle*. This is not a semantic but a discourse principle grounded in the Principle of Relevance. When the most central characterization of a concept is not capable of creating discourse coherence, speakers turn to less

central specifications and select the one that best satisfies conditions of relevance. This principle has been shown to underlie cases where for some metaphorical extensions of concepts based on non-central characterizations to be possible at all, the speaker needs to place them within an alternative mental space.

The present study has also addressed the question of the discourse potential of metonymic operations, an issue that has not been explored by cognitive semanticists, probably because of the common failure to realize that metonymy is not just a local phenomenon dealing with shifts of referent. Some scholars have already pointed out that metonymy is pervasive in language use and have postulated that it underlies such pragmatic phenomena as implicature-derivation and (indirect) illocutionary activity. To the extent that implicature and indirect illocution are to be accounted for in terms of the explicit-implicit dichotomy, these pragmatic phenomena are essential for a smooth discourse flow where speakers may refer to previous implicit information. Metonymic activity thus underlies this aspect of discourse coherence. This observation is but a natural consequence of recent developments in the study of metonymy and should not come as a surprise. Nevertheless, this research work has also shown that metonymy is also essential for a correct understanding of some cases of discourse cohesion. Since cohesion is usually considered a clear grammatical phenomenon, this claim could be a bit more controversial. This research work has provided evidence that anaphora is a conceptual mechanism, which ties in with previous work on the role of metonymy in accounting for some anaphoric operations.

We now turn to the connection between pragmatics and discourse. Semantics (or rather a maximalist version of semantics) has allowed us to explore those aspects of discourse connectivity that are related to cognitive model theory. In relation to this, we have seen how relevance plays a very important role in constraining the selection of semantic features that will be used to determine the flow of discourse. But pragmatic activity has an even more important role in regulating discourse. In order to show what this role is, this research work has addressed the question of the pragmatic grounding of so-called cohesion and coherence in discourse. Within this framework, the present research claims that ellipsis and substitution are discourse phenomena subject to pragmatic constraints and argues for the existence of a discourse principle called the *Conceptual Structure Selection Principle*. This principle accounts for the semantic scope of ellipsis and substitution mechanisms: these have within their scope as much structure as is not cancelled out by the discourse unit that contains the cohesion device.

We have then redefined the cohesion-coherence distinction as one between procedural and conceptual connectivity. Relevance theory pragmatics has provided us with the theoretical underpinnings to justify this redefinition, although there are differences with the relevance theoretic approach in that we do not apply the procedural-conceptual distinction to discourse connectors, as relevance theorists do. While ellipsis and substitution devices are procedural (they guide the hearer to a certain portion of previous discourse to make ties with it), discourse connectives seem to invoke generic-level cognitive models and may thus be considered conceptual rather than procedural.

Two further principles that have been found in connection to the issue of discourse connectivity are the *Principle of Iconicity* and the *Principle of Conceptual Prominence*. The study of iconicity as a pervasive principle at levels of linguistic description, including syntax, has a long tradition in linguistics, especially in functional and cognitive orientations. There is a large amount of evidence that iconic arrangements are an important aspect of discourse coherence. Still, there is little work done with respect to the principles that regulate non-iconic arrangements. In order to fill this vacuum, we have postulated the Principle of Conceptual Prominence, which accounts for the special discourse status of non-iconic prominent information.

The final part of this research work has focused upon the analysis of discourse-strategic behaviour. Discourse strategies are non-conventional sets of procedures that allow speakers to create and interpret procedurally and conceptually connected texts. Discourse strategies are grounded in low-level and high-level pragmatic principles that have been fully explored in previous work by the authors. Two reverse discourse strategies are formulated, both related to the balance between procedural and conceptual markers of discourse connectivity. To this we add two reverse discourse principles, the *Principle of Internal Contrast* and the *Principle of External Contrast*, the former based upon explicit procedural operations, whereas the latter makes use of conceptual connectivity.

Lastly, we distinguish two more discourse principles that constrain strategic discourse activity in terms of the procedural-conceptual distinction, i.e. the *Principle of Conceivability* and the *Principle of Relative Distance*. The former regulates conceptual links with situations in terms of the possibility of creating plausible mental scenarios for them. The latter usually works in combination with the former to help to solve ambiguities in anaphoric pronouns in terms of the relative distance between the anaphoric device and its potential as licensed by the Principle of Conceivability.

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MODELIRANJE MISLI U JEZIČNOJ UPORABI: NA RAZMEĐI DISKURSA, PRAGMATIKE I SPOZNAJE

U ovom se radu raspravlja o nizu semantičkih i pragmatičkih pojava koje utječu na razvoj diskursa. Na temelju proučavanja načina na koje se kognitivni modeli rabe u diskursu postulirali smo "načelo odabira metaforičkoga izvora:" naime, metaforička ekstenzija koncepta može odabrati samo dio strukture takvoga koncepta za stvaranje metaforičkoga izvora. Nadalje, uvažavanje stupnjevitosti u poimanju semantičkih odrednica kao više ili manje središnjih u osnovi je "Nónačela rubnosti", diskursnog načela utemeljenog u "načelu relevantnosti": ukoliko se odabirom središnjih odrednica nekoga koncepta ne može osigurati diskursna koherencija, govornik pribjegava odabiru rubnijih odrednica, odnosno odabiru one koja najviše udovoljava načelima relevantnosti. Potom se u radu osvrćemo na pitanje pragmatičke utemeljenosti takozvane diskursne kohezije i koherentnosti. U tom kontekstu tvrdimo da su elipsa i supstitucija kao diskursne pojave podložne pragmatičkim ograničenjima te zagovaramo postojanje "načela odabira konceptualne strukture" kojim se objašnjava semantički doseg elipse i sredstava supstitucije: u njihovom je dosegu onoliko strukture koliko se ne poništava diskursnom jedinicom u kojoj se nalazi dano kohezivno sredstvo. Potom smo redefinirali razliku između kohezije i koherentnosti, tvrdeći da se tu radi o razlici između proceduralne i konceptualne uvezanosti; pritom smo formulirali dodatna dva načela uvezanosti

diskursa: "načelo ikoničnosti" i "načelo konceptualne istaknutosti". Puno je dokaza u prilog istaknutoj ulozi ikonične organizacije diskursa u ostvarenju diskursne koherentnosti. Međutim, malo je pozornosti dosad posvećeno načelima koja uređuju neikoničnu organizaciju diskursa. Tomu se može doskočiti postuliranjem načela konceptualne istaknutosti, kojim se objašnjava poseban status u diskursu istaknutih neikoničnih informacija. U zadnjem se dijelu ovog istraživanja usredotočujemo na analizu diskursnih strategija kao nekonvencionalnih skupova postupaka koji govornicima omogućavaju stvarati i tumačiti proceduralno i konceptualno uvezane tekstove. U tom smo smislu formulirali dvije međusobno suprotstavljene diskursne strategije, pri čemu se obje odnose na ravnotežu između proceduralnih i konceptualnih obilježja uvezanosti diskursa. Tomu smo dodali dva daljnja diskursna načela, "načelo unutarnjega kontrasta" i "načelo vanjskoga kontrasta". Prvo se temelji na eksplicitnim proceduralnim aktivnostima, a drugo na konceptualnoj uvezanosti. Konačno, utvrdili smo dodatna dva diskursna načela koja usmjeravaju odabir strateških postupaka u stvaranju diskursa: "načelo pojmljivosti", u skladu s kojim se određuju konceptualne veze sa situacijama u smislu mogućnosti stvaranja njihovih vjerodostojnih mentalnih scenarija; i "načelo relativne udaljenosti", koje pomaže razriješiti višeznačnost u interpretaciji anafora na temelju relativne udaljenosti anaforičke zamjenice od njezinog mogućeg antecedenta u skladu s načelom pojmljivosti.

Ključne riječi: diskurs; pragmatika; kognitivni modeli, metafora; metonimija; kohezija; oherentnost; uvezanost diskursa; relevantnost; ikoničnost.