Universidade Federal de Santa Catarina
Pós-Graduação em Inglês e Literatura Correspondente

The role of metaphor in informative texts

Loni Grimm Cabral

Tese submetida à Universidade Federal de Santa Catarina para a obtenção do grau de Doutora em Letras opção Língua Inglesa e Linguística Aplicada

Florianópolis
Agosto 1994

Esta tese foi julgada adequada e aprovada em sua forma final pelo programa de Pós-Graduação em Inglês para a obtenção do grau de

Doutora em Letras
Opção Língua Inglesa e Linguística Aplicada ao Inglês

Dra. Carmen Rosa Caldas Coulthard
Coordenadora

Dr. Malcolm Coulthard
Orientador

Banca examinadora:

Dr. Malcolm Coulthard (orientador)

Dra. Leila Bărbara (examinadora)

Dra. Branca Telles Ribeiro (examinadora)

Dr. Hilário I. Bohn (examinador)

Dra. Carmen Rosa Caldas Coulthard (examinadora)

Florianópolis, 8 de agosto de 1994

Para as famílias Grimm
Cabral
Grimm Cabral
Nelson

Agradecimentos

Agradecimentos institucionais cabem a:
Universidade Federal de Santa Catarina;
Departamento de Língua e Literatura Vernáculas;
Curso de Pós-Graduação em Inglês;
FINEP;
CNPq;
Departamento de Inglês da Universidade de Birmingham;
P.E.O. Chapter de Marshfield, Wisconsin.

Agradecimentos especiais
Ao Prof. Dr. Malcolm Coulthard pelo constante estímulo e dedicada orientação;

Às Profas. Dra. Leonor Scliar Cabral, Dra.Susana B. Funck e Dra.Carmen Rosa Caldas Coulthard pelo apoio e valiosas contribuições.

Abstract

The role of metaphor in informative texts

Loni Grimm Cabral

Universidade Federal de Santa Catarina
1994

Prof. Dr. Malcolm Coulthard
Supervisor

In this thesis informative texts are analysed in order to observe the role metaphor has in their organisation. The claim is that texts are the result of choices and once a metaphor is chosen it plays an essential role. The analysis is done within the framework of MATCHING RELATIONS (Winter, 1986), LABELS (Francis, 1994) LEXICAL REPETITION (Hoey, 1991a), TEXTUAL PATTERNS (Winter & Hoey, 1986), ENCAPSULATION AND PROSPECTION (Sinclair, 1992) and the three MACROFUNCTIONS of language (Halliday, 1985). We propose there are textual markings differentiating interpersonal and ideational metaphors. A look at metaphors in translated texts will further exemplify some of our claims. We conclude by showing the implications of this research for the teaching of reading and for text analysis.

Número de páginas: 181

Resumo

The role of metaphor in informative texts

Loni Grimm Cabral

Universidade Federal de Santa Catarina

1994

Prof. Dr. Malcolm Coulthard

orientador

Através da análise de textos informativos, mostramos o papel da metáfora como elemento coesivo. Focalizando a metáfora dentro de textos em Inglês e em Português, caracterizâmo-la dentro das três macrofunções da linguagem: ideacional, interpessoal e textual (Halliday, 1985). Embora todas as metáforas carreguem as três funções, o escritor pode realçar qualquer das funções através do texto. A função interpessoal, a função não marcada, realça a protofunção do "vamos imaginar" na metáfora (Halliday, 1975) pois leva o leitor a construir o seu significado. A função ideacional, marcada, inclusive por sinais metadiscursivos, realça o aspecto conceitual da metáfora, quando o autor a define através de uma expansão. A função textual vem demonstrada dentro dos desdobramentos lexicais da metáfora, nas suas relações anafóricas e catafóricas (*encapsulation* e *prospection* (Sinclair, 1992)) e no padrão metafórico-metalinguístico.

O papel essencial da metáfora foi observado, também, através da análise de textos traduzidos. A falta de precisão na sua tradução, seja pela opção de expressões literais, ou pela substituição de uma metáfora por outra, leva a perda de significados conotativos bem como denotativos. Substituição de metáforas por expressões literais, por exemplo, afetam a interligação entre as frases do texto (Hoey, 1991), mostrando a necessidade de mostrar estas funções da linguagem não só a nível frasal como Halliday (1985) propõe, mas a nível textual (Coulthard, 1994).

A análise nos faz repensar o ensino da leitura e do léxico nas escolas em geral e nos programas de remediação de leitura (Laboratório de Leitura da UFSC), evidenciando a necessidade do desenvolvimento de estratégias não só metacognitivas, mas também estratégias textuais.

Número de páginas: 181

Table of Contents

Introduction

This study of metaphors in texts derived from a particular need to have a better textual understanding in order to be able to act in the context of remedial reading for college students. A previous piece of research (Laboratório de Leitura UFSC, 1988[1]) had emphasised metacognitive strategies in students' attempts to overcome their reading comprehension problems in their native language. However, parallel studies (Menegassi, 1990) pointed out that metacognitive strategies associated to textual strategies gave more efficient results in remedial reading programs. Therefore, this study is an attempt to open up a new perspective in the effort to improve reading comprehension.

Informative texts are one of the two main sources of acquisition of knowledge for most students, the other being expository classes. Nevertheless, the teaching of reading before the university rarely focuses on this type of text (Grimm-Cabral, 1988). This is due to the fact that teaching reading is thought to be exclusively the task of language teachers who focus mainly on narratives and literary texts, forgetting the ideational function.

---

[1]Laboratório de Leitura is a project which involves a group of researchers interested in various aspects of reading. Besides the theoretical aspects of research, remedial instruction is provided for university students who have comprehension problems (Grimm Cabral, 1988).

Some students naturally develop their reading competence, but others reach the university with severe problems in coping with the assigned texts. Besides, as pointed out by Halliday (1989), there is a gap between the texts students read before and at the university, a gap which contributes to the reading problems of some of the students.

Therefore, informative texts have been chosen because they are the primary object of the remedial program offered at the Reading Lab. Moreover, metaphors have been chosen because of the challenge they offer: how is it that an item which literally means something else does not destroy the cohesion of a text. Furthermore, they are a natural sign which could lead to the de-automatisation of reading, *i. e.*, upon encountering a metaphor, though this is something still to be investigated, readers will change their reading pace in order to construct its meaning.

Despite the fact that we live by metaphors (Lakoff & Johnson, 1980), they are not usually considered in terms of teaching outside the domain of literature. When we talk about metaphors to the layperson the usual reaction is that metaphors are not part of their concern because "that is art". In school, for example, metaphors are widely studied in the context of poetry, but they are rarely mentioned in other contexts, despite their everyday usage.

This characterisation that students, teachers as well as lay people have is different from practice. As has already been pointed out by Lakoff & Johnson (*op.cit*) and from what it was observed in this research into newspapers, magazines, journals and books, metaphors appear constantly. They are part of our understanding of the world, and they are so deeply rooted in our language that unless they are very unusual we do not perceive

them as different from other literal expressions, although readers may attribute different meanings. Our economic news, for example, demonstrate that we ordinary people are always fighting enemies where inflation is seen, cf. **Folha**'s cartoons, as a monster or a disease ('os sintomas da inflação', 'dar à inflação um tratamento de choque', 'a imunidade da inflação a tratamentos tradicionais', 'a cura da inflação' (Kneipp,1990, 59:60)), and bankers and high financial officials are part of a naive children's game: "a ciranda dos juros".

The best insight I have had about metaphors related to reading came from a subject who was participating in a pilot experiment on reading comprehension. The experiment was about reading. The text had been rewritten to include a couple of words completely out of context, places at which I was predicting that subjects who were paying attention to the content would automatically stop reading and ask themselves what was going on. The task expected of subjects was to indicate at what point they paused reading because the text did not make sense and to verbalise after finishing the text about what had taken place. While the task worked according to prediction for most of the subjects, one did not mark anything. His post verbalisation, however, was most insightful. For him the text had made sense all the way through. Some of the points I had altered he had considered metaphors which made sense within the text as a whole. His reasoning was: "When I was given the text I did not suspect any catch so the text which was supposed to have been published in **Folha** had to make sense. And after all people do write bizarre things once in a while..." (Grimm-Cabral, unpublished data). The verbalisation demonstrated that for a good reader words are not to be seen in isolation but in a much wider context; a good reader tries to make sense out of texts, and metaphors are a

process used to construct meaning not just while writing but while reading as well.

When we read a text, a complex process of interacting information takes place. On the one hand we have the printed material which usually offers, besides the text itself, information about the source of the text, its author and vehicle. On the other hand, we have the reader's experience, the knowledge he/she may have on the subject and the world in general. The interaction of the two sources results in the reading of a text (Stanovitch, 1980). By reader's knowledge it is usually understood his/her knowledge of the world, of the language and his/her previous knowledge about the content of the text. Other important aspects of this knowledge, such as the interpersonal aspects of language in use, are left implied. The expectation of a well written text inside a newspaper, the expectation of factual information and the knowledge that people use metaphors, for example, are some aspects which are present in the understanding of a text. In this study, I will focus particularly on metaphors and texts, examining the two-way relationship between the two.

Metaphors and texts

From the time of the Cartesians until quite recently, metaphors have been under attack as a means of objective communication. Hobbes in **Leviathan** (pt.1, chap.4; *apud* Cohen, 1978:3) considers metaphors an abuse when he compares them to the proper uses of speech:

> The general use of speech, is to transfer our mental discourse into verbal; or the train of our thoughts, into a train of words....Special uses of speech are these; first, to register, what by cogitation, we find to be the cause of any thing, present or past; and what we find things present or past may produce, or effect; which in sum, is acquiring of arts. Secondly, to show to others

> that knowledge which we attained, which is, to counsel and teach one another. Thirdly, to make known to others our wills and purposes, that we may have the mutual help of one another. Fourthly, to please and delight ourselves and others, by playing with our words for pleasure or ornament, innocently.
>
> To these uses, there are also four correspondent abuses. First, when men register their thoughts wrong, by the inconstancy of the signification of their words, by which they register for their conception, that which they never conceived, and so deceive themselves. Secondly, when they used words metaphorically, that is, in other senses than that they are ordained for; and thereby deceive others.
>
> ...And therefore such (inconstant) names can never be true grounds for any ratiocination. No more can metaphors, and tropes of speech: but these are less dangerous, because they profess inconstancy; which the other do not.

Hobbes, in the above quotation, precedes the functionalists in summing up the main functions of language: the most general use is to communicate. But he specifies other important uses such as to acquire knowledge, to express knowledge, to interact and to have and produce pleasure. Aristotle would have included metaphors within the last category, since he defines them as ornaments. But Hobbes explicitly excludes them from the uses of language, placing them among the abuses of language as a way to deceive people. He acknowledges, though, that they are widely used and warns about the inconstancy that is embedded in them.

Locke, who soon obfuscated Hobbes, is much more intolerant of figures of speech :

> Since wit and fancy finds easier entertainment in the world than dry truth and real knowledge, figurative speeches and allusions in language will hardly be admitted as an imperfection or abuse of it. I confess, in discourses where we seek rather pleasure and delight than information and improvement, such ornaments as are borrowed from them can scarce pass for faults. But yet, if we would speak of things as they are, we must allow that all the art of rhetoric, besides order and clearness, all the artificial and figurative application of words eloquence hath invented, are for nothing else but to insinuate wrong ideas, move the passions, and thereby mislead the

> judgement, and so indeed are perfect cheat; and therefore however laudable or allowable oratory may render them in harangues and popular addresses, they are certainly, in all discourses that pretend to inform or instruct, wholly to be avoided and, where truth and knowledge are concerned, cannot but be thought a great fault either of the language or person that makes use of them. What and how various they are will be superfluous here to take notice, the books of rhetoric which abound in the world will instruct those who want to be informed; only I cannot but observe how little the preservation and improvement of truth and knowledge is the care and concern of mankind, since the arts of fallacy are endowed and preferred. It is evident how much men love to deceive and be deceived, since rhetoric, that powerful instrument of error and deceit, has its established professors, is publicly taught, and has always been had in great reputation; and I doubt not but it will be thought great boldness, if not brutality, in me to have said thus much against it. Eloquence, like the fair sex, has too prevailing beauties in it to suffer itself ever to be spoken against. And it is in vain to find fault with those arts of deceiving wherein men find pleasure to be deceived. (Bk.3, chap.10, pp.105-6 *apud* de Man, 1978:15)

Rhetoric and its devices are harshly attacked by Locke in a crescendo. Initially, "figurative speeches and allusions" are seen as "an imperfection or abuse of (language)". Then the art of rhetoric serves for nothing else but "to insinuate wrong ideas, move the passions, and thereby mislead the judgement, and so indeed (is) a perfect cheat". And he finally describes rhetoric as "the arts of fallacy", as a "powerful instrument of error and deceit".

The root of these philosophers' argumentation goes back to Plato and the discussion about nature and convention. To consider something as **natural** within their framework meant that its origins rested in the eternal and immutable principles beyond man (Lyons, 1968: 4-6). Thus, the naturalists preached that words, in some way which may not be visible to the ordinary man but can be demonstrated by the philosopher, carry in them the "reality" of things. In opposition, the conventionalists saw words as the result of a social convention. The naturalist approach is embedded in

the thoughts of Hobbes and Locke, who sought the best objective language to convey ideas.

Such notions have been passed from generation to generation since the seventeenth century. Kayzer (1948; 1963: 191), in his classical **Introduction to the Science of Literature**, still maintained the idea of metaphors as the most "improper" of languages. For him we should always avoid metaphors whenever we look for "steadiness, form, and plastic consistency". The "proper" form of speaking looks for the adequate word, the word which reveals stability and precise boundaries. Kayzer also is unable to see the linguistic sign as an element in place of the object. Nevertheless, he precedes Lakoff and Johnson (1980) when he says that even

> in our every day way of speaking, not rarely what we consider as proper designations reveal themselves as "transposed"; the same happens even in our scientific language, which is under the stylistic law of maximum exactitude (Kayzer, 1963:192)[2].

As observed in the literature, metaphors have apparently lost some of their stigma and are used now as both ornaments and, contrary to Hobbes' advice, as devices to transmit and acquire knowledge. Petrie (1979) argues that metaphors are essential for learning something new; Stitch (1979:485) considers metaphors as "tools for extending our capacities for analytical thought". Boyd (1979) describes the role of metaphor in theory change. Quine (1978) sees metaphors as "the growing edge of science and beyond". They govern "the growth of language and our acquisition of it". Such approach to language is reflected in the words of the biologist R. Dawkins:

---

[2]My translation

"Words are our servants, not our masters. For different purposes we find it convenient to use words in different senses" (Dawkins, 1986 :1) This shows a strong tendency to accept metaphors as an active part in the interaction between reader and writer.

What is metaphor?

> What metaphor is can never be determined with a single answer. Because the word has now become subject to all of the ambiguities of our notions about similarity and difference, the irreducible plurality of philosophical views of how similarities and differences relate will always produce conflicting definitions that will in turn produce different borderlines between what is metaphor and what is not. We thus need taxonomies, not frozen single definitions, of this "essentially" contested concept. (Booth, 1978:175)

Despite Booth's advice, a single definition will be attempted. I consider that metaphor is the result of a cognitive process where in the act of referring to element X the writer uses the denomination of element Y_W, creating a situation that if taken literally would be considered bizarre. This act of referring leads to the superposition of two or more conceptual schemata which, in its turn, leads to a suspension of the ordinary concepts involved and to a rearrangement of the conceptual schemata. Thus in stating

Example 1

> For the student of language and thought, metaphor is an eclipse...

the writer is referring to metaphor (X) as an eclipse (Y_W), which is certainly very bizarre for the reader. In order to make sense of the sentence above, we suspend the ordinary meaning of eclipse (Y) and superimpose the two schemata, of X_r and of Y_r. The result of such superposition, the area where the two schemata overlap, should be the point the writer is

trying to make. The superposition of the two schemata may enhance some features and diminish others (cf. fig. 1).

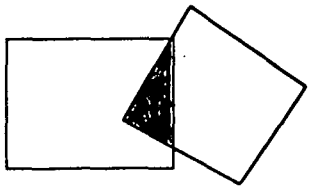


Fig. 1 The overlapping area shows the features X_W and Y_W have in common.

It is important to note that this superposition intended by the writer may be different from the one realised by the reader. The area of overlapping may be larger or smaller due to the personal differences in the schemata activated by the writer and the schemata activated by the reader (cf. fig 2).

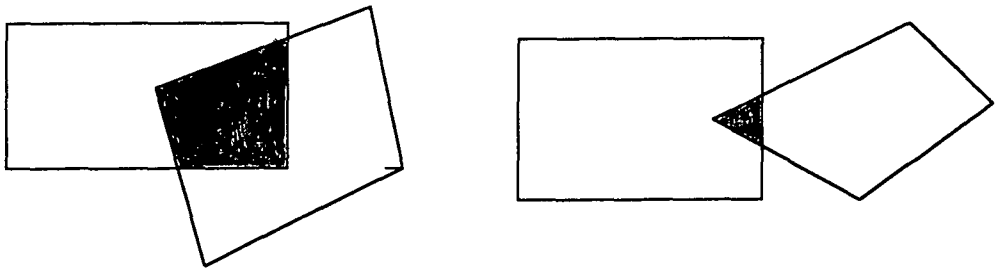


Fig.2 Differences in overlapping area and original configuration of meaning may give rise to differences in metaphor interpretation

There are cases, then, as I will indicate below, when the writer shows the path that the process of interpretation should follow in the attempt to homogenise the overlapping area. But most often this rearrangement is made by the reader based on the information he/she has stored in both schemata. First of all the reader has to perceive the "pretend" game (see below) suggested by the writer and accept the task of producing a new meaning. This meaning will be the result of both the information stored and the activating strength of each connection of the concepts involved

(Collins and Quillian,1969). These two aspects and the definition made above explain why two different people may have different interpretations for the same metaphor. It is important to stress that, like other signs but in a much more complex way, metaphors require a construction of meaning.

Metaphors and the functions of language

At the beginning of this section I informally talked about ideational[3] and interpersonal metaphors. I would like now to elaborate on this distinction, since the concept of a more oriented ideational metaphor is crucial for my argumentation.

According to Halliday (1985) every utterance is structured on three levels: the ideational, the interpersonal and the textual, each of them having a specific function. The ideational aspect is the use of language to express content. The interpersonal aspect has to do with establishing and maintaining contact with interlocutors. The textual aspect is the use of language to create a text, that is, to make a message integrate with its context so that it is cohesive and coherent. These three functions are the maturation of seven protofunctions which Halliday (1975) proposed to explain the initial child's intentions:

a) the instrumental, the "I want" function;

b) the regulatory, the "do as I tell you" function;

c) the interactional, the "me and you" function;

d) the personal, the "here I come " function;

---

[3]Throughout this work I use the terms experiential and ideational interchangeably despite the subtle differentiation which Halliday (1985) makes.

e) the heuristic, the "tell me why" function;

f) the imaginative, the "let's pretend" function;

g) the representational, the "I've got something to tell you" function.

For the study of metaphor it is important to consider the imaginative function of language. Even though ideational, interpersonal and textual aspects are present in the construction of metaphors, they are not sufficient to explain the whole process which seems to bring back the feature of being able to play with language without the constraints of the conventional system.

> The imaginative function (...) is the function of language whereby the child creates an environment of his own. As well as moving into, taking over and exploring the universe which he finds around him, the child also uses language for creating a universe of his own, a world initially of pure sound, but which gradually turns into one story and make-believe and let's-pretend, and ultimately into the realm of poetry and imaginative writing. (Halliday, 1975:20)

"Let's pretend" happens with language structures and in play situations as well. Swanson (1978:163-164), even though not talking about the imaginative function, describes the child at play with language which results in metaphors:

> A child is a small scientist who tries out all kinds of ways of using the world. A box or a wastebasket he might use as a boot, a plate as a hat, a ring-shaped toy as a doughnut, and a potato chip as a cowboy hat for a doll. He acts and speaks in metaphors. I propose that we look upon such metaphors as partly erroneous conjectures being put to the test. One might argue against such a view by pointing out that the child knows the errors to be errors, and so not in need of testing; but the child's way of saying "I know this isn't so" might be to playfully try it out. The appeal of the metaphoric act lies both in its resemblance to the truth and in the presence of error. It is pleasurable to master the distinction between the true and the false -between reality and fantasy- by repeatedly testing what is already known to be refuted.

This playful characteristic of experimenting with language, of stretching it to the limits possessed by the child (Quine, 1978:162) and the pleasure derived from it, remains in the adult's everyday use of the metaphor. What reason would a gardener have on a hot summer afternoon to come and ask "I need some water for my radiator" and help himself to a glass of cold water, other than to play a "pretend game"? It is true that not all the metaphorical uses are that unsophisticated. The predominant representational feature of language makes its mark on this game too, sophisticating it, making it a tool for science. Just as the child works on perceived analogies, the scientist also makes use of resemblances. The child's overextensions, for example, may be 'metaphors stillborn':

> These primitive metaphors differ from the deliberate and sophisticated ones, however, in that they accrete directly to our growing store of standard usage. (Quine, *op.cit.*)

Metaphor, then, may be an important part of our lexicon growth.

Cognitive maturation, the acceptance of the conventional code, drives away metaphor from our language; nevertheless, we often have our moments of regression. We use the game to create new meanings through metaphors by breaking the code which is accepted by the members of a community:

a) at the ideational level: participants and processes are not compatible among themselves. For example in **the dance of the planets**, dance asks for a [+ human] subject which planets are not.

b) at the interpersonal level: what is implied is an invitation: 'let's pretend'. *E.g.* When someone says: "Give me some water for my radiator!" meaning it is for him/herself, he/she is pretending that the body is like a motor which has a radiator to cool the engine.

c) at the textual level: if the utterance is taken literally there is no cohesion nor coherence in the text. In the text below "novos-informatizados" and "os pobres escravos da máquina" have to be considered to have the same referent otherwise the text is not coherent. The same can be said of "oráculos" and "máquinas".

Example 2

> Atualmente temos que conviver com um novo tipo de chatos: os "novos-informatizados". Não bastando ostentar as proezas de seus programas e a capacidade de seus rígidos, agora, *os pobres escravos da máquina* as carregam de cima pra baixo, em aviões, trens, restaurantes... Coitados, nada podem fazer sem consultar seus oráculos.

By breaking the code the writer is creating a complicity between himself/herself and the reader, who connives or even participates in this transgression when he/she cooperates by understanding and accepts the new meaning. Despite the sophistication imprinted onto the metaphor by the adult cognitive mind, the unmarked form of the metaphor (see below) carries the feature of the "pretend game". The majority of metaphors carry the imaginative protofunction, unless stated otherwise. There are cases when the writer tries to make explicit this "pretend game". The metaphor, then, lessens its playful character and assumes an ideational role:

> (...) the speaker expresses his experience of the phenomena of the external world, and of the internal world of his own consciousness. This is what we might call the *observer* function of language, language as a means of talking about the real world.(Halliday, 1975: 17)

Ideational metaphors and texts

It is true that interpersonal aspects are deeply embedded in metaphors, but it is also true that they play an important role in ideational communication: they associate different fields of knowledge to create a new concept for the

reader. Moreover when he/she attributes this ideational aspect, the metaphor user makes sure he/she provides the elements which will allow for the interpretation intended. Thus metaphors and texts relate from two different but complementary perspectives.

Metaphors as conceptualisers have an important function in texts. By their very nature, whereby they create a momentary suspension of meaning, they bring an argument into stage which, then, needs to be developed in order to be accepted. Observing from a slightly different perspective, metaphors look like a moment of detachment from the conventions imposed by the code, a process similar to the one described by Tadros (1985) and Winter (1986) as hypothetical-real, followed by a stage of reassuming the code. This process results in a pattern made up of two elements, where one of the elements is metaphoric and the other one metalinguistic because it provides the glossing for its interpretation. Ideational metaphors in this sense are prospective: upon reading them we expect that what is coming will tell us how the concept reflected in the metaphor is possible. At the same time that they have the prospective quality they can also be retrospective, encapsulating information and making the continuation of the argument from a new point of view, that provided by the evaluation made by the metaphor possible. Textually, then, metaphors function as organisers as they are capable of prospecting and/or retrospecting information.

While it is stimulating to observe what metaphors can do to texts, it is also important to see how texts help in developing an interpretation of them.

Context effects

The first thing I want to argue for is that texts provide the natural environment for metaphors to be studied, despite the fact that, literary investigations apart, most studies of metaphor have used contexts that are no larger than a single sentence. This is true for both philosophers and psychologists, the two areas where metaphors have been most examined. Paivio (1979), for example, begins an interesting article about metaphor with the metaphor "A metaphor is a solar eclipse." given in example 1. Later in the article he picks up this metaphor again to explain it:

Example 3

> The term solar eclipse will tend to arouse a compound image that includes the blackened center, together with the glowing ring that rounds it. Both components, obscurity and light, will then be simultaneously available to arouse further associations relevant to the metaphorical context.... (p.166)

However, if he had considered the whole text that he himself provided, he would have noticed that this last piece of information was redundant, because he had already given the grounds for its interpretation 16 pages earlier:

Example 4

> For the student of language and thought, metaphor is a solar eclipse. It hides the object of study and at the same time reveals some of its salient and interesting characteristics when viewed though the right telescope. (p.150)

There are of course some (Ortony, Schallert, Reynolds and Antos, 1978 and Harris, 1979) who contextualise their metaphors in paragraphs for experimental purposes and some others (Honeck, Voegle, Dorfmueller and Hoffman, 1980; Loewenberg, 1973; Ortony, Reynolds and Artner,

1978 (*apud* McCabe, 1983)) who argue for the importance of a context for the recognition of metaphors.

In my view significant amounts of the (con)text may be essential for the understanding of metaphors, considering that when they are created there is a break of conventional rules. In fact it would be interesting to measure the processing time of a metaphor in two situations: isolated and in context. This falls out of the scope of this thesis, but my assumption is that processing time in context would be much smaller and that if compared to non-metaphorical expressions some metaphors in context would not present significant difference. Metaphors outside their contexts work like ambiguous sentences to which one can attribute different meanings. Within the text the reader finds clues which will direct his/her inferences.

All metaphors are ideational. Through the metaphor the writer is reconceptualising the world. This reconceptualisation, however, has a deep interpersonal character. The writer uses a metaphor:

a) to aid his/her reader : by using a metaphor to express a concept he/she considers the reader will not easily follow, the writer is showing consideration for his/her audience. The use of metaphors is a way to fill in the gap of necessary previous knowledge the reader may not have. The metaphor saves the knowledgeable reader from explicit information and brings to the uninformed reader a compact version of what he/she should learn through something the writer assumes he/she knows. For example, when the writer refers to the movement of the planets as the dance of the planets, he/she is associating to planets some of the features of dance which are relevant: periodicity, predetermination, unpredictability,

conservation of energy, conservation of angular momentum.[4] Such features are certainly related to dance, though they may not be normally connected to dance under these names.

b) to express a different perspective on the world other than that conventionally pressed into the code. It can reveal ideological, aesthetic and cultural aspects of its author. Going back to the previous example, the whole development of the metaphor reveals the author's interest in dance as well as in music:

Example 6

The cosmic dance is intricate and elaborate: sarabande to a score by Newton, *Largo con gravitá.*

c) for self-promotion: some metaphors in nonfiction are so bizarre that rather than aid the reader they create more difficulty in the sense that besides the understanding of the topic the reader has also to deal with the understanding of the vehicle and the connection between the two. The connection may be there but it is restricted to the author and a particular small group of people who hold that specific knowledge.

d) as a rhetorical tool: it derives from the two categories above that metaphors can be political tools in the sense that they can hide or enhance aspects of reality. At the same time, by coding reality through metaphors which have restricted the understanding of information contained in the text, the writer preserves this view of reality for a privileged class of readers only. Booth (1979) gives a humorous example of a legal case being won because of the use of a good metaphor.

---

[4]This particular metaphor will be discussed in a later chapter.

Here is Booth's story:

> A lawyer friend of mine was hired to defend a large Southern utility against a suit by a small one, and he thought at first that he was doing fine. All of the law seemed to be on his side, and he felt that he had presented his case well. Then, the lawyer for the small utility said, speaking to the jury, almost as if incidentally to his legal case, "So now we see what it is. They got us where they want us. They holding us up with one hand, their good sharp fishin' knife in the other, and they sayin', 'you jes set still, little catfish, we're jes going to gut ya.'" At that moment, my friend reports, he knew he had lost the case. "I was in the hands of a genius of metaphor."

The reconceptualisation of the world, therefore, is subdued by the personal aspects which readers may attribute to the utterance. The linguistic code usually restrains the connotative aspects, but once the writer breaks the code he/she needs other constraints such as the (con)text in which the sentence containing the metaphor is inserted in order not to let the interpretation go free.

The most traditional view of metaphors emphasises the interpersonal aspect, which has caused them to be banned in the past from texts with an informative character. Aristotle, for example, saw them as a mere decorative device, and for Descartes and the other philosophers mentioned at the beginning of this chapter they lacked the objectivity necessary for non-literal texts. Nevertheless, metaphors permeate our lives and are part of most scientific literature treatises. The distinction between what I initially called interpersonal and ideational metaphors has reflections in the development they receive within the text. Interpersonal metaphors stay at the "let's pretend" function. Ideational metaphors, which also have this function, expand when some grounds for interpretation are provided. The text, therefore, is the natural unit to study metaphor.

According to Bolinger (1968), linguistic elements can be classified as marked and unmarked. Unmarked are those elements which are the most usual, the expected options in opposition to the marked elements which are distinguished and unexpected. Moreover, marked elements are sometimes explicitly signalled. In terms of metaphors, interpersonal ones are unmarked in opposition to ideational ones, which are marked. Observe the examples below:

Example 7

Vulcões e terremotos modelam a superfície como um arquiteto.

The figure above occurs in the subtitle of an article about earthquakes and volcanoes. We are free to interpret how earthquakes and volcanoes are architects. This is modified in the body of the article where the same metaphor occurs but with a defining constraint enhancing its ideational function:

Example 8

De modo geral, (...) as placas são verdadeiros arquitetos da Terra: elas criam, destroem e recriam a superfície, dando-lhe diferentes faces ao longo das eras.

The metaphor is realised intra-sententially by clauses with an appositive function. The punctuation with a colon signals an explanatory statement.

Metaphors and metalanguage

Metaphors, in the ideational sense, are a form of definition. Heffernan & Lincoln (1982) in their handbook on writing present six ways of defining a word:

a) by synonym;

b) by comparison, contrast, and analogy;

c) by function;

d) by analysis;

e) by example;

f) by etymology.

Metaphors should be yet another category. Even though some metaphors encompass comparisons, contrasts and/or analogies, the effect achieved with them is different. When we have ordinary comparisons, we deal with similar things. The metaphor brings together things that ordinarily we would think have nothing to do with each other and yet we find that they may be comparable.

Of course these categories do not work completely alone. They combine among themselves in the text. Returning to the example quoted above,

Example 8

> De um modo geral, (...), as placas são os verdadeiros arquitetos da Terra: elas criam, destroem e recriam a superfície, dando-lhe diferentes faces ao longo das eras.

we can analyse this portion of text as a definition which involves two categories: It involves both a metaphor and its analysis. The metaphor in itself has a metalinguistic function as it is defining **placas tectônicas**.[5]

---

[5]Within the pattern general-specific, which we will discuss later on, we find the pattern metaphor-metalinguistic, where

as placas (tectônicas) são os verdadeiros arquitetos da Terra

represents the metaphorical part, and

The process of defining by means of metaphor is very complex and creative. Due to the unusual collocation there is a momentary suspension of the linguistic conventions attributed to the signs in question. The *signifiée* part of the linguistic sign loses some of its specific semantic features, requiring a completion guided by the utterer of the metaphor and/or by the activation of the semantic network of the receiver.

When the intention of the writer is a definition, the unspecificness of the metaphor has to be made specific just as with other items of the metalanguage (cf. Winter, 1992):

> For the unspecific to communicate it must be made specific (in contexts where it is not known by the decoder) by the next sentence to become lexically unique.
>
> To become a significant message, it has to become lexically unique through the open-class specific of its second sentence.

However, there are moments when the writer uses a metaphor to define but does not complete the meaning, leaving the task exclusively to the reader. These metaphors I classify as interpersonal metaphors, as I have already mentioned before. Though there is a conceptual function the interactional aspect comes on top of it. The "let's pretend game" is on. In cases like these, either the context is sufficient to make the metaphor understood, or the intention is to play with the multiplicity of meanings.

---

elas criam, destroem e recriam a superfície, dando-lhe diferentes faces ao longo das eras.
represent the metalinguistic part, which explains how the metaphor is possible.

The problem

Given the stigma that metaphors have had historically since the seventeenth century and their widespread use nowadays not just in everyday language but in informative texts as well, I have examined a number of metaphors in books, journals and newspapers to discover how they overcome the bad reputation of improper language for serious matters. Since the late seventies metaphors have acquired academic respectability (Cohen, 1978:3), and the number of publications on metaphors in ordinary language has increased. As Cohen (*op. cit.*) says:

> These are good times for the friends of metaphor. They are so salutary that we are in danger of overlooking some thorny underbrush as we scramble over the high road to figurative glory.

I am looking at the question not from a historical point of view, but from a textual point of view: considering that the basic concept of metaphor has not changed over the centuries, what is it that we perceive now that removes the "unsteadiness" of language.

This thesis is the result of extensive observation of text and its relation to metaphor. I will try to show specifically the following points which are meaningful for the teaching of reading and writing, specifically where it relates to lexis, and to the description of text:

1. Metaphors in texts can be classified according to the three main functions of language proposed by Halliday: ideational, interpersonal and textual. Though they all carry the three functions, the text usually foregrounds one of the functions.

2. Ideational metaphors are important cohesive markers which either project the text ahead creating expectations about what is to come, or they encapsulate portions of text allowing for a shift in the topic.

It is important to anticipate what will be evident later on that despite the fact that I use Halliday's (1985) terminology and his concept for the function of language (ideational, interpersonal, textual), I do not apply them to the level originally proposed --the clause. Halliday would reach the ideational function of the text, for example, through the analysis of each clause of the text: the ideational function of the text as a whole would be the sum of all clauses. Mine is a less restrictive use of these functions looking from the perspective of the text as a whole, viewing (cf. Coulthard, 1987:185) them as pre-textual.

This is not therefore a study of metaphor per se, but a study of texts which involve a particular type of metaphor which I call ideational. Texts are the result of the many choices a writer has to make. One of these choices is whether to use a metaphor or a literal expression to convey a concept. As it has been mentioned, this choice is not random, but reflects the pre-ideation the writer has for his/her text. At the same time, once the choice of a metaphor is made, it may have influence through the development of the text, which is what I want to examine. The focus of this work, then, will be on ideational metaphors in relationship to the role they have in the development of texts, simultaneously with the role texts play in the development of metaphors.

The first chapter deals with the role of context and of conventions in the interpretation of metaphors. The point of departure is the writer-reader relationship, I try to characterise the process of written language in terms

of production and reception. The approach is textual, that is, I try to explain writer-reader relationship by looking at the text. However, whenever needed, processual aspects are also included.

The second chapter looks at interpersonal metaphors, observing their textual development in terms of lexical relations.

In the third chapter I make a characterisation of ideational metaphors, bringing evidence from the text. I discuss the metadiscoursal aspects of the text which explicitly bring out the ideational aspect and the role of matching relations in the unpacking of metaphors.

The fourth chapter starts on the role metaphors have in textual organisation specifically how they encapsulate portions of texts. After discussing the prospective aspect, showing how a pattern of two elements metaphor-metalinguistic can be observed (chapter 5) and the issues raised by metaphors in translation (chapter 6), I conclude showing the implications of what has been found for the teaching of reading and text analysis.

Chapter 1

Texts, context and conventions

This chapter tries to show some of the considerations that a writer has to take into account while producing a text and the efforts on the part of the reader to understand this text. Two key concepts -- context and conventions -- play an important role in filling the gaps left by the limitations of written language as the vehicle. Here it is demonstrated how both writer and reader make use of them.

The relationship between writer-audience and the resulting text

A good reading of a written informative text is the one in which the final understanding approaches the intention of the writer. One might say that this is a definition that cannot be tested and it may be true. But there is no sense in reading a text if it is not to get what the writer intended to express. Not having the writer to confirm our outcome, the best approach is to construct the meaning of a text which is congruent with the evidence it offers. Whereas the meaning of a spoken text is, in general, a product of interaction amongst the participants, the meaning of a written text results from two acts in solitude: the writer's and its readers'. At a distance in time and place from the people he/she intends to address, the writer transfers his/her ideas to paper, with the privilege of hiding from possible future

interlocutors indecisions, doubts, and mistakes. Each reader, in his/her own time, approaches the product of that act in solitude too. Alone, each has to make decisions, resolve doubts. The text is the element which bridges the two participants both in space and in time.

This bridge, however, is sometimes insufficient because of the restrictions of its own structure. The physical text cannot hold everything: first, due to the physical limitations of the channel (the linearity of the written language, despite its hierarchy, is insufficient to conduct explicitly the multiple meanings required); second, because it would go against the principle of information exchange, which holds that it must not be redundant, but adequate; and third, because experience is richer than texts can convey. For at least these three reasons the writer must skilfully choose what and how he/she will express his/her intentions about a certain topic. The adequacy of the written text is therefore crucial.

For communication to take place, that is, to have exchange of information from X to Y, there should be a certain imbalance between the old and the new information presented in a text[1]. By old it is meant the information which is possessed by the reader before reading the text and by new the information which the reader will acquire from the text. If there is a perfect balance between the two, everything is stable, there is no flux and no movement occurs. On the other hand, if the imbalance is too big, again there is no exchange. If this is the case, two extreme situations may

[1]The distinction we are making is different from the traditional given/new concepts to describe the information in the text which the reader can recover(the given) and the information which the reader cannot recover (the new).

occur: (a) there is a barrier and no transfer of information; (b) there is redundancy and, therefore, also no transfer of information: the reader already had it.

In order to avoid a big imbalance between the old and the new information, which impedes communication, the writer must idealise his/her reader and establish in his/her mind what kind of knowledge they both share, what the reader will need to understand his/her point and what is not really evident.

Let us take a text in order to exemplify what it has been pointed out.

Example1:

New Whoof in Whorf[2]

An old language theory regains its authority

(1)Linguistic relativity - the idea that the language one speaks shapes the world one sees - was framed in the 1940s, embraced in the 1950s and seemingly discredited by rigorous tests in the late 1960s. (2)Yet some researchers say it is worth another look, arguing that although the particularities of language may not control the mind, they may influence it in subtle ways.

(3)Linguistic relativity is better known as the Whorf Hypothesis, after Benjamin Lee Whorf, an insurance man and part-time linguist who popularised it (4) "We cut nature up, organise it into concepts, and ascribe significance as we do, largely

[2]The text above was published in **Scientific American**, a journal whose purpose is to popularise scientific knowledge and whose readers have a wide range of interests.

because we are parties to an agreement to organise it in this way" he wrote. (5) "All observers are not led by the same physical evidence to the same picture of the universe, unless their linguistic backgrounds are similar, or can in some way be calibrated."

(6)Whorf's idea was eagerly adopted by cultural anthropologists intent on explaining individuals as the products of culture and culture as autonomous of biology. (7) Most linguists, however, regarded the hypothesis as speculative and preferred theories that emphasised matters common to all languages. (8)The universalists seemed to win the day in 1969, when Brent Berlin and Paul Kay of the University of California at Berkeley disproved that colour perceptions varied among cultures. (9)They found that all languages added colour terms according to a strict pattern. (10) After some refinement, they now say languages having two terms group red, yellow and white under one and green, blue and black under the other. (11)Those having three group red and yellow together, as opposed to white. (12)Languages add subsequent terms through successive divisions of the remaining categories.

(13)Ridicule was added to such refutations when the most widely repeated Whorfian anecdote was debunked. (14)Whorf had asserted that Eskimos use many distinct words in place of the one English word "snow". (15)He concluded that an Eskimo and an Anglo would perceive the same snowdrift differently because they pigeonhole the concept into different lexical grids. (16) But Laura E. Martin, an anthropologist at Cleveland State University, traced the story to its sources and found that Whorf had exaggerated the number of Eskimo snow roots while understating the number in English: slush, powder, blizzard and so forth.

(17)Mistakes were made, admits John J. Gumperz, a linguist anthropologist at Berkeley. (18)But Whorf had his finger on part of the truth, he maintains, and workers are now revising relativist ideas in the light of acknowledge language universals.

(19)Gumperz, who helped to organise a conference on the subject last summer, says linguists are particularly interested in indexicality - cultural conventions on how meanings of words vary with circumstance of use. (20)"We" in English, for example, means one thing in the sentence, "We get our alphabet from the Phoenicians," and another in Queen Victoria's famous statement, "We are not amused".

(21)Another area of investigation concerns uses of language that are not centred in an individual -deliberations of information that no one person possesses at any one time. (22) Such out-of-body thinking, as it were, can be seen in the rhyming mnemonic devices of oral cultures and in writing which enables one to conduct an elaborate discourse with oneself. (23) Habits inculcated by reading and writing often leave marks on utterances -for example, by inducing a person to talk like a book.

(24) But is there nothing more striking than this to put beside the flights of fancy of the early Whorfians? (25) Stephen C. Levinson of the Max Planck research group for cognitive anthropology told the conference of collective work suggesting that spatial conceptualisation is not universal. (26)Certain Australian languages, for example, are devoid of relative terms for space -"in front of" or "beside"- but instead refer to an absolute frame of reference -"north of," "south of". (27)This system has sweeping implications because it requires speakers wishing to report a scene to memorise it with its cardinal direction.

(28)Spatial distinctions of particular languages are mastered very early in life, says Melissa Bowerman, also of the Max Planck group. (29) She cites studies of Korean children as young as 18 months who understand exotic distinctions that their language make. (30) For example, they distinguish between "on tightly" and "on loosely", as in "He put the lid (tightly) on the jar, which is (loosely) on the table." (31) Developmental psychology has assumed, since the classic experiment of the Swiss psychologist Jean

Piaget, that children develop concepts of space first and then apply language to them. (32) But if, as Bowerman believes, the order is sometimes reversed, then intellectual development may itself be conditioned by culture. (33) "I think Bowerman's results are very impressive," Kay says.

(34)But he cautions against exaggerating the contrast between languages. (35) Languages that make unique distinctions, he says, usually make the more familiar ones as well. (36)Western languages, for example, have been characterised as representing time in linear terms, in contrast to the cyclical terms of many non-Western languages. (37) "But Western languages have days of the week, months of the year, the seasons, which are cyclical schemata," he says, just as non-Western languages have linear schemata. (38)"Whorfians," Kay points out, "have sometimes tended not to look at the diversity that exists within each language.

Phillip E. Ross

The text transcribed above, although about linguistics, is not addressed specifically to linguists. Having in mind that the text will be read by non specialists, the writer defines several concepts, as for example:

> Linguistic relativity - *the idea that the language one speaks shapes the world one sees....*
>
> Linguistic relativity is better known as the Whorf hypothesis after Benjamin Lee Whorf, *an insurance man and part-time linguist who popularised it.*
>
> Gumperz, who helped to organise a conference on the subject last summer, says linguists are particularly interested in indexicality -*cultural conventions on how the meanings of words vary with circumstance of use.*

Such a procedure is common in newspapers and general interest magazines, allowing their readers to build up the necessary lexical relations to understand the text they are reading.

Another feature which demonstrates that he is writing for non specialists, is the identification of people who provide specific information:

> Brent Berlin and Paul Kay *of the University of California at Berkeley.*
>
> Laura E. Martin, *an anthropologist at Cleveland State University.*
>
> John J. Gumperz, *a linguist anthropologist at Berkeley.*
>
> Stephen C. Levinson *of the Max Planck research group for cognitive work.*
>
> Melissa Bowerman *of the Max Placnk group.*
>
> *The Swiss psychologist* Jean Piaget...

The identification of the institution where the sources come from is unnecessary in an academic paper addressed to people in the area, as it is supposed that the readers of the publication know about those people and recognise their importance in the field. In the case of this article, the author uses the origin of the sources as a way to give weight to his argumentation. His sources, if not known to the readers, come from very reputable places, Berkeley, Max Planck...

Information of the type depicted above would be redundant directed to a readership of specialists. Consider the text below.

Example 2:

Language Determines Thought

Although the classical doctrine (thought determines language) held sway for a very long time, the opposite opinion has had a good deal of influence during this century. Many theorists were impressed both by the tremendous diversity of languages that are found around the world and by the diversity of the cultures in which these languages are spoken. In an attempt to account for the cultural diversity, some theorists claimed that the cultural patterns grew out of or depended upon the linguistic patterns. According to this view, people have great flexibility in how they

organise their experience, and language has an important impact on how experience is interpreted.

The individual who did the most to popularise the "Language-Determines-Thought" position was Benjamin Lee Whorf (1897-1941). Whorf is an interesting figure in that he was trained as a chemical engineer and spent his life working as a fire prevention engineer for the Hartford Fire Insurance Co. He was a successful businessman who also devoted himself to the study of American Indian languages and culture. His life was described by Carroll in the volume of Whorf's papers that Carroll collected (Whorf, 1956).

According to Whorf, the child's cognitive system is very plastic; that is, the system is susceptible of being organised in many different ways. The primary determinant of how it is organised is the structure of the language that the child acquires. Since, according to Whorf, linguistic structures are highly dissimilar in different languages, the resulting cognitive systems are also dissimilar. Thus, Whorf's views have two parts. The first claim is usually called the hypothesis of *linguistic determinism*. It says that linguistic structure determines cognitive structure. The second claim is called the hypothesis of *linguistic relativity*. It says that the resulting cognitive systems are highly different in speakers of different languages.

Whorf argued that, "We cut nature up... as we do largely because we are partners in an agreement to organise it in this way -an agreement ... that is codified in the patterns of our language" (1956, p.213). This statement does not imply that the speakers of a language are aware of the "agreement" to organise the world in some particular way. Rather, the language imposes the organisation upon each new speaker of the language. Hence, this is a theory of cognitive development. For example, Whorf noted that some languages have separate words for different types of snow. A child who grows up speaking such a language will develop more cognitive categories for snow than will an English-speaking child. When the former child looks out at a snowy environment he will, in some sense, see it differently from a child who has but one word *snow*.

.....(p.382-383).....

Thought Determines Language: Colour Again

Much of the research involving colour terms assumed that languages were free to divide up the colour spectrum in any way their speakers chose. Thus, a boundary between colour names could be put right in the middle of the colour that English speakers would call a good blue. On the

side toward green the blue would be called one thing, and on the side toward purple the good blue would be called something else. It turns out, however, that this assumption is not correct.

Probably the best evidence about the way in which speakers of different languages divide the colour spectrum was provided by Berlin and Kay (1969). These investigators used an array of 329 colours which they presented to speakers of 20 diverse languages. Berlin and Kay first tried to ascertain the basic colour terms in each language. For Berlin and Kay, the basic colour terms could not be compounds such as *blue-green*; basic terms stand alone. Also the authors were cautious about saying that a word which names an object (e.g., *lime*) is a basic colour term. After they had the basic colour terms for a language, Berlin and Kay then placed a piece of clear acetate over the 329 colours and asked the informant to draw lines around or to 'map' the colours that are named by each term. The informants were also asked to mark with an 'X' the best or most typical example of each colour in their basic colour vocabulary. This colour is also referred to as the *focal colour*.

.....(p.389).....

The second example is a portion of a chapter published in **Introduction to Psycholinguistics** by Foss and Hakes (1978). The chosen portion deals with the same topic as the previous example but, contrastingly, is written for academic purposes and directed to people in the area. Whereas in the previous text a quotation by Whorf is introduced without its source, in this text the same quotation is precisely referenced so that the reader can go to the original source and check if necessary.

> "We cut nature up, organise it into concepts, and ascribe significance as we do, largely because we are parties to an agreement to organise it in this way" he wrote. "All observers are not led by the same physical evidence to the same picture of the universe, unless their linguistic backgrounds are similar, or can in some way be calibrated."

(Example 1)

> Whorf argued that, "We cut nature up... as we do largely because we are partners in an agreement to organise it in this way -an agreement ... that is codified in the patterns of our language" (1956, p.213).
>
> (Example 2)

In the first example, Berlin and Kay are introduced as: **The universalists Brent Berlin and Paul Kay of the University of California at Berkeley**. In the second example, just a reference is sufficient: **Probably the best evidence about the way in which speakers of different languages divide the colour spectrum was provided by Berlin and Kay (1969)**.

Though the readers of the **Introduction to Psycholinguistics** book may be interested where the sources come from, what is most important is the nature of their argumentation rather than the prestige of their institution.

The role of context in the production and reception of text

At this point the introduction of another element in the communication chain becomes crucial. So far the writer, the reader and the text have been seen as the elements in the chain, presupposing that writer/reader share a code to communicate through the text. What we have is, in fact, the basic scheme of communication originally presented by Shannon (1948), designed to convey mechanical communication systems, which proved insufficient for the complexity exhibited by verbal communication. Communicative and cognitive psycholinguistics (Prucha, personal communication) has proved that we need to consider **context** in order to explain accommodations that have to be made by both participants in the chain.

Definition of context

In the area of language comprehension **context** has been constantly used to explain how people come to understand utterances which can be ambiguous "out of context". The first important contribution to the study of context comes from Coseriu (1962:315). For Coseriu context is "all the reality which surrounds a sign, a verbal act or a discourse."[3] According to him we can distinguish three types of context: the linguistic context, the verbal context and the non-verbal context. The linguistic context is the language itself. The verbal context is discourse which surrounds itself. The non-verbal context is all the nonlinguistic circumstances which can affect speech, and writing such as the physical, empirical, natural, practical, historical and cultural aspects.

Context, as has been pointed out by Coseriu, has a very broad meaning which cannot be limited to the linguistic information. It can have a social and/or interpersonal character as Lavandera (1988:9) points out. Clark and Carlson (1990: 314) expand their standard definition by stating that context is "parts of discourse that surround a word or passage and can throw light upon its meaning", taking into consideration six features:

a. information
b. person relativity
c. process relativity
d. occasion relativity
e. availability
f. interactability.

---

[3]My translation.

Taking these features into account, they define context as "the information that is available to a particular person for interaction with a particular process on a particular occasion" (p:318).

The creation of an idealised reader implies establishing, on the part of the writer, the context in which the reader is inserted. Considerations of the following sort will be necessary: the people who are being addressed, the purpose intended for the text, the background knowledge the readers should have for that particular text and the occasion for the text. The interplay of all these elements is important order to avoid inappropriate discourse.

By the same token, considering that reading is a communicative activity and therefore ruled by conventions accepted by the participants interacting in this activity, the reader should try to imagine the intentions and the characterisation made by the writer. If we return to example 1 above, specialists in the area of linguistics cannot criticise the article as redundant, but have to recognise the intention of the publication, which is not academic but informative directed to the general cultured public about a conference which has taken place.

This matching of intentions is sometimes not achieved even in personal letters where the addressee is known. Parents may have the intention to express love and care for a child far away when they inquire about what he/she has been doing. The child, on the other hand, may read the letter as the parents' way of exerting control on his/her activities.

Discourse and conventions

The acceptance of conventions allows us to use the discourse of a particular group, that is, a language which reflects the linguistic knowledge shared by the members of the group. When we write an article for a specialised journal geared to elementary teachers, the word *student* implies those who attend up to the eighth grade. If we want to talk about other students, it is necessary to qualify them. On the other hand, if the journal is for specialists in foreign language teaching the word *students* refers to foreign language learners. In an experimental article, the word *subject* is a participant in an experiment, a source of data and not a grammatical category of the sentence, as we can see in the example below:

Example 3

Method
Subjects
The subjects were 20 seventh- and 20 ninth-grade students attending private junior high schools in Ventura, California. Twenty college students enrolled in an introductory psychology course at the University of California. Santa Barbara, also participated.

We can easily identify the word *subject* as the source of data here because of the interplay of the information available to us readers at this particular moment: the information that we are reading an experimental article, further confirmed by the word method, brings to active memory the relevant information for further processing. It is part of the conventions for the presentation of an experimental article.

Conventions at the grammatical level

Conventions also affect text at a grammatical level. The indefinition of the actor in a scientific work is the result of an implicit agreement within the community. *The results show* or *The numbers were obtained* are typical forms of the scientific discourse which hide the experimenter in order to enhance the phenomenon which is being described. As a result of this practice we have forms which are classified as Grammatical Metaphors (Halliday, 1985). In the example below, *mathematics,* which is the instrument for calculations, becomes the performer. Mathematics, placed in thematic position, has its properties foregrounded.

Example 4 :

Mathematics computes the loads and stresses on its metal frame, the combustion patterns of its fuel, the dynamics of the air that streams past the vehicle's skin during its brief traverse of the Earth's atmosphere.

(Does God play Dice? p.15)

The reader must understand this practice and use it if he/she wants to belong to the group.

Conventions and Genres

The reader's awareness of specific discourses for the different disciplines is important for him/her to be able to deal with the different texts. Martin (1991), examining the different types of content from the point of view of nominalisations, sees the history text as a continuation of the narrative where the cohesive relations are mainly of the type cause and effect and

occur within the sentence. Nominalisation reflects the necessary abstractions for the realisation of the events. The science text, according to the same author, is more descriptive and taxonomic, where nominalisation is used to define, describe, and classify through the relational processes.

Genres and Registers

Even though within literary studies there seems to be no confusion in the use of the word genre, within the linguistic circle the word is misused for register, style and language. This misuse probably comes from the interrelationship which exists among these terms as well as a certain overlapping of concepts. Gregory and Carrol (1978:4), for example, define register as a 'contextual category correlating groupings of linguistic features with recurrent situational features'. Miller (1984:159) defines genre as 'the typified rhetorical actions based on recurrent situations'.

An attempt to clarify the question of genre is Couture's (1985) where she establishes both the close relationship between genre and register and the differences between the two:

> While registers impose explicitness constraints at the level of vocabulary and syntax, genres impose additional explicitness constraints at the discourse level. They define conventional patterns of linguistic structure for a complete discourse, and they are intertextual --that is, they are defined by their capacity to evoke other texts. (p.82)

Whereas in the above citation the author is very straightforward in setting the limits for genres and registers, her development of the interrelationship between the two is not successful. Couture proposes a scale the writer plays with when creating a text: a scale for explicitness of expression. On one side of the scale we have the possible genres and, on

the other, the styles which reflect different registers. The combination of the two will achieve different effects of explicitness.

The implications of her assertion that the two levels are independent do not hold. Her proposal gives the misleading impression that there are no constraints in terms of the choices that can be made except on grounds of explicitness. We would think that genre, because it is goal oriented, imposes certain restrictions on the registers which are possible. Would a 'research report' written in'poetic language' be still a research report? Most certainly not. The writer's choice of a certain genre creates some expectations in the readers as to how they should process their text. The breaking of these expectations creates another dimension to the text which may not be perceived immediately by the readers, or not at all. The reading of Swift's **A Modest Proposal** by naive readers, as Nystrand (1986: 75) remarks, is a good example of the effects of the break of constraints:

> Why do naive readers not question the piece from the very start? (no one ever begins by asking, "How am I to read this?") The answer has to do with the fact that **A modest Proposal** is exposition and that one of the fundamental expectations set up by the genre is the straightforward intent of the author-- that is, as Olson (1977) puts it, essayists say what they mean and mean what they say.

Though it is true that there is an intimate relationship between the two dimensions, genre imposes certain constraints on registers, and further on the language to be used. It is also true that certain genres impose more constraints than others, as in the case of dissertations for example: the field can be fulfilled only by topics which can be subjected to academic scrutiny; the mode is always written and tenor is always the academic examining committee. Furthemore each of these items imposes restrictions on the allowable choices from the linguistic system, resulting in a specific

style. A text, then, can be viewed as a result of three different semiotic planes: genres, registers and language, with genres being realised through registers and registers in turn being realised through language (Martin, 1985).

The appropriateness of choice among the dimensions is one thing that has to be mastered by the learners of the written language. When a child comes to school he/she is usually initiated into the narrative and the personal report genres (Scliar-Cabral&Grimm-Cabral, 1987)[4]

To progress in school he/she has to master other genres with their associated registers, which sometimes creates great difficulties:

> As a child comes to appropriate and rework a genre (to 'own ' it, in Bakhtin's [1981] sense) she comes to learn not only the typical substance or formal features associated with discourse, but also --and surely more fundamentally-- the situations that typically give rise to the genre, the social action she may accomplish with it, and the social and interpretative roles she may adopt with it. Indeed, what a child learns is a new way of acting and making meaning (Himley, 1986:139).

As there is seldom formal instruction, the student has to infer the features associated with a given genre and the goals to achieve. He/she has to learn from a set of related texts what in cognitive psychology is defined as the schemata of genres and schemata of interactional styles (Rech, 1992) .

---

[4]Though most authors do not distinguish at an initial stage narratives from personal reports, we feel that it is a useful distinction. Whereas personal reports are factual, in narratives the fictional feature is predominant and it is reflected even in the information patterns with which the story is told.)In terms of development they probably evolve in opposite directions: narratives evolving into literary genres and personal reports into expository type genres.

The informative text, seen from the production point of view, is the result of efforts by the writer to express a certain purpose to a certain reader. To summarise the basic steps a writer has to go through while performing in the written chain, the following figure with the basic elements is proposed:

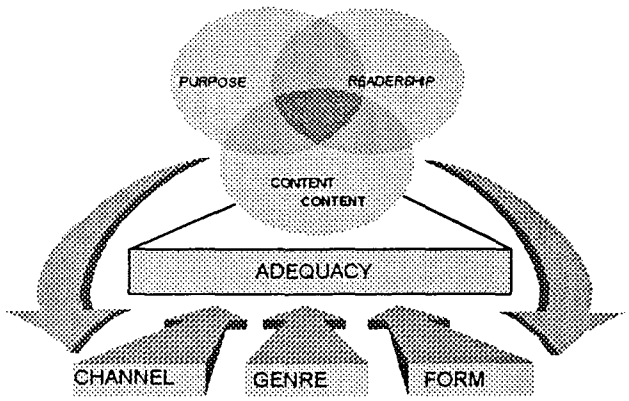


Figure 1 Writer's perspective of the writing task

The writer writes a text with a purpose in mind and at the same time the text is intended to reach a certain class of reader. The separation of the two elements, purpose and readership, is not always possible as the purpose always implies a direction and vice versa, especially in writing[5]. We should not be misled by the necessity of presenting the elements in a sequence into thinking that it implies a particular ordering. The constraints of the channel, however, impose the need for us to present one after the other. Nevertheless, the interdependence that exists between the two does not create any problems in placing one before the other.

[5]In spoken conversation there can be moments of just phatic exchanges.

In order to be effective the writer has to observe the rule system for the communicative intents, which involve such variables as social distance, relative power, degree of face threat and situational formality. The first two elements,purpose and readership, will determine the adequacy of the text in relationship to content which in its turn determines channel,genre and form. Again, these elements-- channel, content, genre and form-- cannot be viewed as independent steps but as each having influence on the other.

The writer's point of view

Let us examine each of these elements.

The writer and the channel

The channel, which is the written mode, has some general characteristics which are the linearity of presentation, discontinuity of the code, the permanence of symbols, no immediate feedback, detachment from immediate context (space and time) and paralinguistic cues, more precision and less redundancy than the oral mode, monitoring (consequently, higher use of metalinguistic abilities).

In writing to a child the use of the written channel will be different in many of these aspects as compared with a text directed to an adult. Children's texts, for example, require more illustrations to compensate for the problem of detachment and the need to create a context through the use of written language. A linguistically created context, a requirement of written language, may be too complex for a child in her first attempts in reading.

The absence of feedback or distanced communication makes different demands if we are addressing a child or an adult. It requires the prediction of what the reader already knows and what he/she will need to know in order to understand the text, predictions which are a little harder in the case of children. But many adults suffer a lack of alterity (in Piaget's sense) and are unable to imagine the future reader's point of view. This is the case when a written message is left with no point of reference to time: "I will be back in an hour." The writer of such a message does not take into account that the reader of his/her message has no means to establish the time he/she will be back unless stated otherwise. Such message in its oral form has no problems to be understood because both speaker and hearer share the same time.

The writer and the content

When talking about prediction of knowledge, I am already entering into considerations about the content adequacy. The text should be based on things the reader partially knows and at the same time present something new as was discussed at the beginning of this chapter. The writer has to plan and predict what the reader knows, and what kind of background information he/she must provide for the reader to understand his/her new point. As mentioned previously, there should be an optimal balance between the familiar and the novel information in order not to make the text too hard or lose the interest of the reader because little new is added.

Genre

The adequacy of genre is an important point to take into consideration and cannot always be made in absolute terms. There are compatibilitities between content/genre, purpose/genre, audience/genre which have to be

observed. Many new genres have recently developed with the improvement of mass media and computers, for example, electronic mail. A complete survey of this multiplicity is needed.

The form

The form of the text is the summing up, the reflection of all the decisions taken. On its surface the writer should provide all the cues necessary for the understanding of the text by the intended reader.

Considerations about the readership and the purpose of a text have a significant effect, for example, on the choices and frequency of metaphors. In expository texts, metaphors are a resource that writers have to make use of in order to help the understanding of highly abstract concepts. Despite the belief that scientific language should not contain metaphors, metaphors, both living and dead, are built into the vocabulary of text-books, not only in Economics (Henderson, 1986:111), but also in most areas of academic research. By making comparisons with, or bringing in features from concrete elements, both Nature and Society can be more easily understood than by the logical descriptions that appear in formal treaties on the subject. The choice of a metaphor, then, is crucial for the comprehension of the text. As it draws its force from elements which are usually outside the text, the writer has to be careful that the knowledge he/she is bringing to the text is shared with his/her potential reader. Children are thought to have difficulties with metaphors (Winner, 1988, apud Milosky, 1990:7). However, if we consider the example below, it is their grandparents who may not be able to understand their grandchildren's own metaphors when they bring in comparisons obtained in video game, or comic books : "Man, he zeroed his Math test!" meaning just the opposite of

what one might expect, *i.e.*, he solved *all* the problems in the test, just as he got through all the stages in a video game. There may be a claim that this is slang, but it is used in a metaphorical sense. It is motivated by the meaning it has in a game. If adults do not share the same experiences, they will not understand the children's elaborate use of language. Winner (*op.cit.*) attributes the difficulties in understanding metaphors to conceptual development comparing it to the understanding of irony, which according to her requires social cognitive development. Rather than conceptual development, conceptual appropriation could be argued for, which would explain why children and adults sometimes fail to get the meaning of metaphors. It is the case of children or adults who have not acquired the key concepts upon which the metaphor is based and therefore maynotbe able to comprehend it.

All the elements presented in the figure and described above result in a series of conventions that have to be learned by both the writer and the reader.

The reader's point of view

Let us examine the role of the reader in relation to these same elements.

The reader and the channel

When reading a text a reader has to realise the characteristics imposed by the channel which make the written communication different from oral communication. One of the things that affect the acquisition of reading competence beyond decoding seems to be the ability of the reader to deal

with a detached communication.[6] The reader has to be aware of the limitations of the channel and read beyond the sentences that are printed on the page rebuilding the necessary extralinguistic context. He/she has to read by implication, bringing in the relevant knowledge he/she already possesses so that he/she can understand and infer from the text.

The reader and the content

If the search for information depends on a reading by implication, then the reader must realise that it is not the content of the text but the information in his/her own mind together with the content of the text that will generate new knowledge. Relevant associations, questionings, are extremely important in fulfilling the communicative act. The reader should be aware that this is expected from him while reading.

The reader and the genre

The knowledge of the conventions related to the different genres will help in the task of text processing. When reading an article in a journal such as **Scientific American**, the reader will not expect to find references to all the information provided whereas when reading an academic paper he/she should expect those references in order to be able to check them eventually. The reader should know, for example, that references provide

[6]By detached communication we understand a text where the participants do not share the same time and space when they approach it. Face-to-face interaction and an abstract text are opposite examples along the cline which characterises detached text. Talking on the phone is an intermediate step. A wrong term has been used to characterise written language as "decontextualised" (Tannen, 1986). As Scliar-Cabral (personal communication) has pointed out in order to have a coherent text the writer has to build the necessary context linguistically.

different voices within the text (Harvey, 1992), and he/she should be aware of who is saying what.

It is important to observe that the non-fictional, expository text presents very specific categories. Latour (1987) and Bazerman (1988) see the scientific text, from the point of view of the sociology of scientific knowledge, as representing a web of social acts. The difficulty in understanding could be located in the perception of what exactly the text is trying to realise. Therefore, the scientific text needs to be understood as an element of the give and take within the scientific community. Myers(1990) exploits such a position by examining the thread of the publication of two scientific articles about a similar topic authored by two scientists with different positions. He/she shows the textual variations which, in fact, end up affecting the contents in the process of negotiation from the moment the articles were first submitted untill the final publication. The final text shows the result of the negotiations between the editorial boards, the referees, and the author of the text, resulting in a certain approximation in the positions of the scientists. The published text therefore is the outcome from the web of the social acts performed.

The popular technical text can also be the result of such negotiations: some of the articles are products of a team of reporters, but others are written by specialists in the area and have to comply with the philosophy and schema of the publication. The more popularised text is the product of a different type of cohesion compared to the scientific text: writers use a variety of cohesive processes, such as definitions and identifications.The writer of the popularised text tries to bring in some of the knowledge he/she thinks his/her reader might not have. Then, considering the text

cohesive, the reader may infer new lexical knowledge. In the scientific text lexical cohesion seems to be the preferred process, and the reader must project his/her knowledge instead of obtaining it.

The reader and the form

A good command of language structure in all its levels as well as of text structure will undoubtedly help the reader through the text. Understanding a text implies the recognition of the relationships that build up the information. Winter (1986) defines the relationship among clauses as a cognitive process through which the reader interprets the meaning of a clause in relationship to the other clauses in the text. The relationship among the clauses may be through sequencing or through matching. The surface of the text provides many cues the reader will be able to use to make the inferences necessary for understanding. The surface form of the text is the only palpable thing the reader has in order to reach what the writer had intended for him. The more the reader knows about the conventions related to the use of language and to the structure of text the more he/she will be able to profit in terms of scrutinising the text to obtain what he/she needs.

Finally, to grasp the intention of the writer, the reader has to break the code. It is not a matter of just decoding the written signal, but, as shown, a web of conventions which rule the writer in his/her weaving of the text.

In this chapter the importance of context and convention in the processing of texts was described. These two aspects are particularly important in the processing of metaphors considering that they are a break of conventions and therefore require that the text supply the necessary

information so that readers can process them. The use of conventions and context is especially relevant as will be seen in the following chapter which deals with the interpersonal aspects of metaphors.

Chapter 2

Interpersonal metaphors

In this chapter some of the interpersonal characteristics of metaphors in text will be examined. Two main aspects will be pursued: the constraints on interpretation offered by the text and the directionality of the transfer of features from vehicle to topic or topic to vehicle.

As has been previously noted, interpersonal metaphors are those which create a certain complicity between the writer and the reader. The writer breaks the conventions imposed by the system in order to create a new meaning. This break is not announced, but the writer hopes the reader will derive his/her intended meaning rather than the literal meaning conveyed by the sentence. In the process of constructing a metaphor the writer defies his/her audience by implying: "I know something of X which is related to Y and it is relevant to what I want to say. I hope you are smart enough to get it! There may be clues in my text."

Through the analysis of the metaphors in the text, it will be shown how the interpretation of metaphor is constructed: what kind of text structure and knowledge of the genre provide the constraints for an understanding of interpersonal metaphors.

The text

The text used as example in this chapter is a section of a book published in the Penguin Series of Mathematics by Ian STEWART, **Does God Play Dice**? It is a very basic book on Chaos theory and its form falls between a scientific compendium and a popularised introduction to the subject. Though it is directed to the uninitiated, the author assumes his readership to be an educated layperson.

The section chosen to be analysed is the author's introduction to the concept of chaos which will be the focus for the rest of the book. This section is all written in the present tense placing the reader in a scenario which will be the reason for the introduction of the new concept. By using the present tense instead of telling what has happened in the past he describes a scene as if he and the reader are part of it, placing it in the same temporal plane as the scientific information he uses to proceed. There is involvement (Tannen,1989) of the reader in the scene as a participant: initially as a mere observer and, later, as evaluator.

This text is particularly suitable for the analysis of metaphor because, although it presents quite a number of metaphors, it still reads nicely. Some informative texts where metaphors are numerous become opaque or ambiguous, as it will be demonstrated in the last chapter, but this is not the case here. The metaphors used fit within the ideational framework intended by the writer.

Voyage to Hyperion
(1.1) We time-shift back a decade, to 5 September 1977. (1.2) A gigantic Titan III-E/Centaur rocket waits in readiness on the pad at

Launch Complex 41, Air Force Eastern Test Range, Kennedy Space Center, Cape Canaveral, Florida. (1.3) In its topmost stage, dwarfed by the giant but the reason for its existence, is a tiny triumph of engineering, the *Voyager 1* spacecraft.

(2.4) The countdown reaches its final seconds. (2.5) Twin solid-fuel boosters filled with aluminium powder and ammonium perchlorate, ignite with a roar that can be heard fifteen kilometres away. (2.6) The rocket, tall as a fifteen-storey building and weighing 700 tonnes, drags itself skyward from the bottom of Earth's deep gravity well. (2.7) At first its motion is painfully slow, and it burns a substantial proportion of its fuel in the first hundred metres. (2.8) Yet within ten hours *Voyager* 1 is further away than the Moon, *en route* for the distant planets: Mars, Jupiter, Saturn.

(3.9) Sixteen days earlier a sister craft, *Voyager 2*, has already made its departure: the launch of *Voyager 1* has been delayed by technical faults. (3.10) In compensation, *Voyager 1* follows a faster trajectory, so that by the time it nears Jupiter it is four months ahead of its sister craft. (3.11) *Voyager 1*'s mission will terminate after its close encounter with Saturn; but *Voyager 2* will have the option -duly exercised- of continuing to Uranus and Neptune. (3.12) Only Pluto will evade scrutiny, for Pluto is in the wrong part of its orbit and the "Grand Tour" cannot reach it.

(4.13) The journey of the *Voyagers* is a miracle of engineering. (4.14) It is also a miracle of mathematics, here playing its role as the servant of technology. (4.15) Mathematics *governs* the design of the probe and of its launch-vehicle. (4.16) Mathematics *computes* the loads and stresses on its metal frame, the combustion patterns of its fuel, the dynamics of the air that streams past the vehicle's skin during its brief traverse of the Earth's atmosphere. (4.17) Mathematics *governs* the electronic impulses that course through the computers as they anxiously watch every tiny step in the spacecraft's progress. (4.18) Mathematics even *decides* the coding of the radio messages by which the earthbound controllers communicate their instructions to the probe, which in the fullness of time will transmit back to Earth breathtaking images of our Solar System.

(5.19) But, above all, mathematics *governs* the stately celestial dance of the planets, their moons, the paths of the *Voyager*s as they make their heavenly rendezvous. (5.20) A single, simple law -Newton's law of gravitation. (5.21) No need for Einstein's improvements - at the comparatively slow speeds that prevail in the Solar Systems, Newton suffices.
(6.22) Were the Solar System inhabited by Sun and Earth alone, Newton's law would predict that they move in ellipses about their

mutual centre of gravity -a point buried deep within the Sun, because the star is so much more massive than the planet. (6.23) Effectively the Earth should move in an ellipse with the Sun stationary at one focus. (6.24) But the Earth is not alone in the Solar System -why else dispatch the *Voyager* craft? (6.25) Each planet travels along its own ellipse- or would, were it not for the others. (6.26) These perturb it away from its ideal orbit, speeding it up or slowing it down. (6.27) The cosmic dance is intricate and elaborate: sarabande to a score by Newton, *Largo con gravitá.*

(7.28) The law prescribes each step of the dance, completely, exactly. (7.29) The calculations are not easy, but they can be performed with persistence and a fast computer, to an accuracy enough for *Voyager's* purpose. (7.30) Using Newton's mathematical laws, astronomers have predicted the motion of the Solar System over 200 million years into the future: a few years is a child's play in comparison.

(8.31) Past Jupiter, a banded, swirling enigma. (8.32) On to Saturn, a planet dominated by rings. (8.33) But Saturn has other features of interest, notably its moons. (8.34) From earthbound observations, the planet was known to have at least ten satellites: *Voyager* raised the total to fifteen.

(9.35) One moon, Hyperion, is unusual. (9.36) It is irregular in shape, a celestial potato. (9.37) Its orbit is precise and regular; but its attitude in orbit is not. (9.38) Hyperion is tumbling. (9.39) Not just end over end, but in a complex and irregular pattern. (9.40) Nothing in this pattern defies Newton's laws: the tumbling of Hyperion obeys the laws of gravitation and dynamics.

(10.41) It is time for a hypothetical exercise. (10.42) Suppose that *Voyager 1* had been able to measure the tumbling of Hyperion to an accuracy of ten decimal places. (10.43) It didn't, but let's be generous. (10.44) Suppose, on this basis, that earthbound scientists were to make the best possible prediction of Hyperion's future motion, predetermined according to Newton's law. (10.45) Then only a few months later, when *Voyager 2* passed by Hyperion, they could compare their predictions with actuality. (10.46) And they would expect to find...

...that the prediction was totally wrong.

(11.47) A failure of prediction?

(12.48) Not exactly.(13.49) A failure of Newton's law? (14.50) No. (14.51) The prediction is expected to be wrong *because* of Newton's law.

(15.52) Indeterminacy? (15.53) Random outside effects, such as gas clouds, magnetic fields, the solar wind?

(16.54)No.
(17.55) Something much more remarkable. (17.56) An inherent feature of mathematical equations in dynamics. (17.57) The ability of even simple equations to generate motion so complex, so sensitive to measurement, that it appears random. (17.58) Appropriately, it's called *chaos*.

The quoted section exhibits an interesting pattern: except for the inclusion of writer and reader as participants in the text, the human element is excluded. The focus is on science and technology assuming an active role in the description of the universe rather than as a product of human endeavours. This characteristic of the text produces a number of metaphors. Most of them are interpersonal, in the sense that they are not announced by the writer as such, nor restricted by metalinguistic definitions as experiential metaphors.

They are interactional because the writer wants the readers to recognise a different intention to the sentence meaning. The recognition of the effect that the writer intends (Grice, 1971) is one of the important features of meaning:

> *A* must intend to induce by *x* a belief in an audience, and he must also intend his utterance to be recognised as so intended. But these intentions are not independent, the recognition is intended by *A* to play its part in inducing the belief, and if it does not do so something will have gone wrong with the fulfilment of *A*'s intentions. Moreover, *A*'s intending that the recognition should play this part implies, I think, that he assumes that there is some chance that it will in fact play this part, that he does not regard it was a foregone conclusion that the belief will be induced in the audience whether or not the intention behind the utterance is recognised.(*op.cit.*:57)

By the same token the recognition of the intention plays its role in the comprehension of interpersonal metaphors. As pointed out, in the case of

ideational metaphors this intention is stated in forms which can vary from very explicit to quite subtle indications. The constraints on interpretation as well as its openness are found in the text and in the context produced by writers and readers.

Initially, the focus will be on the first two paragraphs of the section quoted, where a number of metaphors which could be characterised as personifications or animations since they take a verb with a [+ animate] subject can be found:

- rocket waits in readiness;
- dwarfed by the giant but the reason for its existence, is a tiny triumph of engineering, the *Voyager 1* spacecraft;
- Twin solid-fuel boosters filled with aluminium powder and ammonium perchlorate, ignite with a roar;
- *Voyager 2* will have the option --duly exercised-- of continuing to Uranus and Neptune;

By looking at the metaphors, the reader brings up the question about the movement of the features: what modifies what? Have the objects which are acting as actors, agents, sensors, behavers, been personified as first suggested or have the processes lost their human constraint feature? This problem was already pointed out by McIntosh (1966:198) when he talked about collocational oddity:

> If, contrary to normal practice, two words x and y are collocated, there is a common tendency to assume that the resultant phrase exemplifies a rare use of *x* only or of *y* only, i.e. that the oddity belongs somehow to one of the forms and not to both. It is true that there are often good reasons for looking at the matter in this way, very often everything in a whole sentence seems quite normal except one word which sticks out from all the others. When this happens, the reaction we have is based on attitudes about the expected or tolerated range of words and we can easily persuade ourselves that only one word is behaving in a curious way collocationally. But we

> must not forget that to look at the matter in this way is illusory; the collocational oddity must involve at least one other word quite intimately, and we are led astray simply by the fact that (though this is not so) the meaning of this other word does not seem to be affected to anything like the same degree. (...)
>
> **Profitable work could be done on the factors which operate to focus our attention on particular words in this way on some occasions and to produce quite different reactions on others, such as in those cases where the oddity seems to lie in the phrase as a whole, and the somewhat eccentric implied relationship, rather than anything remarkable which seems to have happened to the meaning of either word.**[1]

Levin (1979: 128-131) explores the problem in an interesting fashion, discussing directionality and construal mechanisms for metaphors, where the process of transfer and amalgamation are involved. He suggests that transfer and amalgamation should be seen together as a single process. This process may have different possibilities, but, basically, it is understood as:

The combination of X and Y form a metaphor. X and Y are different in at least one feature, otherwise they would be synonymous. Nevertheless they must share at least one feature so that they can be combined. In a metaphor X Y a set of features of Y, yn, not shared with X, is transferred to X. If X maintains all its features plus yn, it is said that the amalgamation has taken the form of FUSION. Another possibility is amalgamation by DISPLACEMENT . In this case a set of features of Y, yn, takes the place of a set of features of X, xn.

Other exchanges are possible: the number of possibilities comes from the number of elements involved. The possibility of different exchanges,

[1] our stress

however, just describes the problem rather than explain why one interpretation rather than the other possibilities would be chosen.

Together with Levin's explanation and taking into account McIntosh's suggestion that we look for 'the factors which operate to focus our attention on particular words in this way on some occasions and to produce quite different reactions on others,' metaphors should be examined within text and their context.

A textual analysis

> "The Theme is the element which serves as the point of departure of the message; it is that which the clause is concerned. The remainder of the message, the part in which the Theme is developed, is called (...) the Rheme." (Halliday, 1985:38)

According to Halliday (*op. cit.*) a clause can be divided into one or more themes and a Rheme. In some cases, the clause contains themes that manifest the three kinds of meanings: ideational, interpersonal and textual.

Ideational theme is always present in the sentence. It is the meaning that reflects the experiential world- content.

Interpersonal theme reflects the writer's interaction with the reader. It is "meaning as a form of action: the speaker or writer doing something to the listener or reader by means of language" (*op.cit.*:53).

Textual themes are the starting points which bind clauses together into a text. Textual meaning, according to Halliday, is "the relevance to the context: both the preceding (and following) text and the context of the situation" (*op.cit.*:53).

The ideational theme is always present in the sentence; in fact, in the thematic analysis the boundary of the theme has to be the ideational. If other themes are also present the order is to be textual, followed by interpersonal and ending with the ideational (obligatory).

In the figure below the sentences containing metaphors are analysed according to Halliday's framework of theme and rheme. Three columns are used to show the basic division of the sentence in theme and rheme with a narrow column in the middle to indicate the marked themes. Looking at the pattern of the theme/rheme structure it can be observed that most are unmarked, that is, they are realised by the subject of the clause. Moreover, these subjects are actors, agents, sensors, behavers, which are normally fulfilled by a [+human] element: humans exercise options rather than machines, or humans see something dwarfed when comparing it to something giant.

Theme		Rheme
A gigantic Titan III-E/ Centaur rocket		waits in readiness on the pad at the launch complex....
In its top most stage	+	dwarfed by the giant but the reason for its existence, is a tiny triumph of engineering, the Voyager1 spacecraft.
The countdown		reaches its final seconds
Twin solid fuel boosters filled with aluminium powder and ammonium perchlorate		ignite with a roar
The rocket, tall as a fifteen-storey building and weighing 700 tonnes		drags itself skyward from the bottom of Earth's deep gravity well.
At first its motion	+	is painfully slow
and it		burns a substantiate proportion of its fuel...
Yet within ten hours Voyager 1	+	is further away than the Moon...
Sixteen days earlier a sister craft Voyager 2	+	has already made its departure
the launch of Voyager 1		has been delayed by technical faults
In compensation Voyager 1	+	follows a faster trajectory....
Voyager 1's mission		will terminate...
but Voyager 2		will have the option...
Only Pluto		will evade scrutiny
for Pluto		is in the wrong part of its orbit
and "the Grand Tour"		cannot reach it

Figure 1 Theme-rheme analysis

By assuming that the writer has not chosen a personification metaphor, I am opting for a foregrounding of the role of nature, science and technology and their products. In the description of the launching of Voyager 1, with the scientist not participating, what we have is the product of his/her work. The writer eliminates the scientist both semantically and lexicogrammatically.[2] The comprehension of the text is the result of not just a reconsideration of the sentence meaning. It is implicit in Searle's account of metaphor (1979) that we evaluate the meaning of a sentence in

[2]Metaphor as described above is playing its role in both levels, resulting in what is called grammatical metaphor (Halliday, 1985; Ravelli, 1988; Martin, 1991). For Halliday and his followers, many clauses have various readings: a literal one and at least one other which is grammatically metaphoric. The metaphoric reading is that one which perceives that one of the participants, or processes, in the sentence has been made to assume a different role than what we are used to.

terms of the world as we know it. In the case of metaphors the literal meaning is incompatible with the world as we know it. I believe that there is a reconsideration of the world (Levin, 1979:131) where the events described are inserted. In this section of the book, man is not a direct participant in the world: his/her products are foregrounded while he/she remains implicit. The text, thus, reflects a research perspective which excludes the explicit interaction of the observer with the observable object. The fact that man is taken away, detached from his/her object of analysis, just as an observer, is what makes him understand better the phenomenon. It took so long in the history of man for him to begin to understand the movement of the planets because he/she was inserted in the very data he/she had to analyse. Before he/she developed the necessary instruments he/she was entirely dependent upon the immediate data given by his/her senses. Technology permitted him to advance in his/her discoveries. Thus, in the text, the participants are technology and science[3], the latter playing the "servant's role":

> (3.12)It is also a miracle of mathematics, here playing its role as the servant of technology.

If, on the other hand, we opt for the reading where the [+ animate] feature is brought to the nouns, we would get a reading that is closer to fiction, which is not the intention of the writer. Together with the text organisation, the understanding of the purpose of the text, therefore, is decisive for the interpretation of the metaphor.

Would we accept the same explanation for the dance metaphor below, extracted from the same text? Could it be a process of personification?

---

[3]Technology assumes the role of ruler in this text. In a similar vein, in the other section, we have technology metaphorised as a God.

(5.17) But, above all, mathematics *governs* the stately celestial dance of the planets, their moons, the paths of the *Voyager*s as they make their heavenly rendezvous. (5.18) A single, simple law -Newton's law of gravitation. (5.19) No need for Einstein's improvements - at the comparatively slow speeds that prevail in the Solar Systems, Newton suffices.

(6.20) Were the Solar System inhabited by Sun and Earth alone, Newton's law would predict that they move in ellipses about their mutual centre of gravity -a point buried deep within the Sun, because the star is so much more massive than the planet. (6.21) Effectively the Earth should move in an ellipse with the Sun stationary at one focus. (6.22) But the Earth is not alone in the Solar System -why else dispatch the *Voyager* craft? (6.23) Each planet travels along its own ellipse- or would, were it not for the others. (6.24) These perturb it away from its ideal orbit, speeding it up or slowing it down. (6.25) The cosmic dance is intricate and elaborate: sarabande to a score by Newton, *Largo con gravitá.*

(7.26) The law prescribes each step of the dance, completely, exactly. (7.27) The calculations are not easy, but they can be performed with persistence and a fast computer, to an accuracy enough for *Voyager's* purpose. (7.28) Using Newton's mathematical laws, astronomers have predicted the motion of the Solar System over 200 million years into the future: a few years is a child's play in comparison.

The purpose of these paragraphs in the text is to explain to an educated layman the role of mathematics in the understanding of the movement of the planets. In order to take away the arid description of a process which is assumed to be unknown to the reader, the writer chooses a comparison to something he imagines his readers will be acquainted with: **dance**. The movement of the planets is introduced as **the stately celestial dance of the planets**. It is interesting to note that this metaphor evokes Pythagoras's "celestial music", which he literally claimed to hear, and the theory of the "harmony of the spheres", based on the philosopher's study of music.

In order to answer the question proposed above, if features of dance are transferred to planets or the features of planets transferred to dance, we

cannot depart from the textual arrangement since we do not have the same textual constraints observed in the examples above. Therefore the metaphor will have to be analysed differently.

When reading the word **dance,** the definition and some of the associations which come to mind are the following:

1. it is a human movement according to a rhythm or music; (definition)
2. it exists to express emotion or ideas, to narrate a story, or simply to take delight in the movement itself; (function)
3. the dancer: solo or group;
4. the choreographer: the mind who invents the order and combination of steps, the patterns of group dances: the choreography;
   -highly stylised or simple, naturalistic;
   -harmony: the movement of one affects the other's movement;
5. the sound, if no actual sound there must be the conscious rhythm of the dancer;
6. it is intangible as it exists only while the dancer is performing it; it has a beginning and an end;
7. it needs a space to be performed; (this feature is implied in the definition of movement which is the change in spatial relations), although it is a temporal system (like music and verbal language, in opposition to holistic systems like painting) i.e. it takes place in a succession.

Let us suppose that **the movement of the planets** is X and **dance** is Y. By attributing the [+human y] feature to X, we automatically maintain all the other features of Y including the [+function y]. Unless a religious philosophical connotation is wanted for the text, the process of amalgamation and fusion should not apply. If, on the other hand, we transfer the [-human x] feature to Y and detach its [+human y] feature we are automatically detaching all features derived from [+human y] therefore achieving the interpretation of a movement which follows a certain rhythm without a function. This meaning is further constructed by other related metaphors in the text.

In this case it is the context built up in the mind of the reader that establishes the direction of the transfer of features.

How much then of the original meaning of **dance** is maintained in the above metaphor?

First of all, if we consider its definition-- movement of the body according to music or rhythm-- we observe that it fits perfectly well. All the cosmic bodies move according to a specific periodicity ("rhythm"), described by Newton's Law of gravitation which is characterised as the score for such a dance. The dancers are the various planets, the stars and the moons. There is a choreography; the dance is not free, but ordered: each planet has its own orbit which is influenced by the others. Newton's law prescribes the development of each orbit ("step"). Newton's law therefore embodies the roles of both composer and choreographer. Figure 2 below presents a summary of the features shared by the topic and the vehicle involved in the metaphor **dance of the planets**.

dance	**←properties→**	**movement of the planets**
rhythm	**←periodicity→**	rotation/translation
choreography	**←predetermination→**	Newton's gravitational law
self-determination	**←unpredictability→**	no self determination
finite	**←conservation of energy →**	infinite
spin of the ballerina	**←conservation of angular momentum→**	stable orbits

Fig. 2 Parallelism of features in dance and movement of planets

However, it is not just any **dance** which describes the movement of the planets. It is a **stately** dance, a **sarabande**. A sarabande is characterised as a dance or rhythm with intricate steps:

> The sarabande and the chaconne were brought from Central America before 1600. Both were considered outspokenly obscene in their suggestions of sexual encounters. They became extremely popular in the harbours of Andalusia where they were polished and their pantomimic literalness somewhat moderated. From there they crossed the Pyrenees and were integrated into the cannon of the French court dances." (Encyclopaedia Britannica).

Later they were adopted by classical musicians like, for instance, Bach.

Apparently some the original characteristics of the sarabande such as the sexual obscenity were not those considered for the metaphor. The features which were considered were those from the evolution of the dance in the French court when it becomes a stately dance: "a stately court dance of the 17th and 18th centuries; 2: the music for the saraban in slow triple time with accent on the second beat" (Webster's Seventh New Collegiate Dictionary).

So far features (1), (3), (4), and (5) have been verified. Feature (2) which has to do with the function of dance, does not apply unless we go into a religious philosophical discussion, as has been stated above.

As far as feature (6) is concerned, the text does not provide information, as to whether there was a beginning and there will be an end for the dance of the universe or if it is something that is not subjected to the measure of time.

Feature (7) is explicitly stated: the dance occurs around the sun.

With the exception of the [+human] feature relating to the [+function] and the [+ duration] all the others proposed for dance were observed in the

utilisation of this metaphor which shows its appropriateness to the chosen referent.

A close associate to **dance** is **music**, a metaphor which is understood but not explicitly stated, here related to mathematics, as seen in the reference to Pythagoras' theory of the celestial music. Just as mathematics "governs" the movements of the planets, **music** "governs" **dance**. The realisation of this metaphor is through a meronymy: score, and largo in: **a score by Newton, *Largo con Gravitá*.**

This particular use of metaphor is suited to demonstrate the interpersonal character of metaphors. The writer draws together a number of fields of knowledge, such as Art, Dance, Music, Choreography, Astronomy, Physics and Mathematics and, therefore, uses intertextuality. Readers who have knowledge in all these areas will have a different reading of the metaphor from those who don't. The association of the celestial dance with Pythagoras' celestial music, for example, makes the metaphor richer than perceived at first sight.

Someone who does not have a knowledge of music, or does not consult a dictionary, may not realise that with the expression Largo con Gravitá the writer is bringing in a temporal scale to the movement of planets (Largo-slow, con Gravitá-still slower). At the same time someone else may not see the association of the musical notation **con Gravitá** with Newton's gravity. A scientist may see features of the conservation of the angular momentum in the spin of the ballerina and in the stability of the orbits, or observe the contrast of the finiteness of dance and the endlessness of the movement of planets through the feature of conservation of energy. The choreographer

may find resemblances of his/her work in the effects of Newton's Gravitational Law.

The movement of the planets and dance share a number of features but, even though the writer signals some of the features by unpacking his metaphor, he does not prescribe how it should be read. The possibility of different interpretations makes evident the interpersonal characteristic of this metaphor, as in the case of the paraphrase of Pythagoras' thought and the other associations mentioned above. These examples make evident the construction of the meaning of metaphors, which rests on the information contained in the schemata and the strength of the connections. It is not sufficient to have the information stored in memory; it has to be evoked as well in order to contribute to the meaning.

As proposed above, the dance metaphor was a way to introduce a concept not known to the reader. The metaphor, however, does not compensate much for lack of knowledge in the sense that readers may make incorrect assumptions by the amalgamation of wrong features. Dance, for example, is subject to the self determination of man. Despite the fact that the steps executed by the dancers are predetermined by a choreography we cannot predict where the dancers will end up after a certain period of time: some steps may be wider, some turns shorter. In order to avoid collisions with other dancers and to enclose the dance in a certain space, dancers correct their trajectory. Self determination, connected to the human feature, however, is not part of the dance of the planets. A reader who brings in this feature may wrongly assume that planets correct their orbits to avoid collisions with other cosmic objects when, in fact, meteorites and even galaxies collide. It is in the news at this

moment, for example, that in June-July 94 a big meteorite will crash on the surface of Jupiter provoking a big explosion. This is predetermination.

Inappropriate Metaphors

Interpersonal metaphors are very expressive. By suggesting a new referent for a certain content the writer shares a view which is not constrained by the conventions of language. Conventional language is the result of approved usage. Metaphorical language may be subject to reproach. How on earth could the writer use the metaphor of dance, ballet, to describe the movement of tectonic rocks, that we find, for example, in the passage below.

> E, sem os gases e vapores que os vulcões expelem, a atmosfera não existiria, impedindo portanto o surgimento da vida. Tanto as erupções quanto os terremotos se originam no movimento das placas tectônicas -gigantescos blocos de rocha rígida que se movimentam sobre a astenosfera, a camada não rígida do manto- responsável pela deriva continental, que faz os continentes se afastarem ou se aproximarem uns dos outros.
>
> **Nesse colossal balé,** as placas podem colidir: quando isto acontece, uma delas mergulha sob a outra ou debaixo do continente. De acordo com os geólogos, há no mundo dez grandes placas e diversas outras menores, todas em constante movimento de alguns centímetros por ano.(Revista **Super Interessante**, vol.17:20)

Ballet is a kind of dance which shares the features proposed above for the definition of dance; therefore it is valid to proceed with the analysis of this other text example following the same criteria. What we observe is that choreography and rhythm, which are fundamental to a ballet, are not present in the description of this phenomenon. There is movement involving the elements but, apparently, there is not the required rhythm, nor an order and a combination of steps. It is more a naturalistic movement

which can be present in dance in general but not in a ballet. I cannot draw the connections between a ballet and the movement of the tectonic rocks as well as in the other instances where dance was used. The continuous movement of the continents which come together and separate is not enough to make the movement a ballet. A specialist may have more information which makes the metaphor more appropriate, but for this author it seems that the sumo fight is a better metaphor to express the same concept:

> A placa das Filipinas, por exemplo, sustenta parte do Pacífico e move-se contra a placa Eurasiana --alicerce de dois continentes, Ásia e Europa. É como o embate paralisante de campeões de sumô que se esforçam para deslocar um ao outro.(**Superinteressante**, Janeiro 1993: 58)

The fight presupposes a certain ritual which is associated with the human element. If those are eliminated we have a good description of the movement of the tectonic rocks: we have the heaviness of the participants, a confrontation of the two involved and a sudden appearance of a winner. Both the moment of decision and the winner are unpredictable just as the moment the two rocks collide and which one comes out on top is unpredictable.

The two cases of the dance-ballet metaphors presented above strengthen even more the argument that shared knowledge plays an important part in the comprehension of metaphor. Since the reader has to construct the meaning of the metaphor, there are cases when the superposition of the schemata of the concepts involved may not give the same result intended by the writer. The reader may sometimes perceive more or less than what the writer originally thought, which may render a metaphor inappropriate. In the first case, the celestial cosmic dance, we

have found an interesting fit to the concept referred to. In the second example, the ballet of the tectonic plates, the fit was unsatisfactory.

To be considered inappropriate is the risk of interpersonal metaphors because the reader is free to make his/her own interpretation. In the case of experiential metaphors, as will be seen in the following chapter, the writer offers a glossing which guides the reader as how the metaphor is possible. Glossing, however, does not always guarantee the fitness of a metaphor, because the reader may not always agree with the writer as in the case of example 8 in the Introduction, quoted again:

> **De um modo geral, (...) as placas são os verdadeiros arquitetos da Terra: elas criam, destroem e recriam a superfície, dando-lhe diferentes faces ao longo das eras.**

Some may argue about the destruction feature associated with architects, or the creation and recreation according to a plan which does not fit tectonic plates, and therefore not consider this a good metaphor. Others, however, among them probably the author of the metaphor himself, may not see the whole set of possibilities, or even think of other possibilities.

The questioning of the appropriateness of a metaphor is not very different from the questioning of a conventional lexical choice. We may sometimes not consider a lexical choice adequate and have to make adjustments to make it fit its text. Nevertheless we can evaluate the choice because there is a conventional agreement as to how it should be used. In the case of metaphors the evaluation cannot follow an objective parameter because its meaning is constructed during the process of reading the text. The evaluation is always subjective.

Thus, the interpersonal character of the metaphor may result in contradictory reactions. By bringing together different fields of knowledge, as in the first text discussed, such as dance, music and astronomy, mathematics and physics, the writer is exposing his feelings. He may have hoped to make evident the beauty he finds in art and in the laws of nature. But for some the same text provoked the reaction: " My God! he is just showing off!" Both readings, nonetheless, provoke a certain response -- an evaluative response-- which characterises the interpersonal reading of metaphor.

In this chapter the interpersonal aspect of metaphors was demonstrated. Through the analysis of an extended text, the role of lexical constraints on the interpretation of the metaphor was shown. Moreover it is important to reconsider the concept of context discussed in the previous chapter. Context was defined (cf. Clark & Carlson, 1990) as "information that is available to a particular person for interaction with a particular process on a particular occasion (p. 318)". The creation of an appropriate metaphor, as well as its interpretation, depends upon the availability of the information regarding a particular concept to be expressed. As has been mentioned above, the metaphor of **ballet** associated to **tectonic plates** is not considered suitable. The writer may not have had available all the implications carried within the concept of ballet or dance, or we have failed to see how the two concepts associate beyond the concept of movement. By the same token, when reading the metaphor **dance of the planets**, a reader may not have all the implications which are particularly pertinent to a text about chaos, such as **periodicity**, **predetermination**, **unpredictability**, **conservation of energy**, **conservation of angular momentum**, and which, possibly, would not be evoked by a text about art.

This definition of context describes the different readings a metaphor may have, on different occasions, with different or the same readers. It may be the reason why a writer who attributes a higher ideational function to his/her metaphor does not count only on the context derived from mutual knowledge. As will be seen in the coming chapters what characterises an ideational metaphor is its explicit glossing.

Chapter 3

Ideational Metaphors

In this chapter ideational metaphors are characterised. As has been pointed out previously, metaphors are built up in text through an interactional game which ends up with the creation of a different meaning. Unless otherwise stated, the reader is free, except for the constraints of knowledge and context, to build up the new meaning. This general rule changes when the metaphor develops its experiential function in the text. The writer, whose intention is to stress the cognitive rather than the interpersonal, indicates the ways he/she wants the metaphor to be decoded. It is not the case that the writer explicitly defines X as Y, though in some cases he/she may do so. he/she may bring up information about the topic which will provide the cue for interpretation, or about the vehicle which will focus on how he/she is approximating the two, X and Y. There are still cases when the emphasis is on how the two, topic and vehicle, relate. It is of particular interest to observe the ways writers signal what they are doing.

One of the characteristics of metaphors in general is that they are not announced nor interpreted by the writer. Readers have to infer what the writer's intention is. There is, however, a special category of metaphors which does not comply with the observation above. After introducing a metaphor, writers use part of their text to provide the grounds for

interpretation. They are considered primarily ideational because their function is not involvement; they do not imply complicity between writer and reader. These metaphors are the foundation for a central argument or for the definition of a concept for which the writer does not want to risk misleading interpretations.

The strategies to guide the reader's interpretation

The text containing ideational metaphors usually provides cues to interpretation. This is sometimes made explicit by metadiscourse, the writing that signals the presence of the author and calls attention to the speech act. Metadiscoursive signals point to glossing texts, those providing specific information about the metaphor.

Metadiscoursive strategies

Rather than supplying information about the subject of the text, metadiscourse helps readers to interpret and evaluate, among other things, the propositional content of the text (Vande Kopple, 1985). Related to metaphors, illocution markers, attitudinal markers, labels and salience are some of the strategies used to indicate how things should be interpreted. Some markers highlight what the writer intends to do or what he/she has done. Others are less evident but, nonetheless, indicate that metalinguistic information is coming. In the texts examined the following markers related to metaphors have been found.

ILLOCUTION markers are those statements which indicate the intention of the writer, by making explicit the discourse act. The most obvious way of realising them is through the use of illocutionary verbs: "What I mean

is," "Summing up". Elliptical sentences where the illocutionary verb can be recovered can also function as illocution markers as in "Metaphorically (speaking)".

ATTITUDINAL markers are those statements which indicate how the writer feels about the content of the text.: "I find this particularly interesting."

LABELLING (Francis, 1989; Hunston, 1994) is a procedure where a lexical item encapsulates a part of the text which has preceded the label or which will follow it. They are metadiscoursive because by the act of encapsulating the referred text the writer suggests to the reader how he/she should interpret it. For example: Linguistics is the study of language. "This definition ... " "This definition" is the label which encapsulates the previous sentence. Labels in this sense are drawn out of the stock of words considered metalinguistic (Winter, 1977, 1979, 1992) which require text to make them specific.

SALIENCE: A writer points out that metalinguistic information is coming by singling out a specific word by a qualifier or a possessive. If I use, for example, "His study of metaphors...", the inference should be that there is something special about this particular study and that the text will specify it.

These markers are extremely relevant to ideational metaphors in the sense that they are a cue to the reader that the meaning of the sentence is not the usual one.

Let us examine these categories, analysing three portions of texts containing metaphors. As the context is crucial, I try to provide the

metaphor surrounded by the necessary text for its understanding, although it is not always possible to present the complete text due to limitations of space.

Example 1

(1)One reason for studying language -and for me personally the most compelling reason- is that it is tempting to regard language, in the traditional phrase, as "a mirror of mind". (2)I do not mean by this simply that the concepts expressed and distinctions developed in normal language use give us insight into the pattern of thought and the world of "common sense" constructed by the human mind.	antonymic glossing
(3)More intriguing, to me at least, is the possibility that by studying language we may discover abstract principles that govern its structure and use, principles that are universal by biological necessity and not mere historical accident, that derive from mental characteristics of the species. (4)A human language is a system of remarkable complexity. (5) To come to know a human language would be an extraordinary intellectual achievement for a creature not specifically designed to accomplish this task. (6) A normal child acquires this knowledge on relatively slight exposure and without specific training. (7) He can then quite effortlessly make use of an intricate structure of specific rules guiding principles to convey his thoughts and perceptions and judgements. (8) For the conscious mind, not specially designed for the purpose, it remains a distant goal to reconstruct and comprehend what the child has done intuitively and with minimal effort.	glossing arguments
(9) Thus language is a mirror of mind in a deep and significant sense. (10) It is a product of human intelligence, created anew in each individual by operations that lie far beyond the reach of will or consciousness. (Chomsky, 1975:4)	synonymic glossing

The writer proposes the metaphor **language as a mirror of mind**, borrowed from Leibniz, in the first sentence of the example, but he does not permit the reader to draw his/her own conclusions about the

relationship between language and mind. He immediately goes on to give his reasons for the image. In this example we have both indications of how we should (synonymic glossing) and of how we should not (antonymic glossing) interpret the metaphor.

He first indicates that he is going to talk about the metaphor by an illocutionary marker: **I do not mean.** The writer makes explicit the discourse act that he is going to perform, i.e. expliciting a paraphrastic antonym, and, therefore, what is coming has a metalinguistic function as we will see later on in chapter 5. The other marker expresses the attitude of the writer towards the previous and the following content: **More interesting to me at least.** The use of the comparative makes it possible to evaluate the previous definition of the topic. First the writer dismisses a possible meaning, then he evaluates it as not so interesting for him and offers what is the object of his interest. The new meaning is his argument for the first and last glossings.

Interpersonal voice is found in this example in the use of first person in **I do not mean**, and **to me at least**, which creates a stronger tie between the author and his text.

Considering the textual organisation we notice that the metadiscoursive items are in thematic position in the sentence, thus foregrounding the interpersonal aspect which states how the text should be read. Therefore we have the metadiscoursive elements as the theme and the metalinguistic as the rheme.

Theme	Rheme
(3.2)I do not mean by this simply	that the concepts expressed and distinctions developed in normal language use give us insight into the pattern of thought and the world of "common sense" constructed by the human mind.
(3.3) More intriguing, to me at least,	is the possibility that by studying language we may discover abstract principles that govern its structure and use, principles that are universal by biological necessity and not mere historical accident, that derive from mental characteristics of the species. (....)

Fig. 1 Theme-rheme structure of metadiscoursive sentences

The theme, that which the sentence is all about (Halliday, 1985), is what the author feels about the metaphor "language is the mirror of mind" conveyed by the anaphoric "this".

In the same paragraph, nine sentences below, the writer reinforces his justification for the metaphor through another metadiscoursive sentence which is indicated by its relevance marker (Hunston, 1994):

(3.9)Thus language is a mirror of mind in a deep and significant sense.

This sentence makes reference to the preceding text, that justifies why **language is a mirror of mind**, by the use of the conjunction **thus**, a retrospective relevance marker (*op.cit.*:10). It evaluates the image retrospectively by identifying the previous arguments as **deep and**

significant sense and, at the same time, evaluates it prospectively since what follows summarises what had been said above while rendering the metalinguistic word sense lexically unique in the text.[1] Sentence (3.10) completes the meaning of (3.19):

deep and significant sense =	(3.10) It is a product of human intelligence, created anew in each individual by operations that lie far beyond the reach of will or consciousness.

Labels as metadiscourse

As has been mentioned above, labels are another form of metadiscourse associated with metaphors. This second text was particularly chosen because it exemplifies both anaphoric and cataphoric labels.

The text to be analysed below is a very intriguing title offered by Colin Norman: **The God that Limps: Science and Technologies in the Eighties**. The metaphor can be resolved traditionally by comparison. Science and Technologies in the Eighties compared to the God that limps. The expression **The God that Limps** itself is not simple; rather it reflects a paradox within the Jewish and Christian tradition as the concept of God implies perfection and a limp destroys this perfection. However, **the god that limps** refers specifically to one mythological figure -- Hephaestus for the Greek, or Vulcanus for the Romans-- the god who was in charge of fire. If this much information does not satisfy us, a little more digging into Greek mythology would permit us to infer what exactly is the relationship between Hephaestus and technology.

[1] Sense is one of the metalinguistic words (Winter, 1992) which require a completion within the text.

The writer, nevertheless, does not leave this digging to chance. The beginning and the end of the first chapter of the book indicate how the metaphor applies:

Example 2a

(1)Hephaestus, the Greek god of fire and metalworking, had a pronounced limp. (2) Entrusted with the development and maintenance of many key technologies, Hephaestus was responsible for keeping society running smoothly and perfectly. (3)Yet he was, ironically, the only imperfect member of the pantheon of classical gods. (4)This ancient irony is compounded by current attitudes towards Hephaestus's crafts. (5)Technology is the focus of much public homage, for it is often seen as the chief hope for solving the myriad problems facing society --a hope embodied in the oft-heard lament, "If they can put a man on the moon, why can't they...?" (6)Yet, at the same time, many of the ills of modern world, from pollution to the threat of nuclear Armageddon, are frequently blamed on technological developments. (7)As in Hephaestus himself, the power and versatility of technology are often marred by crippling defect.(Norman, 1984:15-16)

Example 2b

...(1)The ancient story of Hephaestus, the lame Greek god of fire and metalworking, provides many symbols for the role of science and technology in the eighties. (2) Hephaestus was one of the ugliest and most irascible of the gods and was often disliked. (3) He was twice cast from Olympus, once by his mother, Hera, who cast him out at birth because she was disgusted with his appearance, and the second time by Zeus, who was angry with him for siding with his mother in a conjugal dispute.(4) (This second fall from Olympus, according to some accounts, was responsible for his limp, for he is said to have broken his legs when he landed on the island of Lemnos.) (5)Yet, in spite of the antipathy that many of the other gods displayed toward Hephaestus, he was eagerly sought after for his technological skills. (6)Hephaestus was an architect, a smith, an armorer, a chariot-builder, and an artist. (7)He fashioned delicate works of art, furnished weapons, and provided transportation in the form of the golden shoes with which the gods moved through the air. (8)In short, he was a central and indispensable part of the workings of Olympus.(Norman, 1984: 25-26)

The first chapter of the book is used to create a symbolic image of the argument that will serve as a basis for the rest of the book. The use of this image is restricted to the title and to the first chapter, but the ideas it

carries permeate all the other chapters of the book: that society up to a certain point despises technology, that it is everywhere and we depend on it and that, consequently, it has a lot of power. The consequences of technology and the developing world, and the need for social policies to deal with these consequences are the main arguments based on the limping god metaphor.

In this passage the strategy used by the writer to point out the basis for the interpretation of the metaphor is quite subtle. The crucial sentence is (S.4) which evaluates the relationship which exists between the TOPIC Technology and the VEHICLE Hephaestus :

> (1.4)This ancient irony is compounded by current attitudes towards Hephaestus's crafts.

The intended meaning of the sentence is that Hephaestus's story should not be seen as a direct comparison with technology. To the original ancient meaning more should be added. Thus, the sentence, metadiscoursively, is both informational and attitudinal (Crismore, 1990).

If, by any chance, the reader does not consider Hephaestus's crafts and technology as equivalents and, therefore, as a type of lexical repetition, the sentence is the bridge between the GIVEN (that which is recoverable in the text) and the NEW (that which is being added to the text). It contains two LABELS (Francis, 1989) which have to be made specific by their surrounding clauses (Winter, 1992) **irony** and **attitudes**. Because of the fact that **irony** is preceded by the anaphoric **this,** we know that it refers to what has been mentioned before, the GIVEN information and also the THEME. The rest of the sentence is what the writer wants to say about **This ancient irony,** the RHEME (Halliday, 1985). Despite the fact that **attitudes**

have been identified by **towards Hephaestus's crafts**, the word has not been made specific. What is coming should be the completion of that meaning. Moreover, the opposition ancient [-new] and current [+new] creates another basis for a matching relation which we will see later in the section.

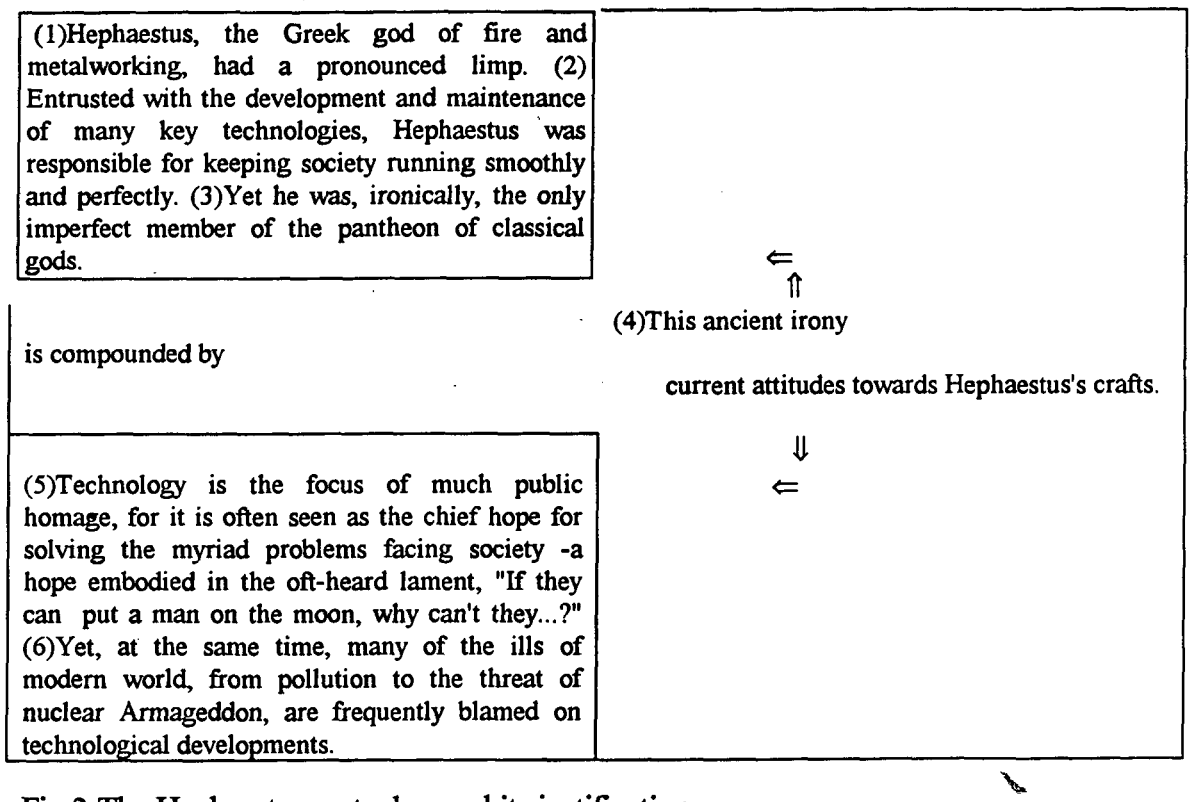


Fig.2 The Hephaestus metaphor and its justification

In Figure 2 we can visualise the contrast involved in the two labels, **irony** and **attitude**. **Irony** is an anaphoric, is preceded by deictic **this** and therefore refers to the given information, whereas **attitude** is a cataphoric, not preceded by deixis, anticipating new information to complete its meaning.

The same strategy is repeated in the second fragment of the text, where the cataphoric label **symbol** is specified in the rest of the text.

(2.1)The ancient story of Hephaestus, the lame Greek god of fire and metalworking, provides many symbols for the role of science and technology in the eighties.

Again a label provides the cue for the elements to understand the metaphor; in this case **many symbols** is an advance label (Francis, 1994; Tadros 1986), predicting that what is coming fulfils the function. What follows is an enumeration of things which fulfil the meaning of **symbols**:

many **symbols** for the role of science and technology in the eighties	⇒	(2) Hephaestus was one of the ugliest and most irascible of the gods and was often disliked. (3) He was twice cast from Olympus, once by his mother, Hera, who cast him out at birth because she was disgusted with his appearance, and the second time by Zeus, who was angry with him for siding with his mother in a conjugal dispute.(4) (This second fall from Olympus, according to some accounts, was responsible for his limp, for he is said to have broken his legs when he landed on the island of Lemnos.) (5)Yet, in spite of the antipathy that many of the other gods displayed toward Hephaestus, he was eagerly sought after for his technological skills. (6)Hephaestus was an architect, a smith, an armorer, a chariot-builder, and an artist. (7)He fashioned delicate works of art, furnished weapons, and provided transportation in the form of the golden shoes with which the gods moved through the air.(8)In short, he was a central and indispensable part of the workings of Olympus.

Fig.3 Necessary symbols to understand the metaphor

Salience as metadiscourse

Salience, as has been indicated previously, is a strategy whereby the writer singles out a concept, by qualifiers or the stressing of a word, making evident that he is not following the established convention, that there is something more to his meaning. In the text below there are good examples of salience related to ideational metaphors.

The third text will be examined in order to show the metadiscoursive marking of metaphors is an extract from the first chapter of a book by Richard Dawkins **The Blind Watchmaker.**

Example 3

The Blind Watchmaker

(1)What about our own bodies? (2)Each one of us is a machine, like an airliner only much more complicated. (3)Were we designed on a drawing board too, and were our parts assembled by a skilled engineer? (4)The answer is no. (5)It is a surprising answer, and we have known and understood it for only a century or so. (6)When Charles Darwin first explained the matter, many people either wouldn't or couldn't grasp it. (7)I myself flatly refused to believe Darwin's theory when I first heard about it as a child. (8)Almost everybody throughout history, up to the second half of the nineteenth century, has firmly believed in the opposite --the Conscious Designer theory. (9)Many people still do, perhaps because the true, Darwinian explanation of our own existence is still, remarkably, not a routine part of the curriculum of a general education. (10) It is certainly very widely understood.

(11)The watchmaker of my title is borrowed from a famous treatise by the eighteenth-century William Paley. (12) His *Natural Theology* --or *Evidences of the Existence and Attributes of the Deity Collected from the Appearances of Nature*, published in 1802, is the best-known exposition of the 'Argument from Design', always the most influential of the arguments for the existence of a God. (13) It is a book that I greatly admire, for in his own time its author succeeded in doing what I am struggling to do now. (14)He had a point to make, he passionately believed in it, and he spared no effort to ram it home clearly. (15)He had a proper reverence for the complexity of the living world, and he saw that it demands a very special kind of explanation. (16)The only thing he got wrong -admittedly quite a big thing!- was the explanation itself. (17) He gave the traditional answer to the riddle, but he articulated it more clearly and convincingly than anybody had before. (18)The true explanation is utterly different, and it had to wait one of the most revolutionary thinkers of all time, Charles Darwin. (19)Paley begins *Natural Theology* with a famous passage:

> In crossing a heath, suppose I pitched my foot against a *stone*, and were asked how the stone came to be there; I might possibly answer, that, for anything I knew to the contrary, it had lain there for ever: nor would it perhaps be very easy to show the absurdity of this answer. But suppose I had found a watch upon the ground, and it should be inquired how the *watch* happened to be in that place; I should hardly think of the answer which I had given, that for anything I knew, the watch might have always been there.

(20)Paley here appreciates the difference between natural physical objects like stones, and designed and manufactured objects like watches. (21) He goes on to expound the precision with which the cogs and springs of a watch are fashioned, and the intricacy with which they are put together. (22) If we found an object such as a watch upon a heath, even if we didn't know how it had come into existence, its own precision and intricacy of design would force us to conclude

> that the watch must have had a maker: that there must have existed, at some time, and at some place or other, an artificer or artificers, who formed it for the purpose which we find it actually to answer; who comprehended its construction, and designed its use.

(23)Nobody could reasonably dissent from this conclusion, Paley insists, yet that is just what the atheist, in effect, does when he contemplates the works of nature, for:

> every indication of contrivance, every manifestation of design, which existed in the watch, exists in the works of nature; with the difference, on the side of nature, of being greater or more, and that in a degree which exceeds all computation.

(24)Paley drives his point home with beautiful and reverent descriptions of the dissected machinery of life, beginning with the human eye, a favourite example which Charles Darwin was later to use and which will reappear throughout his book. (25)Paley compares the eye with a designed instrument such as a telescope, and concludes that 'there is precisely the same proof that the eye was made for vision, as there is that the telescope was made for assisting it'. (26)The eye must have had a designer, just as the telescope had.

(27)Paley's argument is made with passionate sincerity and is informed by the best biological scholarship of his day, but it is wrong, gloriously and utterly wrong. (28)The analogy between telescope and eye, between watch and living organism is false. (29)All appearances to the contrary, the only watchmaker in nature is the blind forces of physics, albeit deployed in a very special way. (30)A true watchmaker has foresight: he designs his cogs and springs, and plans their interconnections, with a future purpose in his mind's eye. (31)Natural selection, the blind, unconscious, automatic process which Darwin discovered, and which we now know is the explanation for the existence and apparently purposeful form of all life, has no purpose in mind. (32) It has no mind and no mind's eye. (33) It does not plan for the future. (34) It has no vision, no foresight, no sight at all. (35) If it can be said to play the role of the watchmaker in nature, it is the *blind* watchmaker.

> (36) I shall explain all this, and much else besides. (Dawkins, 1986: 4-5)

We have indicated that salience is a metadiscoursive strategy used by writers to point out that some more information may be provided. By bringing an element to the foreground the writer is indicating that we should look at it in a special way. For example, it is not usual for a writer to suddenly interrupt his/her exposition to start talking about a word in the title:

> (11) The watchmaker of my title is borrowed from a famous treatise by the eighteenth-century William Paley.

By picking out a word and characterising it, **The watchmaker of my title,** he is calling the attention of the reader to the fact that a particular word deserves special consideration. It should not be seen with its customary meaning. He is contrasting **his watchmaker**, with the conventional meaning we might attribute to watchmakers in general. The sentence, then, is an announcement that he is going to talk about the meaning and the origins of the particular meaning of **watchmaker** in the title.

The sentence is important as well because the writer is offering more important metalinguistic information about the metaphor: its intertextuality. All texts are the social results of other texts both in form and in content. In this particular case the writer discusses the influence that another text has had on his thinking and which rise to his own title, a discussion which in the beginning may seem a little inappropriate since the writer was talking about the complexity of the human body:

... What about our own bodies? Each one of us is a machine, like an airliner only much more complicated. Were we designed on a drawing board too, and were our parts assembled by a skilled engineer? The answer is no. It is a surprising answer, and we have known and understood it for only a century or so. When Charles Darwin first explained the matter, many people either wouldn't or couldn't grasp it. I myself flatly refused to believe Darwin's theory when I first heard about it as a child. Almost everybody throughout history, up to the second half of the nineteenth century, has firmly believed in the opposite -the Conscious Designer theory. Many people still do, perhaps because the true, Darwinian explanation of our own existence is still, remarkably, not a routine part of the curriculum of a general education. It is certainly very widely understood.

The watchmaker of my tile is borrowed from a famous treatise by the eighteenth-century theologian William Paley. ...

The unexpected is soon corrected the moment Dawkins reintroduces the topic of the Conscious Designer theory. Nevertheless the announcement of the intertextuality of his metaphor, together with the development of its origin, is important for the understanding of Dawkins's own metaphor.

The same strategy Dawkins uses to stage his first metaphorical meaning to **watchmaker,** he uses to reinstate the conventional meaning. By attributing **true** to **Watchmaker** the writer reintroduces the conventional meaning he needs in order to build his own metaphor.

(30)A true watchmaker has foresight: he designs his cogs and springs, and plans their interconnections, with a future purpose in his mind's eye.

Different meanings for **watchmaker:**	conventional meaning (point of departure for the reader)→	Paley's meaning →	conventional meaning within the text→	Dawkins's meaning
Strategies to call attention to variation in meaning	watchmaker	The watchmaker of my title	A true watchmaker	The blind watchmaker

Fig.4 Strategies to enhance the evolution of the metaphor

In Figure 4 there is an attempt to visualise the use of salience as a strategy. We readers start with the conventional meaning of watchmaker. In sentence 11 the writer contrasts our meaning with a special meaning derived from Paley. In sentence 30 he goes back to the conventional meaning to contrast it with his own meaning in sentence 35.

Another metadiscoursive mark is the metaphor between quotation marks. Take for example, **usina cultural** in the heading **Fundação quer 'usina cultural'** (**Folha de São Paulo**, 29 de janeiro de 1994, Ilustrada:1).

Usina Cultural refers to the Bienal exposition in 1994. This sign could be classified under the category of salience, as it is a graphic form of foregrounding a special lexical item, but it could imply as well the illocution mark just mentioned --"Metaphorically speaking". It marks not just its metaphoricity but the authorship as well: it does not belong to the writer of the article, but is quoted from someone else. Souza e Silva (1992:161), analysing the use of quotation marks from the perspective of the academic text produced by university students, sees them as a way for the writer to detach himself from the responsibility of a proposition. Quotation marks are a sign to be decoded by the receiver.

All the strategies pointed out above, are not restricted to metaphors since they can occur in non-metaphorical environments as well. Only those strategies which can be found to be related to metaphors were selected. In the introduction it has been mentioned that ideational metaphors are marked, in opposition to interpersonal metaphors, which are unmarked. I am following Bolinger (1968), who classifies as unmarked those elements which are the most usual, the expected options, in opposition to the marked elements, which are distinguished and unexpected. Metadiscoursive strategies are definitely a way to mark ideational metaphors.

Glossing strategies

Another way to mark ideational metaphors is by glossing. Whereas metadiscoursive strategies direct attention to what the writer wants to do, glossing strategies in this context are the ways writers provide specific information which will guide the interpretation of the ideational metaphor.

Lexical repetition and matching relations in the development of metaphors

Metaphors are usually built upon implicit comparisons drawn between the topic and the vehicle. This can be made evident by lexical repetitions and matching relations. According to Winter (1986), matching relations constitute one basic type of clause relation, 'characterised by a high degree of lexical repetition between the clauses, and by the semantics compatibility or incompatibility' (Winter, *op.cit.*:92).

In order to illustrate the importance of matching relations in the development of metaphors let us go back to text examples 2 and 3, quoted in the first part in this chapter.

Matching relations and the Hephaestus-technology metaphor

As has been represented in Figure 2, the passage from **The God that Limps** (example 2) can be divided into three distinct parts. The first block is conceptual: it refers to Hephaestus; the last block is also conceptual: it refers to technology. The middle block is metadiscoursive: it makes the connection between the first and the last, indicating how they match. The understanding of the metaphor as a whole is not provided just conceptually but textually as well, through the use of lexical repetitions which result in parallel structures and thus enhance the similarity between the two concepts. Coulthard (1992:41) points out how the textualisation of matching relations can be a clue to the reader of a detective story by Borges. I would like to point out that in the case of metaphors, and in this one in particular, matching relations is an important source for establishing the similarities between the topic and the vehicle. In this text the writer does not explicitly connect topic and vehicle by saying X is Y (technology is Hephaestus). Either we know it from past associations (exophoric reference), or we infer it through a cognitive process which permits us to understand the relationship between sentences which co-occur in a given context (Winter, 1977, 1986).

Once the matching is established, the appropriateness of the metaphor becomes evident. The parallelism obtained is not literal, as shown by Coulthard (*op.cit.*), but the result of the application of coherence-making processes such as lexical and discoursal expansions and syntactic equivalences (Hoey, 1991).

We have in this example what Winter (1977:30) calls comparative affirmation, where what is true of X, in this case Hephaestus, is also true of Y, technology.

	Hephaestus	**technology**	**both**
power	the Greek god of fire and metalworking	the focus of much public homage	subject of adoration and respect
versatility	-entrusted with the development and maintenance of many key technologies; -responsible for keeping society running smoothly and perfectly	the chief hope for solving the myriad problems facing society	society counts on them
	yet		
imperfection	he was, ironically, the only imperfect member of the pantheon of classical gods.	many of the ills of modern world, from pollution to the threat of nuclear Armageddon, are frequently blamed on technological developments. crippling defects	they are despised

fig.5 Parallelism between the topic and the vehicle in the Hephaestus-technology metaphor

In this figure we have in the first column the features which are a constant for both Hephaestus and technology. The focus, as has been mentioned above, is on their similarity.

Another interesting parallelism is observed between the content and the structure of the text. If we go back again to Figure 2, we will notice that the Given information, that which is recovered from the text, the old, is associated with **ancient irony** and comes first in the text. The New information, that which is being added to the text, is associated to **current attitudes** and comes later in the text. Symmetries such as this are common-place in poetry, but are not expected in the informative text. The perception of the matching relations will certainly help the reading of texts in general and the interpretation of metaphors in particular.

The metaphor in **The God that Limps** is based on a comparison between the topic and the vehicle. Its textual development shows the comparative aspect of matching relations. Metaphors are also developed in terms of contrasts. As in the case of the metaphors in **The Blind Watchmaker.**

The metaphor Dawkins deals with is quite complex, despite the fact that he offers all the material for understanding it and should be dealt with at various levels.

What Dawkins does is to borrow the vehicle of an old metaphor which had a suitable topic for its philosophical context to lend it to another topic which is in accordance with current biological discoveries. Sentence (4.11) gives us the source of the metaphor, a metaphor created by Paley where the watchmaker is the creator of living things (sentence 4. 22). From sentence (4.11) to sentence (4.22) we have a positive evaluation of and a reasoning for Paley's image. From sentence (4.23 to 4.28) we have the negation of the metaphor. Sentence (4.29) provides the reasoning for Dawkin's point of view which will culminate with the presentation of his version of the metaphor in sentence (4. 35). Figure 6 summarises the evolution of the metaphor.

				pre-Darwin
		foresight		
	Watchmaker		⇒	Creator
		purpose		⇓
				⇓
origin of living organisms				⇓
		no foresight		⇓
	Blind Watchmaker		⇒	Natural selection
		no purpose		
				post-Darwin

Figure 6. Evolution of The watchmaker metaphor

He denies the old metaphor and builds his own by using a number of matching relations. The matching relations, however, are not between Paley's metaphor and his own. They are between the literal reading and his own. In order to have things very clear the shift from the metaphorical to the real is made explicit with the qualifier **true** for **watchmaker**.

> (20)A true watchmaker has foresight: he designs his cogs and springs, and plans their interconnections, with a future purpose in his mind's eye.

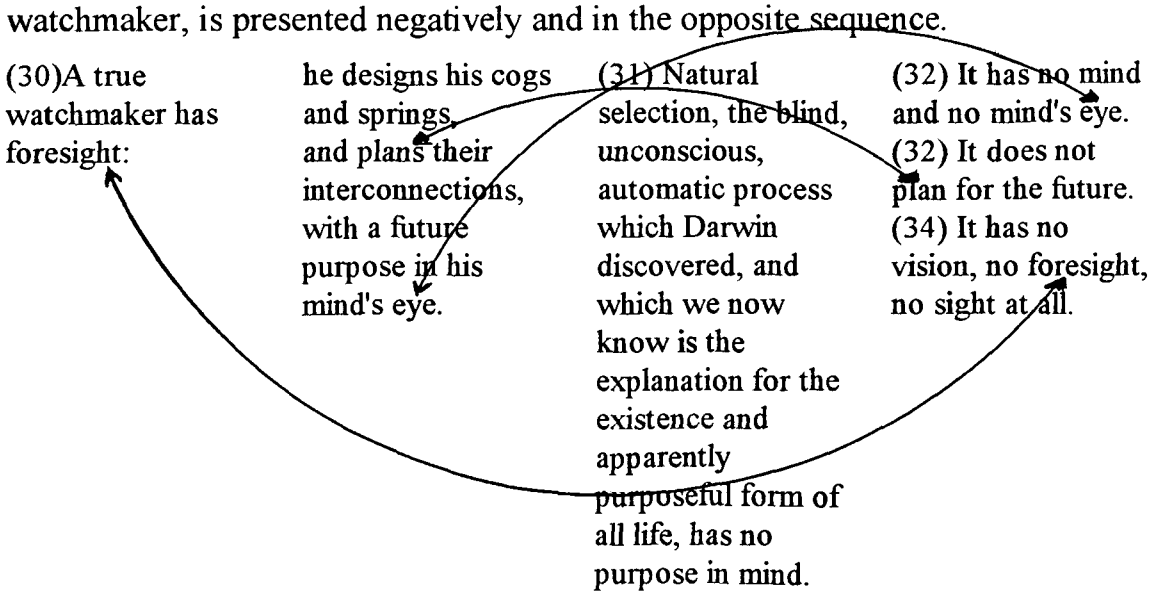
In other words, there would be no reason for him to mention a **true watchmaker** if he were talking about one all along.

true watchmaker	**natural selection**
(creative processes) designs his cogs and springs	unconscious automatic processes
plans their interconnections with future purpose	no purpose does not plan for the future
foresight	no foresight
mind's eye	no mind and no mind's eye
	no vision
	no sight at all
	blind

Fig. 7 Parallelism between a real watchmaker and natural selection

The figure presented above is able to show how the two meanings, the conventional and the metaphorical, compare negatively. It is the case of comparative denial, where what is true of X (the true watchmaker) is not true of Y (natural selection). (Winter, 1977:30).

Just as in **The God that Limps** a symmetry between the structure and the content was observed, there is also a structural parallelism in **The Blind Watchmaker**. If we put the two sentences side by side, we notice that what is presented positively in the conventional meaning of watchmaker, is presented negatively and in the opposite sequence.



Despite the fact that the metaphor **Blind Watchmaker-Natural Selection** is constructed via the conventional meaning of watchmaker, by the fact that he has mentioned Paley's metaphor, his own metaphor became richer because it carries all the associations of the previous one. It also calls attention to the paradigm revolution caused by Darwin's theory against a prevalent cosmovision (until the 18th century), which asserted that God was the perfect creator of man. A good reading of **the blind watchmaker** could have reached the same interpretation that Dawkins intended, as exemplified in the figure above or perhaps could have added even more, but the previous history could only be obtained by someone who had read Paley's book and could establish the intertextuality which makes it interesting. Since Dawkins's book is not directed at specialists but at a wider public, he probably considered it necessary to include such information.

Dawkins initially takes twenty-five sentences to define his metaphor, and promises more (S.4.36), because this is a central argument to his book. It carries his concept about the origin of man in the universe. In the same portion of text we find other metaphors which receive a different treatment, that is, they are not defined at length because their function is less ideational and more interactional. For example, since he is not basing his argumentation on our understanding of **the dissected machinery of life** (S. 4.14) as the **human body**, there are no metalinguistic cues. He is assuming that the context he has built up to that point and the personal knowledge of the reader are sufficient to make it coherent. Throughout the text the lexical cues are very rich and creative. Earlier in the text he had already used the metaphor: **Each one of us is a machine, like an airliner, only much more complicated**. In (S. 4.14) he picks up the same metaphor

through a process of complex repetition (Hoey, 1991). The assignment of **human body** value to the metaphor is crucial for the coherence of the sentence as Dawkins proceeds talking about **the human eye**, a meronymy. Another constraint is the qualifier **dissected** which naturally collocates with **body**. The development of interpersonal metaphors will be treated specifically in the following chapter. For the moment it should be emphasised that the textual strategies for interpersonal and ideational metaphors are different.

So far several different texts have been analysed in order to show how the ideational function of the metaphor is made clear in the texts they are inserted into. The texts presented here are not isolated cases. Just to mention two other examples, in **The Egotistical Gene**, Richard Dawkins spends a couple of pages explaining the meaning of **egotistical** in the context of biology.

There are instances when the metaphor, despite its ideational characteristics, is not expanded. These are metaphors which have already been accepted by the academic community and in these cases the writers who use them usually provide their source. This opposition between metaphors which require glossing and metaphors which waive glossing, brings up again the dichotomy specific-unspecific proposed by Winter (1992), which was discussed previously on page 19. These metaphors have become specific through their acceptance by the academic community. They are "lexically unique" and therefore do not have to be made specific. Take for example the title of the introductory book about chaos theory by Peter Coveney and Roger Highfield. **The Arrow of Time** is a metaphor

which is central for the development of a whole book about time. Metalinguistically it deserves only a short paragraph:

Example 4:

> Space surrounds us, yet time is experienced bit by bit. The distinction between right and left is trivial compared with that between past and future. We can shuffle around freely in space yet by our actions we can only affect the future, not the past. We have memory, not precognition (clairvoyants apart). Materials generally seem to decay rather than to assemble spontaneously. So it seems that although space has no preferred directional characteristics, time does. It points from the past to the future, like an arrow. The evocative term 'the arrow of time' was first coined by the astrophysicist Arthur Eddington in 1927.
>
> In this book we shall investigate the role of time in present-day scientific theories, weigh the consequences and show how it is indeed possible to achieve a unified vision of time: a vision which is consistent rather than in conflict with time as we directly experience it. The arrow of time may even point towards the need for a deeper and more fundamental theoretical framework to describe nature than any currently in use. (Coveney & Highfield, 1991: 24)

The last sentence of the first quoted paragraph shows that the term has acceptance by the community of physicists, and therefore needs no further definition.

In this chapter I characterised ideational metaphors showing how the texts they are inserted in help to overcome the problems of the break of conventions. Because they can be metadiscoursively announced and because of the glossing they receive, they are marked in opposition to the interpersonal metaphors. Matching relations are the basic textual strategy for their development.

Chapter 4

Metaphors as encapsulation

In this chapter, I will analyse the role of metaphors as encapsulation, that is, when they point back to some previous item in the text. I will observe their textual function, as text organiser, and the requirements for a match between metaphors and the portion of text they refer to.

Reading Comprehension and Anaphoric Metaphors

One of the important things in reading comprehension is the way the reader integrates the information supplied by the text. Full comprehension of a text requires the reader to find in his/her long term memory the concepts mentioned in the text and to connect them to the information currently active in his/her working memory. In order to consider the two sentences below belonging to the same text we have to see **burglar** and **criminal** referring to the same individual:

> Last year **a burglar** broke into our boat and took everything. So far the police has not caught **the criminal**.

When the reader comes to the second sentence, in order to make sense he/she has to understand that **criminal** refers to the **same** in the previous sentence. Several experimental researchers have shown that there is a slowing down in the reading time when readers have to reinstate the

referents in the text. But what is also very interesting is the fact that, when an antecedent is searched for and reinstated, there are subsequent benefits regarding the recall of that particular concept (McKoon & Ratcliff, 1980, Miller & Kintsh, 1980; O'Brien, 1987, O'Brien et all, 1986; O'Brien & Myers, 1985). The reactivation of the concepts apparently strengthens the connection between the two terms, thus facilitating the search later.

A special way of reinstating information is through the use of metaphors. Metaphors are understood most of the time by exophoric reference, especially when they are decontextualized. They refer to assumed shared worlds outside the text. As such they may present a lot of difficulty for readers who do not share the same experience as the writer. Take, for example, the metaphor: **For the student of language and thought metaphor is a solar eclipse.** Despite the fact that the author expands his metaphor in the text and tells us how he wants us to interpret it, he is assuming that we, readers, know what an eclipse is. Therefore if the reader does not know what an eclipse is, it is going to be almost impossible for him to understand the metaphor. As we will see later in the chapter, the use of metaphors to reinstate information carries not just this difficulty of establishing exophoric reference pointed out above, but the difficulty of establishing anaphoric reference as well.

Cohesive elements

Metaphors have not so far been specifically treated as a cohesive element. The seminal work on cohesion by Halliday and Hasan (1976) establishes the five broad categories responsible for creating the texture in a text: conjunction, reference, substitution, ellipsis and lexical cohesion

1. Conjunction covers the use of adjunct type elements used by writers to mark the semantic relations they perceive between the sentences. For example[1],

Mas a droga que causa revolta é a mesma que anestesia.

Mas in this sentence relates to the previous text, establishing a contrast between what has been said and what will be said in this sentence.

2. Reference is not a semantic mark. It is a semantic relation occurring whenever an item indicates that the identity of what is being talked about can be recovered through the immediate context. Pronouns and determiners are examples of reference. In the example above the definite article **a** accompanying **droga**, is a referent in the sense that it indicates that "droga" has already been mentioned in the text and that we can find its identity in this same text. In this particular text, **A droga**, we will see later, is a metaphor which has already been introduced by another metaphor **A overdose.**

3. & 4. Substitution and ellipsis according to Halliday and Hasan are grammatical categories. Substitution occurs whenever one from a small class of items substitutes another lexical item. For example:

Entre os candidatos a aproveitar a onda, "Todos os Sócios do Presidente" é **um** que tem condições de sobreviver.

Ellipsis occurs when the item is understood: it is a 0 element.

Mas a droga que causa revolta é a mesma 0(droga) que anestesia.
A hora do espanto foi substituída pela 0 (hora) da espera.

---

[1]The examples were taken from the text extensively analysed later in the chapter when we deal specifically with aphoric metaphors.

5. Lexical cohesion is the fifth broad category of cohesive elements. Halliday and Hasan subdivide this category into reiteration and collocation. Reiteration is the cohesive process related to repetition and covers broadly all the possibilities through which the meaning of an item can be repeated: plain repetition, synonymy, antonymy, superordinates . For example:

> (s.6) O resultado visível é uma indignação geral, combustível para o impeachment to primeiro presidente eleito diretamente em 30 anos. (s.7) Mas a droga que causa a revolta é a mesma que anestesia.

Indignação e **revolta** could be said to be in synonymic relation as **revolta** and **anestesia** could be contextual antonyms.

The second subclass, collocation, results from the association of lexical items which co-occur regularly, with a probability above chance.

Example:

> (s.14) Como num lançamento espacial ou numa prova vital de Fórmula 1, a curiosidade está ausente. (s.15) A atenção está toda na contagem regressiva.

Contagem regressiva regularly collocates with **lançamento espacial** or **prova de Fórmula 1**. The same collocation is found in the text example quoted in chapter 2, describing the launching of a rocket.

> (1.4)The countdown reaches its final seconds. (1.5)Twin solid-fuel boosters filled with aluminium powder and ammonium perchlorate, ignite with a roar that can be heard fifteen kilometres away. (1.6)The rocket, tall as a fifteen-storey building and weighing 700 tonnes, drags itself skyward from the bottom of Earth's deep gravity well.

This last category has been subject to a lot of criticism (Hoey, 1991, Stoddard, 1991) because it is considered more of a lexical than a cohesive relation.

Hasan (1984) removes collocation from the list of cohesive elements and specifies the subcategories of lexical cohesion:

1. General
1.1. repetition
1.2. synonymy
1.3. antonymy
1.4. hyponymy
1.5. meronymy

2. Text instantial
2.1. equivalence
2.2. naming
2.3. resemblance.

Halliday & Hasan (1976) has been the classical reference for all studies in text cohesion. Most of their work concentrated on listing and classifying the cohesive elements. They give a lot of emphasis to reference, substitution, ellipsis and conjunction.

Winter's clause relations

Though not so widely cited, Winter (1972, 1977,1979, 1986, 1992) has made an important contribution to the study of text cohesion. His major contribution has been in the concepts of clause relation, matching relations, repetition and metalanguage.

For Winter (*opera cit.*) the interpretation of a sentence is always made with reference to its surrounding sentences. It is a cognitive process which takes into account all the choices involved in the making of these sentences. Sentences can relate by logical sequence, by matching or by both.

Logical sequence implies both space and time and/or deductive and causal changes.

If we look again at the beginning of the text "Voyage to Hyperion", examined in chapter 2, we see an example of a number of sentences related by logical sequence and marked by a change in space and in time:

> (1.4)The countdown reaches its final seconds. (1.5)Twin solid-fuel boosters filled with aluminium powder and ammonium perchlorate, ignite with a roar that can be heard fifteen kilometres away. (1.6)The rocket, tall as a fifteen-storey building and weighing 700 tonnes, drags itself skyward from the bottom of Earth's deep gravity well. (1.7)At first its motion is painfully slow, and it burns a substantial proportion of its fuel in the first hundred metres. (1.8)Yet within ten hours *Voyager* 1 is further away than the Moon, *en route* for the distant planets: Mars, Jupiter, Saturn.

Whereas in the logical sequence relation the text answers the questions "what then?" "what caused that to happen"', in matching relations (already discussed in chapter 3) the main ingredient is repetition. The focus is on how adjoining sentences compare or contrast.

Notice in the sentences below how the parallelism of the sentences stresses the role of mathematics in technological achievement.

> (3.13) Mathematics *governs* the design of the probe and of its launch-vehicle. (3.14)Mathematics *computes* the loads and stresses on its metal frame, the combustion patterns of its fuel, the dynamics of the air that streams past the vehicle's skin during its brief traverse of the Earth's atmosphere. (3.15)Mathematics *governs* the electronic impulses that course through the computers as they anxiously watch every tiny step in the spacecraft's progress. (3.16)Mathematics even *decides* the coding of the radio messages by which the earthbound controllers communicate their instructions to the probe, which in the fullness of time will transmit back to Earth breathtaking images of our Solar System.

Winter (1986:92) stresses that

> The important function of repetition structure which is largely overlooked is that its primary function is to focus upon the **replacement** or change within the repetition structure. This replacement dominates the meaning of the clause relation.

Matching relations are important in order to describe the development of metaphors in text, as we have seen in the previous chapter and as we will see in the following chapter.

Winter's other important contribution is his categorisation of the lexicon as specific and unspecific. Specific lexical items are those that have lexical uniqueness, that do not need to be made specific to be understood. Unspecific lexical items are those which are meaningless labels for information "without the clauses making them specific within adjoining sentences". Unspecific nouns, as we will see, behave very similarly to metaphors, which also need a context to become lexically unique. The difference is that unspecific items need completion in the text. Metaphors most often rely on the completion done by the reader.

Lexical patterns as cohesion

An interesting and productive approach to lexical cohesion has been the work done by Hoey (1991a, 1991b), who focuses on cohesion as a result of the lexical patterning in texts. The emphasis is on lexical repetition which creates links and bonds between sentences, following Winter's concepts of repetition and clause relation. According to Hoey's argumentation, sentences sharing a medium number of repetitions, which can vary from text to text, form a coherent text. As we observe sentences (4.17) and (5.25) of the text **Voyage to Hyperion** (chapter 2), we notice they go perfectly well together despite the number of sentences that come in the middle.

> (4.17)But, above all, mathematics *governs* the stately celestial dance of the planets, their moons, the paths of the *Voyagers* as they make

> their heavenly rendezvous. (5.25)The cosmic dance is intricate and elaborate: sarabande to a score by Newton, *Largo con gravitá.*

The relationship, however, is not immediately apparent. According to Hoey, for two sentences to develop a bond it is necessary to have at least three repetitions[2]. On the surface only the pairs **celestial** and **cosmic**, **dance** and **dance** are seen as repetitions, a simple paraphrase and simple repetition, respectively. Further investigation of **sarabande**, however, reveals in its meaning the qualification of the dance stated in the first sentence:

> saraband or sarabande 1: a stately court dance of the 17th and 18th centuries; 2: the music for saraband is slow triple time with accent on the second beat. **(Webster's Seventh New Collegiate Dictionary)**

Thus, **sarabande** has a link with **stately** and with **dance**, making up for the three necessary links to make a bond.

The sentences that have a high number of bonds are the central sentences to the texts. Those which do not share links with others are considered marginal. These are important assumptions since they are the basis for extracting automatic summaries.

The understanding of a pair of sentences sharing a minimum of links, is not always straightforward and requires that the reader apply a number of coherence processes to obtain the necessary parallelisms. These processes can be lexical, including expansion, reduction, transference and substitution, syntactical equivalence and discoursive expansion.

---

[2]Three is the usual number though we should consider the rate of repetition between sentences in a specific text to specify the ideal number.

As we will see later on, metaphors, because of their feature of compacting information, modify the requirements to create the links between sentences.

Metaphors as cohesive elements are certainly text instantials, following Hasan's (1984) classification, because their meaning is constructed in the text, but they transcend all the subcategories proposed by Hasan and Hoey.

Labels as cohesive elements

Another productive way of analysing cohesion is the approach suggested by Francis (1986,1987, 1989, 1994), where she introduces the idea of labels. If we follow the categorisation of cohesive elements proposed by Halliday and Hasan (1976), labels are in between the categories of reference, substitution and reiteration, therefore exhibiting semantic as well as grammatical characteristics. They also do not fit the categories proposed by Hoey, because they are not mere repetitions. They are a specific process of lexical cohesion, hence their importance.

Labelling, described by Francis (*opera cit.*), is a procedure where one lexical item encapsulates a part of the text which has preceded the label or which will follow it. Labelling is a natural property of all nouns: nouns label referents in the real world or concepts. However, labelling acquires a new dimension in Francis's framework, in the sense that the labels in question do not refer to just one specific item, but to a stretch of text.

Labels are realised by that group of words which, according to Bolinger (1980), determine how other words in the context must be

interpreted. For Winter they are unspecific nouns which have to be defined by the linguistic context:

> (...) we are concerned with the nature of information signalled by certain nouns, for their unique clauses and sentences. (...) anaphoric or cataphoric reference are simply directions from which inherently unspecific nouns are made specific. We treat unspecificness as the basic text organiser noting that both open-class and closed-class nouns can be inherently unspecific. (Winter, 1992)

The words fulfilling the function of labels are metalinguistic in nature, in that they define language. Moreover, the label is a value which the author assigns to a piece of information which can be considered the token. As Halliday points out, these value words can be seen as metalanguage:

> Somehow, a metalanguage has to be created, and created out of natural language, in order to assign a Value to a Token. (Halliday, 1988:32).

As the TOKEN can vary, the words which assume the VALUE function cannot be symbol specific; actually they fall into the category of procedural nouns described by Widdowson (1983:92):

> they have high indexical potential or valency and this is in inverse proportion to their degree of symbolic specificity.

The works summarised above present the complexity involved in the organisation of texts and at the same time make evident how far we are from the whole picture. Each new model focuses on a different aspect which is important to achieve a cohesive and coherent text. Our analysis intends to show that cohesion is not obtained just through linguistic means as they were listed by Halliday and Hasan (1976). Phenomena which were considered outside the realm of language, as for example metaphors, can be another ingredient in the organisation of texts.

Anaphoric metaphors

In this section, I will analyse the role of metaphor as anaphora, observing its textual function, as text organiser. I will also consider the prerequisites for a match between the metaphor and the portion of text it refers to.

Repetition (cf. Winter, 1979, Hoey, 1991), as we have seen above, is a cohesive device which allows the writer to pick up something which has already been said and add something new within the framework provided by the repeated item. To the broad range of what can be included in repetition according to Winter, I would like to add metaphors. Metaphors in this framework of repetition contribute a lot to the complexity of the process, because in the very act of repeating through the use of a metaphor, the writer has already added something new to the original referent, a change which usually results in some form of evaluation.

Metaphors can be used as anaphorics by which the repeated semantic content is picked up. However it should be pointed out that I understand metaphors not just as a substitution, as in the example given in the beginning of this chapter where **burglar** is substituted by **criminal.** Metaphors are much more than mere substitution because they create a new relevant meaning through the superposition of the meanings of words which are not synonymous, nor carry any other lexical relation. We can see this feature in **os pobres escravos da máquina** in the short text below.

Example 1

> Atualmente temos que conviver com um novo tipo de chatos: os "novos-informatizados". Não bastando ostentar as proezas de seus programas e a capacidade de seus rígidos, agora, *os pobres escravos da máquina* as carregam de cima pra baixo, em aviões, trens, restaurantes... Coitados, nada podem fazer sem consultar seus oráculos.

In the paragraph above, **um novo tipo de chatos** is substituted by **novos informatizados**, which is a textual synonym. In another referential process, we have the instantial metaphor **os pobres escravos da máquina** pointing back to **um novo tipo de chatos: os novos-informatizados**. The expression works as anaphora only because it is read metaphorically. If it were taken literally, it could not refer to that antecedent. In order to understand it, we have to presuppose a number of things which are implied by the antecedent. We need both bridging and elaborative inferences (Kintsch and van Dijk, 1978: 49-51):

> Bridging inferences are required for coherence and elaborative ones fill in additional detail.

We have to see **os novos-informatizados** and **esses pobres escravos da máquina** as having the same referent in order for the text to make sense. This is possible if we know the implications of **informatizado** and its relation to computer use which is repeated by the superordinate **máquina**. Such a metaphor could be regarded as what Brown and Yule (1983) call a pragmatically controlled anaphora: "any expression which the speaker uses in referring on the basis of which the hearer will be able to pick out the intended referent given certain contextual and co-textual conditions"(p.215).

If **novos informatizados** is not a neuter denomination for computer users making a parody of *nouveau-riche* and therefore applying all its connotations to it, the expression **os pobres escravos da máquina** also evaluates computer users but adds a different perspective: as the *nouveau-riche,* computer users show off their properties; as slaves, they are at the

service of the machine when they carry their laptops and notebooks around, unable to do anything without them.

Anaphoric metaphors also occur pointing back to stretches of text and picking up concepts contained in the text through figures of speech. They are a complex cohesive device: they are a repetition in the sense that they reiterate already presented information; they are a substitution in the sense that the metaphor stands for a piece of text; they are a referential element in the sense that they are not interpreted simply by their own sense, but relating to the other elements which are necessary for their interpretation. Furthermore, they present something else. They summarise, they characterise and give the writer's evaluation of the foregrounded information.

Let us analyse the role of the metaphors found in the text example below:

Example 2

"Todos os Sócios do Presidente" dá ao Collorgate sabor de novidade

Alon Feuererker

(1)A overdose de informação sobre o Collorgate tem ajudado a despertar um país que muitos diziam condenado ao sono eterno, e em berço esplêndido. (2)Nunca antes as vísceras das elites, políticas e empresariais, estiveram expostas nesse grau. (3)É um desfile ininterrupto. (4)Jornais, revistas, TV e rádio oferecem a passarela, os locutores, os comentaristas. (5)Na platéia, o povo -pela primeira vez com direito a todo o espetáculo. (6)O resultado visível é uma indignação geral, combustível para o impeachment do primeiro presidente eleito diretamente em 30 anos.

(7)Mas a droga que causa a revolta é a mesma que anestesia. (8)Com o tempo, vem o inevitável cansaço. (9)Nada mais espanta. (10)Revelações que antes do Collorgate teriam causado horror hoje não conseguem nem manchete de jornal. (11)O leitor-espectador já tirou suas conclusões, a opinião está formada. (12)Difícil é encontrar

alguém que não se ache bem informado sobre o drama. (13)A hora do espanto foi substituída pela da espera. (14)Como num lançamento espacial ou numa prova vital de Fórmula 1, curiosidade está ausente. (15)A atenção está toda na contagem regressiva.

(16)É nesse cenário que aparecem os primeiros livros de reportagem sobre a maior crise política brasileira desde o golpe de 1964. (17)O filão:milhões de pessoas com a atenção voltada para o desenlace. (18)O risco: bater de frente com a falta de curiosidade, estacionar na redundância.
(19)Entre os candidatos a aproveitar a onda, "Todos os Sócios do Presidente" é um que tem condições de sobreviver ao choque com o público hiper-saturado. (20)O texto dos jornalistas Gustavo Krieger, Luiz Antônio Novaes e Tales Faria consegue prender a atenção, divertir e indignar até alguém que pensa já saber tudo, já ter visto tudo sobre o Collorgate.

(21)A fórmula é simples. (22)Os autores, repórteres da sucursal de Brasília da **Folha**, se propuseram a contar a história inteira, do começo ao fim, desvendar as ligações entre os fatos (coisas que nem sempre dá para fazer bem no corre-corre do jornalismo diário). (23)E o resultado é positivo. (24)Percorrer as quase duzentas páginas é um exercício de aritmética em que o todo é mais do que a soma das partes.

(25)O texto dos três repórteres não fica nos limites do já sabido, não é uma colagem dos fatos já publicados. (26)Não foge de detalhes escabrosos, nem das reentrâncias menos nobres dos personagens. (27)Não oferece análises -prefere escavar em busca das cores originais de cada um dos membros da "entourage" Collorida. (28)Se propõem a desenhar os perfis de Fernando Collor, Paulo César Farias, Cláudio Vieira e outros menores, todos em detalhes.

(29)É *desse exercício de anatomia arqueológica,* concentrado nos primeiros capítulos, que o leitor segue adiante mais capaz de compreender que afinal, tudo chegou onde chegou.

(Folha de São Paulo, Domingo, 6 de setembro de 1992, p.10)

This is a critical article about the book **Todos os Sócios do Presidente**. It is particularly rich in metaphors and therefore suitable for our analysis to demonstrate the textual organisation function of anaphoric metaphors. In this chapter we have quoted only the first 29 sentences.

The text, as quoted above, can be divided into two parts. In the first there is the description of the scenario where the book is being introduced, and in the second part there is the description of the investigation which resulted in the book. The dividing line is the two anaphoric metaphors which encapsulate the previous content, evaluate and initiate a new approach.

The first part consists of sentences 1 to 16. Sentence 16 contains the anaphoric metaphor **nesse cenário**: which encapsulates all the information contained in the previous 15 sentences: the role of the media in the exposure of the political scandal related to ex-president Collor and the reaction of the people. The information, however, is not reported in a linear standard form, but makes use of extended metaphors which compact much more information than words in their conventional sense. Cohesion is obtained through the unpacking and glossing of metaphors.

We have four basic metaphors:

1. Information is seen as a *drug* and an extended lexical network spreads not only through the first paragraph but through the second as well, building the texture of the passage: **overdose, despertar, sono, droga, anestesia, cansaço;**

2. the role of the media is to expose the *viscera*, where all the putrid matter is hidden: **vísceras expostas das elites;**

3. this exposure becomes a *show*: **desfile, passarela, platéia, espetáculo**.

4. people's general indignation which is *fuel* to the impeachment of the president: **combustível**.

The first paragraph builds up a situation which will be evaluated and reformulated in paragraph 2. The writer continues the "drug-information" metaphor to evaluate the situation showing the paradox which results from the *drug*: it can *fuel* and it can *anaesthetise*, and lead to *fatigue*: **droga, anestesia, cansaço**. The *show* metaphor **o espetáculo** is repeated as **o drama** in sentence 12, specifying the *show*: it is no longer just any show, it is *a drama.*

Metaphors	Glossing
(s.1)overdose, (s. 7)droga	(s.1)informação
(s. 4) passarela	(s.4)Jornais, revistas ,TV rádio, os locutores, os comentaristas
(s.5) platéia	(s.5) o povo
(s.6) combustível	(s.6) indignação geral, (s.7) revolta
(s.14)contagem regressiva	(s.13)(hora) da espera

Whereas for all the other items we can find a direct glossing, metaphors which have a textual function like **o espetáculo**, **o drama**, **o cenário** do not have a single glossing item, but refer to a stretch of text.

At least two intertextual metaphors are evident in the text in these two paragraphs. The first has to do with a line from the National Anthem: "Deitado eternamente em berço esplêndido" is embedded in the metaphor

> ...Tem ajudado a despertar um país que muitos diziam condenado ao sono eterno, e em berço esplêndido.

It evokes the National Anthem and at the same time all the irony people attribute to the original metaphor, by reading it almost literally. It is interesting to notice the change in focus for this metaphor. Intending to

show Brazil's richness and power the anthem's author makes allusion to two idioms: **ter berço**, and **nascer em berço de ouro**. The author of the article shifts the focus from these idioms to the literal meaning of "crib" and its function: "sleep". The lines remain a metaphor because of the association of "sleep" to "country".

The other intertextual metaphor is **hora do espanto** which is the Portuguese translation of the title of a horror movie[3]. Thus Sentence 13 repeats not just sentence 9 but sentence 10 as well:

> (S.9) Nada mais espanta. (S.10) Revelações que antes do Collorgate teriam causado horror hoje não conseguem nem manchete de jornal.(S.13) A hora do espanto foi substituída pela da espera.

Nesse cenário, the metaphor working like a label, distils the information carried by all the metaphors analysed above plus the nonmetaphorical meaning as well. It is the synthesis for the evaluated situation where the first books on the 91-92 Brazilian crisis appear.

The second part of the text goes from sentence 16 to 29:

> (16)É *nesse cenário* que aparecem os primeiros livros de reportagem sobre a maior crise política brasileira desde o golpe de 1964. (17)O filão:milhões de pessoas com a atenção voltada para o desenlace. (18)O risco: bater de frente com a falta de curiosidade, estacionar na redundância.
> (19)Entre os candidatos a aproveitar a onda, "Todos os Sócios do Presidente" é um que tem condições de sobreviver ao choque com o público hiper-saturado. (20)O texto dos jornalistas Gustavo Krieger, Luiz Antônio Novaes e Tales Faria consegue prender a atenção, divertir e indignar até alguém que pensa já saber tudo, já ter visto tudo sobre o Collorgate.
> (21)A fórmula é simples. (22)Os autores, repórteres da sucursal de Brasília da **Folha**, se propuseram a contar a história inteira, do começo ao fim, desvendar as ligações entre os fatos (coisas que nem sempre dá para fazer bem no corre-corre do jornalismo diário).(23)E o resultado é positivo. (24)Percorrer as quase duzentas páginas é um

[3]The original title is **The Fright Hour**.

> exercício de aritmética em que o todo é mais do que a soma das partes.
> (25)O texto dos três repórteres não fica nos limites do já sabido, não é uma colagem dos fatos já publicados. (26)Não foge de detalhes escabrosos, nem das reentrâncias menos nobres dos personagens. (27)Não oferece análises -prefere escavar em busca das cores originais de cada um dos membros da "entourage" Collorida. (28)Se propõem a desenhar os perfis de Fernando Collor, Paulo César Farias, Cláudio Vieira e outros menores, todos em detalhes.
> (29)É *desse exercício de anatomia arqueológica,* concentrado nos primeiros capítulos, que o leitor segue adiante mais capaz de compreender que afinal, tudo chegou onde chegou...

The third paragraph starts with the anaphoric metaphor **nesse cenário**, which encapsulates all the previous information making the sentences which follow rather redundant. They reevaluate what has been said before through the use of new metaphors: **o filão** and **o risco.**[4] Through this contrast, the writer brings up again the paradox in the second paragraph which states that too much information leads to apathy.

Metaphors are an important element to establish cohesion in the fourth paragraph as well. Notice the connection of **onda** and the first sentence of the third paragraph, where **onda** metaphorically nominalises **aparecem os primeiros livros de reportagem sobre a maior crise política brasileira**. Observe also the connection of **o choque** with the last sentence of the same paragraph:

> (S.16)É nesse cenário que aparecem os primeiros livros de reportagem sobre a maior crise política brasileira. (S.19) Entre os candidatos a aproveitar a onda, "Todos os Sócios do Presidente" é um que tem condições de sobreviver ao choque com o público hiper-saturado....(S.18) (O risco): bater de frente com a falta de curiosidade, estacionar na redundância.

---

[4]It should be pointed out here that **risco** is not a metaphor, but its paraphrase is: **bater de frente com a falta de curiosidade**. An interesting effect is achieved in sentences (17) and (18). In (17) we have **o filão** which is a metaphor orthodoxically paraphrased as a regular label. In (18) **o risco** is not a metaphor, but functions as a label which is paraphrased by a metaphor.

The third paragraph functions as glossing to the metaphors in the fourth paragraph. Sentence 19 also connects with sentence 1 where **overdose** and **hiper-saturado** are synonymically related.

The description of the investigative work done by the reporters in paragraph five makes use of *excavation*, a metaphor which will culminate with **esse exercício de anatomia arqueológica** in the following paragraph. The "excavation" metaphor unpacks as **escavar**, **busca das cores originais**, **collorida**. Notice that one of the problems in *archaeological digging* is to preserve *the original colours*, which soon fade when sealed ancient chambers are suddenly exposed to light and air. The fifth paragraph connects back to paragraph one through the metaphorical repetition of *expose the viscera* and *less noble cavities*:

> (S.2) Nunca antes as vísceras das elites, políticas e empresariais, estiveram expostas nesse grau. (s. 26) (O texto dos três repórteres) não foge de detalhes escabrosos, nem das reentrâncias menos nobres dos personagens.

With the use of the anaphoric metaphor **desse exercício de anatomia arqueológica** in the sixth paragraph, the writer repeats in a distillation the preceding paragraphs, at the same time as the expression stands for those paragraphs. It is a referential expression because it is not interpreted on its own but referring to the previous information. If it were interpreted on its own we would come up with its literal meaning: an exercise to dissect mummies(?). Certainly the author did not intend this meaning. Moreover, a value is attributed by means of this distillation. The writer defines the work done by the three authors he is reviewing as **exercício de anatomia arqueológica**. Such an evaluation is not arbitrary. As we have seen, the writer offers a couple of features leading to the trope: words like **vísceras** which are associated to **anatomia** and **escavar** to **arqueologia**. This

packing of the information contained in the preceding paragraphs is a way of topic-shifting and topic-linking (Hunston, 1989). When a writer encapsulates a piece of information in a single word, he/she is usually signalling that he/she has put a boundary at a certain point in the text which needs additional information but from another point of view. In the text above the writer provides information about the investigation performed by the authors for the book **Todos os Sócios do Presidente**. In the first paragraphs of his review, when he finishes discussing the method, he encapsulates all the information in a metaphor, evaluating it but going on to say that the product of the investigation is the basis for understanding what was going on in the country at the time.

Metaphors and labels

Metaphors with the encapsulating function share a lot of features with labels, as I presented them at the beginning of this chapter. In fact, some of the metaphors could be considered labels. But whereas the words which function as labels have a high valency according to Widdowson, *i.e.* they can fit a range of possibilities, we find that only metaphors which have already assumed an official entry in the lexicon have this quality. The other metaphors, those created especially for a situation, are very specific.

In the second text presented, **nesse cenário**, is considered by some a dead metaphor which has lost its figurative role, and may be applied to a number of different descriptions. However, in this text it is brought back to life again by the semantic network which involves **desfile**, **passarela**, **platéia**, **espetáculo**. **Nesse cenário** shares the features of an anaphoric label in the sense that it is repeating the whole of the previous paragraph

with a single word. It substitutes the paragraph and at the same time it refers back to it. Analysing its meaning literally, the literal interpretation fits perfectly well, for **cenário** has the accepted meaning of "a series of related events that form a pattern, with one event causing the next" (Cobuild, 1990: 1292).

But the text gives it life again when it picks up certain features of drama already hinted at throughout the previous paragraphs by the use of words such as **a passarela**, **na platéia**, **o espetáculo**, **espectador**, **o drama**, and synthesises them in **nesse cenário.**

On the other hand, **desse exercício de anatomia arqueológica** is specifically made up for the preceding paragraphs.

What is important is that the use of labels and metaphors reflects a certain metalinguistic ability on the part of the writers, who state the function of what they have just produced, and on the part of the readers in recognising the cue that they have received. By the same token the readers have to detect which features of one element the writer of the metaphor has chosen to emphasise or to suppress when applying to another element (Black, 1979; Levin 1979). In the case of the example **desse exercício de anatomia arqueológica**, the qualifiers of **exercício** are the elements involved in transforming what would be a plain label into a metaphor. We can search for the features in the qualifiers separately as was suggested above, examining the meaning of anatomy and archeology, or in the phrase **anatomia arqueológica** as a whole. If we examine it separately, one question that could be raised is where the metaphor actually starts. "Anatomy" in the Cobuild dictionary is a synonym for investigation which would be the neuter label, perfectly acceptable in that context:

> 4. An anatomy of a particular subject or idea is an examination or investigation of it. E.G.a fascinating anatomy of the political system.

The Portuguese dictionary documents such a use as figurative:

> 7. Fig. Análise meticulosa, rigorosa; estudo minudente: a anatomia de um crime; a anatomia do ciúme, da vaidade.(Aurélio, 1975)

If we take these meanings into consideration, the metaphor actually starts with the features that "archaeological" brings to it. A possible paraphrase would be: desse exercício de investigação arqueológica. The focus of the metaphor would be in archaeological, enhancing the feature of digging up the remains of the past.

There is, however, an entry for anatomy which could add something else to the already dead metaphor:

> 4. Dissecação do corpo humano ou de qualquer animal ou planta para conhecer-lhes as partes, a estrutura, o aspecto, etc..: A Lição de Anatomia de Rembrandt, representa a autópsia de um cadáver, como se fazia no séc. XVII.

We can infer this feature of autopsy within the anaphoric metaphor under scrutiny because it is understood within the text. As we mentioned above there is a certain lexical repetition in this anaphoric expression which picks up this feature from: Nunca antes as vísceras das elites, políticas e empresariais, estiveram expostas nesse grau.

Since *To expose the viscera* is part of an autopsy, the text, through its pattern of lexical repetitions (Hoey, 1991), adds a new life to the frozen expression, making it highly evaluative and critical. In addition it refers to the hidden rotten material.

In the anaphoric metaphor analysed above, the strength of the figurative meaning comes from the qualifiers, **anatomia arqueológica**, of the head of the nominal phrase.[5] In the example below the head is the centre of the trope, and the qualifier is the ideational element under focus.

Example 3:

> (..) The resulting picture depicts a heart that relies on a complex web of self-organising and irreversible interactions -a finely choreographed routine of messenger chemicals, proteins and enzymes conspire to produce each beat. As Denis Noble has shown with his models and the realistic-looking beats they produce, *this cardiac dance* can be portrayed mathematically by non-linear differential equations: a highly sophisticated physico-chemical 'clock reaction' makes our hearts beat.

(**The Arrow of Time**, P.239)

The metaphor **this cardiac dance** refers to "a heart that relies on a complex web of self-organising and irreversible interactions -a finely choreographed routine of messenger chemicals, proteins and enzymes conspire to produce each beat". Again, as we have seen above, the metaphor is not unmotivated: it is foretold by another metaphor from the same semantic field: a finely choreographed routine. However other metaphors help in the construction of texture of this short paragraph: **complex web**, **choreographed routine**, **conspire**, **portray**, **clock-reaction.**

In talking about the dynamic process involved in the interpretation of written language where "each new sentence takes over the status of 'state of text', and therefore (...) the previous sentence relinquishes that role", Sinclair (1992a, 1993) focuses on two possible structures: encapsulation and prospection. These two aspects of text development are particularly

[5]The question concerning the movement of features has been examined in detail in the section about interpersonal metaphors.

applicable to metaphors in the sense that they either encapsulate previous portions of text or prospect, as we will see in the next chapter.

Encapsulation, as seen in this chapter, is an act of reference whereby the content of a previous sentence is captured in the following one. This Sinclair considers the default hypothesis:

> The default hypothesis is that each new sentence encapsulates the previous one by an act of reference. By referring to the whole of the previous sentence, a new sentence uses it as part of the subject matter. This removes its discourse function, leaving only the meaning which it has created. (1993, p.7)

Metaphors and lexical repetition

An important aspect which our analysis has revealed is that texts containing metaphors are not suitable for automatic summaries as proposed by Hoey (1991), who stated that sentences which contain a high number of repetitions are usually central to the topic and those that have few or none are usual peripheral. If it is already difficult for a computer to recognise paraphrases and equivalences (following Hoey's terminology) it will be impossible for the machine to match, for example, **novos-informatizados** e **pobres escravos da máquina** in text example 1. In text 2, the rate of simple and complex repetition, those repetitions which would be picked up by the computer, is very low, especially in the first four paragraphs where there are more metaphors. There is a predominance of complex paraphrases. Substitution, ellipsis and reference, which would rate low in the process of finding the links according to Hoey's hierarchy, are much more frequent. Therefore, in order to obtain an automatic summary, the criteria for establishing a bond between two sentences has to be changed.

Texts such as this require the constant application of coherence processes, even to sentences with fewer links than Hoey originally proposed. For example: to understand sentence (17) the reader will need to make reference to sentence (6).

> (6)O resultado visível é uma indignação geral, combustível para o impeachment do primeiro presidente eleito diretamente em 30 anos.
> (17)O filão:milhões de pessoas com a atenção voltada para o desenlace.

Desenlace means ending, solution, referring back to **impeachment do primeiro presidente eleito diretamente em 30 anos**. In order to make the connection and make the meaning of **desenlace** unique (Winter, 1992) sentence 17 has to be read as

> (17a)O filão: milhões de pessoas com a atenção voltada para o desenlace do impeachment do primeiro presidente eleito diretamente em 30 anos.

This process of completing the meaning is called lexical expansion:

> The way we interpret words both in isolation and in combination is that we fill the gap of what has been said with what has either been made available elsewhere, or with information derived from previous experience. The resulting interpretation may be said to be the result of *Lexical expansion.* (Hoey, 1991a:170)

A similar case is to be found between sentences (16) and (18), and sentences (16) and (19)

> (16)É nesse cenário que aparecem os primeiros livros de reportagem sobre a maior crise política brasileira desde o golpe de 1964. (17)O filão:milhões de pessoas com a atenção voltada para o desenlace. (18)O risco: bater de frente com a falta de curiosidade, estacionar na redundância.
> (19)Entre os candidatos a aproveitar a onda, "Todos os Sócios do Presidente" é um que tem condições de sobreviver ao choque com o público hiper-saturado.

Words like **cenário**, **onda** and **choque** are unspecific and therefore require some form of lexical expansion. At the same time, in this particular

text they are used metaphorically, a factor which complicates the process of coherence. **Nesse cenário**, as we have already seen, addresses all the previous paragraphs, **onda** refers to sentence (16), and **choque** refers to sentence (18).

Conclusion

In this chapter I have demonstrated how metaphorical choices affect the organisation of texts by functioning as a special type of deictic marker in the sense that they encapsulate (Sinclair, 1993) previous portions of text. Moreover, in the process of encapsulating there is also an evaluation, brought in by the metaphorical process. Therefore metaphors actualise the text through their compacting property.

Metaphors also have a prospective side, the alternative structure Sinclair (*op.cit*) suggests when talking about the dynamic processes in the interpretation of written language, where "each new sentence takes over the status of the 'state of text'. Prospection, according to Sinclair, "occurs where the phrasing of a sentence leads the addressee to expect something specific in the next sentence". This is what happens with some experiential metaphors: when reading a metaphor the reader wants something more, requiring the writer to give in the sentences following, the motivation for creating the trope. This characteristic of metaphors will be the topic of the next chapter.

Chapter 5

Metaphors and Prospection

In the previous chapter the retrospective organisational features of metaphors were discussed. I tried to show how metaphors are among those elements which can be responsible for the encapsulation default hypothesis (Sinclair, 1992:7): they can be an act of reference which brings to the actual sentence the subject matter of the previous one.

In this chapter, I want to show the prospective organisational features of metaphors. According to Sinclair (*op. cit.*:12), prospection is an important aspect of discourse: it gives evidence to the interactive force of a sentence which extends to the subsequent sentences. There is prospection when 'the phrasing of a sentence leads the addressee to expect something specific in the next sentence'. For example:

Example 1

> A. The Prince of Wales is among those who think it is time they should. Last week he addressed British Industrialists, and his message was typically forthright:
>
> B. "In two years' time, the United Kingdom will find itself part of a single market and, in effect, a single population of 320 million people, 82 per cent of whom do not have English as their mother tongue."

His message in A. prospects what is coming in B. We expect that what is coming will have something to do with the message from the Prince of Wales and how forthright it is. **His message** (cf.Winter, 1992) is one of those words which need lexical realisation in order to become unique.

Tadros (1985, 1989) analyses a number of text signals with prospective characteristics, identifying a commitment on the part of the writer to develop what he/she anticipates.

Prospection also underlies textual patterns such as general-specific and its variations (Winter, 1986; Hoey, 1983), where the presentation of a general statement anticipates that specific details are to come in the text. In the previous example in A we have a general statement about the message from the Prince. In B we have the specific message.

Metaphors and prospection

Metaphors, as said at the beginning of this section, have an important cohesive function. They can fulfil both encapsulation and prospection roles. As encapsulation, metaphors, just like other metalanguage items (Winter, 1977), can be an act of reference to the previous sentence(s), or they can act upon larger stretches of text as well. As prospection, metaphors create an expectation originated by the inventive aspect of language: how is it possible? Take, for example, the already quoted metaphor about metaphor (Paivio, 1979: 151):

Example 2

> For the student of language and thought, metaphor is a solar eclipse. It hides the object of study and at the same time reveals some of its

most salient and interesting characteristics when viewed through the right telescope.

The first sentence creates an expectation that at some point there will be an explanation. The metaphor "For the student of language and thought, metaphor is a solar eclipse" does not add much in itself; we need something else. In this particular text, the writer goes on to explicitly indicate how he/she wants it to be interpreted.

My use of the term expectation does not carry the commitment that Tadros (1985) gives to prediction or that Winter (1986) gives to anticipation. The expectation I am referring to is inherent in the interpersonal aspect of metaphors. At the time the 'let's pretend game' is contracted, as has been proposed in the introductory chapter, someone, either the writer or the reader or both, has to interpret the original intention. There are some cases when we know in advance that a continuation will follow.

For example we can anticipate that the writer is going to fulfil our expectations when the metaphor is followed by a colon (cf. Tadros, 1985).

Example 3

Após 600 anos de silêncio, o vulcão acordou de modo violento: Por sua boca, deixaram do fundo da Terra e foram lançados a 20 quilômetros acima da superfície 20 milhões de toneladas de matéria, cifra sem precedente neste século.

This also happens when the metaphor occurs in sentences with an explicit relational process "X is Y" or "X seems Y". Below we have a sample list of the metaphors analysed in this thesis which carry this feature.

- For the student of language and thought, metaphor is a solar eclipse.

- Metaphors **are** black holes in the universe of language.
- De um modo geral as placas **são** verdadeiros arquitetos da Terra.
- All appearances to the contrary, the only watchmaker in nature is the blind forces of physics...
- Language **is** the mirror of mind
- A good idea **is** an infectious disease: it spreads
- The supplement that Beardsley desires, therefore, **seems to be** some *diagnostic criterion*, as it might be called, for the occurrence of a metaphorical statement, some mark or indication that will allow its presence and metaphorical character be detected.

At other times the writer unpacks the metaphor into a network of metaphorical repetitions, thus creating a favorable environment for interpretation, as has been seen throughout chapter 2.

We can have both patterns as well, as in the passage below:

Example 4

> Elsewhere; Beardsley (1967) states the tasks of a theory of metaphor as follows:
>
> The problem is to understand how that radical shift of intension (sic) (how the metaphorical modifier acquires a special sense in its particular context) comes about; *how do we know that the modifier is to be taken metaphorically*; and how we construe or explicate its meaning correctly. (p.285, italics added)
>
> The supplement that Beardsley desires, therefore, seems to be some *diagnostic criterion*, as it might be called, for the occurrence of a metaphorical statement, some mark or indication that will allow its presence and metaphorical character be detected. I use "diagnostic criterion" here to suggest a bodily symptom, such as a rash, that serves as a reliable sign of some abnormal state though not necessarily qualifying as a defining condition. But Beardsley may, after all, be seeking more ambitiously an observable and necessary condition for a statement to be metaphorical. (Black (1978: 34))

In this passage Black first defines what he means by diagnostic criterion, in the very sentence the metaphor occurs. Diagnostic criterion equals some mark or indication that will allow its presence and

metaphorical character to be detected. He realises the task, ironically, by unpacking the metaphor in a rather explicit way. **Diagnostic criterion**, **bodily symptom**, **rash**, **reliable sign**, **abnormal state** are all part of the same schema.

In those cases where the expectation of an explanation is not fulfilled by the writer, who leaves the task to the reader, we have what Henderson (1986) calls decorative metaphors.

The prospective pattern

Hoey (1983) following Winter (1977) identifies among the main patterns of text, the general-particular pattern. This pattern has been further subdivided by Hoey into generalisation-example and preview-detail. In both cases we usually have two members, first a general statement and then statements which exemplify or give details about what was initially proposed. In this thesis I borrow this framework in order to propose another type of general-particular: the metaphor-metalinguistic pattern.

If we go back to the first example for experiential metaphors in the introductory chapter, we can clearly observe the two elements involved in this pattern: metaphoric-metalinguistic.

Example 5

> De modo geral, as placas são verdadeiros arquitetos da Terra: elas criam, destroem e recriam a superfície, dando-lhe diferentes faces ao longo das eras.

Metaphoric	Metalinguistic
as placas são os verdadeiros arquitetos da Terra:	elas criam, destroem, e recriam a superfície dando-lhe diferentes faces ao longo das eras.

Fig 1.Metaphoric-Metalinguistic pattern of plates as architects

As we can see in this passage, the writer makes a general statement through the use of a metaphor. This general statement anticipates that particular details are coming by the typographic presentation of the sentence which is divided by a colon (Quirk et alli, 1972: 620). As the authors indicate, "the functions of the colon, a rather infrequent punctuation mark, can be summed up as follows: what follows (...) is an explication of what precedes it or a fulfilment of the expectation raised (...)". In the example above the clauses that follow the colon could be considered in apposition to the noun phrase **arquitetos** in the preceding clause.

Winter (*op.cit.*) suggests the projection of the text into a dialogued form to test for the adequacy of the pattern suggested to describe the passage. Questions of the type: "Can you give me an example?" make evident the generalisation-example, and questions such as: "Can you give me more details...?" or "Tell me something more about this..." make salient the pattern preview-detail. When I first presented what I consider experiential metaphors, I pointed out that they are marked in comparison to interpersonal metaphors. Furthermore, this markedness is signalled by the writer either overtly or covertly. The most overt signals involve illocutionary forms of the type "metaphorically speaking", "what I mean by this is", "what I want to say" and so on. This metadiscoursive intrusion in

the text is the result of an underlying dialogue which the writer conducts with his idealised reader in order to make his text more accessible. If we test the metaphor-metalinguistic pattern in a passage, we need questions which will elicit how the metaphor can be possible. The pattern, then, is realised through the relation of two members, the metaphor and the metalinguistic, which works both at intra-sentential level and at inter-sentential level.

Below we have the projection of a dialogue in the exemplified text.

Actual text **Metaphor**	**Inferred reader's possible question:**	**Inferred writer's implied answer**	**Actual text** **Metalinguistic**
as placas são os verdadeiros arquitetos da Terra:	What do you mean by plates being architects?	Well, just like architects...	elas criam, destroem, e recriam a superfície dando-lhe diferentes faces ao longo das eras.

Figure 2 Projected dialogue for the plates-architects metaphors

Notice that **placas** in the metaphoric part of the statement and **elas** in the metalinguistic part of the statement are in the feminine gender agreement, emphasising the definition in terms of the **plates** and not in terms of **architects** which is in the masculine form. On the other hand, the metalinguistic member matches some of the features which we attribute to **architects** : creation, destruction, construction, new forms.

The metaphoric-metalinguistic pattern can acquire a complex character when other patterns such as the preview-detail, for example, overlap with it. Let us take the frequently cited eclipse metaphor:

Example 6

(1)For the student of language and thought, metaphor is a solar eclipse. (2)It hides the object of study and at the same time reveals some of its most salient and interesting characteristics when viewed through the right telescope. (3)The object is linguistic meaning. (4)Metaphor obscures its literal and commonplace aspects while permitting a new and subtle understanding to emerge. (5)Thus, metaphor highlights the phenomenon of semantic creativity, the capacity of language users to create and understand novel linguistic combinations that may be literal nonesense. (6)An advertisement that urges you to "Put a tiger in your tank," is anomalous semantically but not in what symbolises for the driver who likes to take off with a roar. (7)Of course everyone knows that most metaphors are not newly created by their users, but all were once novel and new ones arise constantly even in the most commonplace of conversations. (8)Thus, semantic productivity must be regarded as a salient design feature of metaphorical language, just as syntactic productivity is of language in general, despite the repetitiousness of specific grammatical construction in everyday speech. (9)However, we know even less about the psychology of semantic creativity than we do about syntactic creativity, and the former must be counted among the most challenging theoretical problems that confront those who are interested in the scientific understanding of language behaviour. (Paivio, 1978:150)

If we analyse the first six sentences, we observe that the first is the metaphoric sentence of the form X is Y which elicits the question "How is it possible to compare metaphors with solar eclipses? what do they have in common?"

Sentence 2 answers the question with a general statement, which, in its turn, presupposes that some details are coming: "Give me some details". Sentence 2, therefore, is metalinguistic because it provides the glossing for

sentence 1, and at the same time is the preview sentence for sentences 3 and 4. Sentence 5 is a general sentence which encapsulates the previous sentences (**Thus** is a logical act which reads: "because of all that has been said", (cf.Sinclair, 1992)), picking up the metaphorical glossing and expands the contents. Sentence 6 exemplifies the general statement of Sentence 5.

metaphorical: (1)For the student of language and thought, metaphor is a solar eclipse.
⇓
metalinguistic-preview: (2)It hides the object of study and at the same time reveals some of its most salient and interesting characteristics when viewed through the right telescope.⇓
detail 1: (3)The object is linguistic meaning.⇑
detail 2: (4)Metaphor obscures its literal and commonplace aspects while permitting a new and subtle understanding to emerge.⇑
⇑
general: (5)Thus, metaphor highlights the phenomenon of semantic creativity, the capacity of language users to create and understand novel linguistic combinations that may be literal nonesense.⇓
example: (6)An advertisement that urges you to "Put a tiger in your tank," is anomalous semantically but not in what it symbolises for the driver who likes to take off with a roar.

Fig. 3 Overlapping of patterns

In the figure above I rewrote the text with arrows to indicate where the text prospects and where it retrospects. There are sentences like S.5 which has a double function: at the same time it encapsulates the previous sentence it prospects in S.6 which exemplifies it.

Another text which shows the complexity of patterns involved in the glossing of metaphors is **The Blind Watchmaker**. Reexamining sentences 19 through 25, we notice how the writer makes use of the preview-detail pattern in order to develop the metalinguistic member:

Example 7

(19)All appearances to the contrary, the only watchmaker in nature is the blind forces of physics, albeit deployed in a very special way. (20)A true watchmaker has foresight: he designs his cogs and springs, and plans their interconnections, with a future purpose in his mind's eye. (21)Natural selection, the blind, unconscious, automatic process which Darwin discovered, and which we now know is the explanation for the existence and apparently purposeful form of all life, has no purpose in mind. (22) It has no mind and no mind's eye. (23) It does not plan for the future. (24) It has no vision, no foresight, no sight at all. (25) If it can be said to play the role of the watchmaker in nature, it is the *blind* watchmaker.

Below I have rewritten the original passage adding questions that the writer may have assumed the reader would propose for certain content. I have used four columns to distinguish the original text, the inferences made, and the observed text pattern. The two columns dedicated to text have to do with the fact that patterns can be realised inter-sententially and intra-sententially. When it is intra-sentential all the elements are in a horizontal relationship. When it is inter-sentential all the elements involved are in a vertical relationship.

Text	Inferred question	Text	Pattern
(19a) the only watchmaker in nature	*what do you mean by "watchmaker in nature"?*	(19b) is the blind forces of physics	**metaphoric/ metalinguistic→**
	Can you tell me how it is possible?	(19c) albeit deployed in a very special way.	**Preview ↓**
	How can you tell? Give the details		
(20a)A true watchmaker has foresight	*Can you tell me more details about this*	(20b) he designs his cogs and springs and plans their interconnections with a future purpose in his mind's eye.	**Detail↑** **Preview/detail→**
	Contrasting with it		
(21a) Natural selection (...) has no purpose in mind.	*Can you tell me something about natural selection?*	(21b) the blind, unconscious, automatic process which Darwin discovered, and which we now know is the explanation for the existence and apparently purposeful form of all life,	**Detail↑** **metaphoric/ metalinguistic→** **Preview ↓**
	Can you give me more details about it?	(22) It has no mind and no mind's eye. (23) It does not plan for the future. (24) It has no vision, no foresight, no sight at all.	**Detail↑**
(25a) If it can be said to play the role of the watchmaker in nature,	*you mean the metaphor of "watchmaker "is not a good one?*	(25b)it is the *blind* watchmaker.	**metalinguistic/ metaphorical ↑**

Figure 4 Projected dialogue and overlapping of patterns

The passage rewritten in this way shows the overlapping of patterns. A sentence which has a metaphoric/metalinguistic pattern such as 19 functions as preview for the rest of the passage. What is detail for one sentence is at the same time preview for the next.

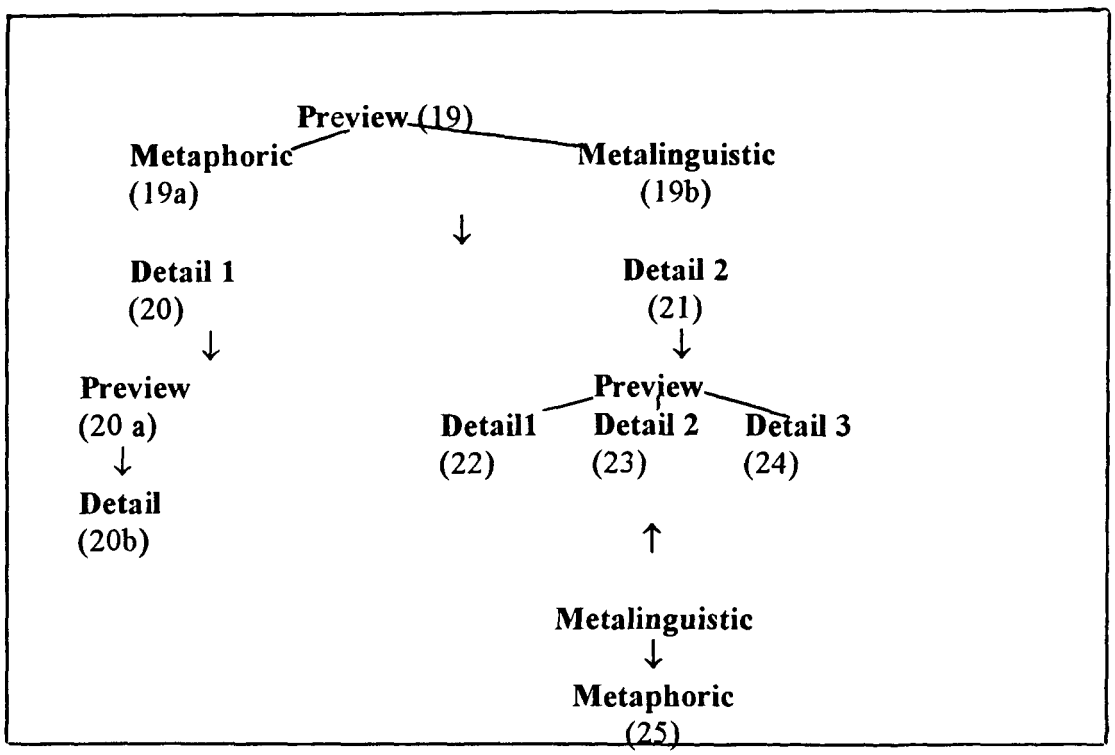


Figure 5 Diagram of the superposition of the preview-detail metaphoric-metalinguistic patterns

Observe that this portion of text has the pattern metaphoric-metalinguistic through sentence 24, and the whole stretch of 20 to 24 becomes the metalinguistic explanation of 25, which is a redefinition of the original metaphor in 19a. Sentences 20 through 24 explain how it is possible to metaphorise **natural selection** as the **blind watchmaker**. Prospection is doubly marked: first we have the metaphor in its form X is Y, creating an anticipation; then we have the cataphoric label **in a very special way,** which requires a lexicalisation.

If the text is projected into the more general-particular pattern the superordinate of the preview-detail, generalisation-examples, metaphoric-metalinguistic, we observe that the metaphoric member always corresponds to the **general** member of the pattern in experiential metaphors.

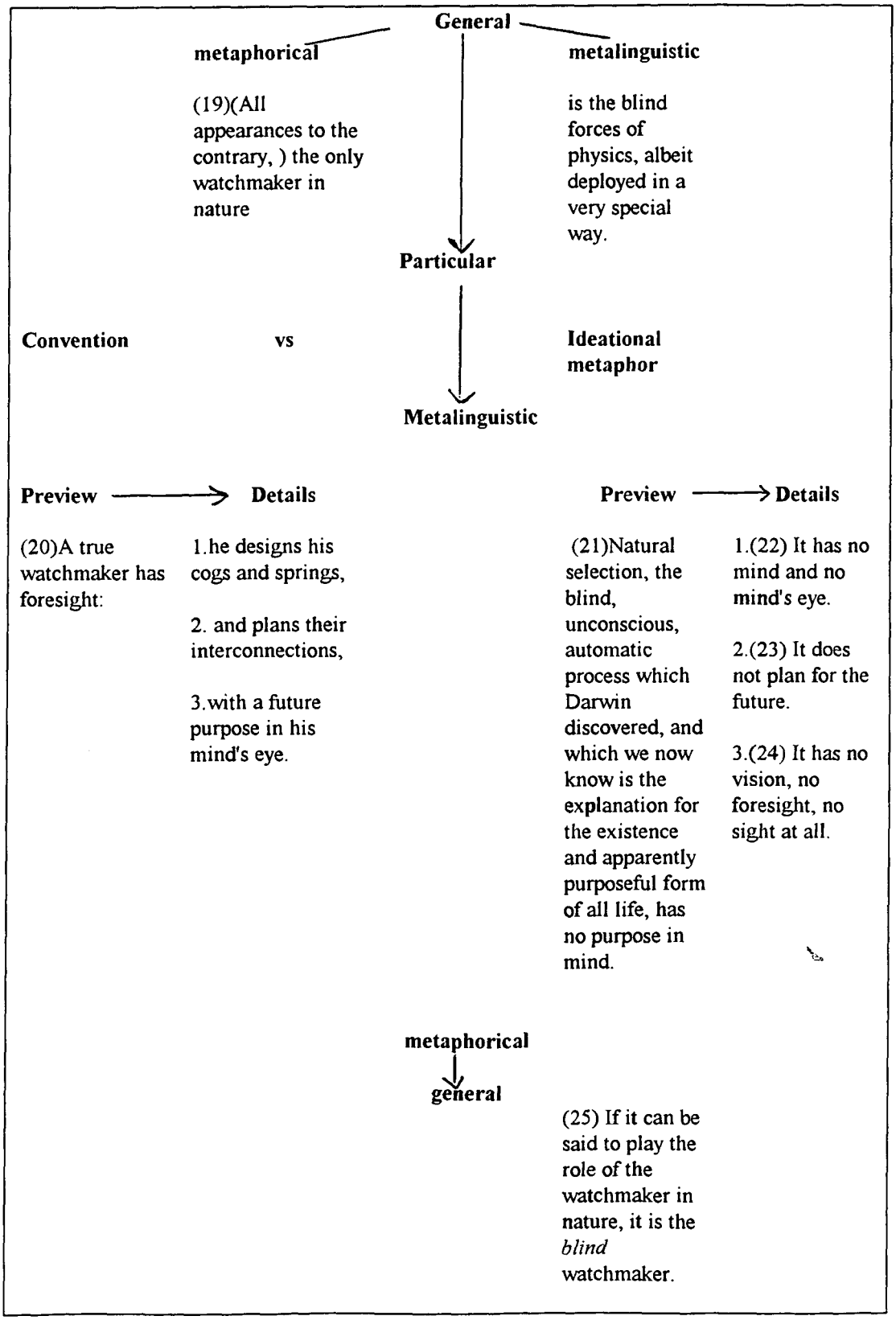


Figure 6 Projection of the metaphor into the general-particular pattern

Following the above matrix we observe that in this short passage the writer starts with a generalisation, gives the particular elements which make the generalisation possible, and summarises with another generalisation. This final metaphor incorporates the adjective **blind**, which initially was part of the metalinguistic element, transforming the intertextual metaphor to serve his own purposes within his theoretical framework.

At the beginning of this chapter the two main characteristics of text, encapsulation and prospection (cf. Sinclair, 1992) were pointed out. The idea of prospection has always been related to spoken discourse, but Sinclair (*op. cit.*) shows how important it is to consider it in relationship to written language in the sense that every sentence actualises the whole previous text. Prospection is very much present in the concept of metaphors, especially of the type X is Y, because of the expectation created through the superposition of two or more schemata.

As has been seen throughout this chapter, experiential metaphors are the point of departure for an argument. Within a passage they become centre stage (Grimes, 1975: 323; Clements, 1979: 287) as they have a natural prominence due to the semantic anomaly they create.

The best explanation for metaphoric prominence is obtained in the original concept of foregrounding as proposed by Havránek (1932, 1964:10) from the Prague School:

> By foregrounding(...) we mean the use of the devices of language in such a way that this use itself attracts attention and is perceived as uncommon, as

> deprived of automatization[1], as deautomatized, such as a live poetic metaphor (as opposed to a lexicalized one, which is automatized).

Thus, a metaphor attracts attention, providing support for the development of a concept. Through the use of metaphor the writer creates a detachment from convention and, in his effort to explain this detachment, is able to bring into his text features he/she thinks are important for his/her argumentation.

Throughout this chapter I have tried to demonstrate another text organisational feature of metaphors: prospection. I have shown that experiential metaphors occur in a metaphoric-metalinguistic pattern which shares characteristics of the general-particular pattern suggested by Winter (1986) and Hoey (1983). Whereas Winter and Hoey observe lexical signals which are cues to these structures I have found that the anticipation of the metalinguistic element is usually built into the metaphorical statement by its very nature. The metaphoric-metalinguistic pattern is important for the development of a concept since the metaphoric element permits the writer to stage a concept detached from convention and to develop his concept by bringing it back to the conventional world.

[1]'By automatization we thus mean such a use of the devices of the language in isolation or in combination with each other, as is usual for a certain expressive purpose, that is, such a use that the expression itself does not attract any attention; the communication occurs, and is received, as conventional in linguistic form and is to be "understood" by virtue of the linguistic system without first being supplemented, in the concrete utterance, by additional understanding derived from the situation and the context.' (Havránek, 1932, 1964: 9-10)

Chapter 6

Metaphors and translation

In previous chapters the importance of metaphors in texts, showing their role within the three functions of language, has been stressed: the interpersonal aspects were dealt in chapter 2, the ideational aspects in chapter 3 and the textual aspects in chapters 4 and 5. Moreover, the point that metaphors should be considered within their contexts and not by themselves was defended. The extended text is the natural environment to study metaphors due to the characteristics shown, such as their unpacking throughout the text and their anaphoric and prospective patterns.

In this chapter I do not propose to analyse how metaphors should be translated, but rather how their translation affects the text. Whereas with poetry a great deal of care is taken in the translation of creative language, with informative texts such stylistic devices are almost entirely neglected despite their importance. The analysis of some translations will be a test of some of my claims. I will focus on portions from three texts which have been explored in previous chapters: **Does God Play Dice?**, **The Arrow of Time** and **The Blind Watchmaker**.

Metaphors and the functions of language in translated text

As seen, **The Arrow of Time** discusses the concept of time and science in general bringing in arguments from philosophy, physics, chemistry, mathematics and biology among others. By contrast with academic books on the subject, the authors show their involvement with the topic with a rich colourful language and humour. Metaphors are widely used in an effort not only to facilitate comprehension, but to excite and involve the reader, making him a partner of the let's pretend game. It is, therefore, essential to consider the interpersonal aspect of the text. Considering that every item contributes to the text as whole, due to the activation of associated concepts in the semantic lexical network (Collins&Loftus, 1975), the choice of words in the translation cannot disregard the original whenever possible.

Within this framework, it is expected that the translation should capture the interpersonal aspect of the book as much as the ideational. However, in this particular text it does not always happen. Unfortunately, the translator apparently was not touched by the involving style and the outcome is a readable text but with less excitement. To illustrate the importance of overall considerations of all aspects of language -- ideational, interpersonal and textual-- I have chosen portions of a section of the book putting side by side the original and the translated form. Correspondences between versions are connected by dotted lines and links within the text when necessary marked with continuous lines.

Example 1

1.Electrical activity CRACKLES through your brain as you read this sentence. Insect population in the lush rainforest multiply and FALL. Somewhere inside an alligator egg, a pattern of stripes is laid down that the reptile WILL WEAR all its days. And within each of these images of life time TICKS steadily on.(p.220)

2.To describe the TICK of the sugar clock, a number of theoretical models have been put forward.The most successful in general terms is due to Albert Goldbeter and René Lefever of the Free University of Brussels (1972), subsequently elaborated by Goldbeter and other collaborators.(p.225)

3.Cell can be thought of as tiny TICKING clocks which pass between two states. In one, the cell grows while division is inhibited: in the other, although the growth continues, the cell divides. -cell division is an oscillation between the two: one phase is the 'TICK' of the cell clock and the other is the 'TOCK'.(p.228)

4.At the time of writing, the physico-chemical processes within the cell are described with the help of some thirty simultaneous coupled non-linear differential equations.

1.Enquanto você está lendo esta frase há uma atividade elétrica AGITANDO seu cérebro. Na floresta úmida e luxuriante as populações de insetos multiplicam-se e CAEM. Em algum lugar do interior do ovo de um jacaré começa a se estabelecer um padrão de listras que o réptil TERÁ por toda a sua vida. E dentro de cada uma destas imagens de vida o tempo PASSA sem parar.(p.194)

2.Para descrever o ANDAMENTO de um relógio do açúcar foram sugeridos inúmeros modelos teóricos dos quais o que deu melhores resultados em termos gerais é o de Albert Goldbeter e René Lefever, da Universidade Livre de Bruxelas, apresentado em 1972 e depois elaborado por Goldbeter e outros colaboradores.(p.198)

3.Podemos pensar nas células como se fossem relogiozinhos minúsculos que funcionam passando entre dois estados. Num estado a célula cresce, ao passo que a divisão é inibida; no outro, embora o crescimento não pare, a célula se divide. Adivisão celular é uma oscilação entre os dois estados: uma fase é o 'TIQUE' do relógio celular e a outra é o'TAQUE'.(p.201)

4.Enquanto este livro está sendo escrito, os processos físico-químicos que ocorrem no interior das células são descritos com a ajuda de cerca de 30 equações diferenciais não-lineares simultâneas e acopladas.

Of all the processes, the most important are the channels that allow electric signals to FLASH IN AND OUT of the cells. The signals are mediated by special proteins that SHUTTLE electrically charged atoms called ions. Some ten channels and a HANDFUL of other transporting chemicals within the cell and on its surface are described in Noble's model. The most important of these is the calcium channel, which triggers the translation of ATP through a complex chain of processes into a heartbeat. In common with the Belousov-Zhabotinsky reaction, the heart is a DISSIPATIVE system because the gradients of chemicals across the cell membrane run down as substances are transported in and out of the cell.

De todos os processos, os mais importantes são os canais que permitem que sinais elétricos sejam EMITIDOS DENTRO E FORA das células. Esses sinais são mediados por proteínas especiais que TRANSPORTAM átomos carregados eletricamente (íons). O modelo de Noble descreve cerca de dez canais e VÁRIOS outros processos que transportam compostos químicos no interior e na superfície da célula. O canal mais importante é o cálcio, que ativa a translação de ATP para uma pulsação cardíaca por meio de uma cadeia complexa de processos. O coração tem em comum com a reação de Belousov-Jabotinski o fato de ser um sistema DISSIPÁVEL; isso porque os gradientes dos compostos químicos que ocorrem na membrana celular se esgotam à medida que as substâncias são transportadas para dentro e para fora da célula.

5.In chemical clocks, the DISSIPATIVE structures were regular coulour changes or beautiful spirals of colours. In the heart cell, one can view the DISSIPATIVE structure as the beat formed by the coordinated movement of filaments of protein. Individual processes, such as the sodium pump, are CRUCIAL to maintaining this beat. Just as a pendulum in a grandfather clock is kept moving with a slowly falling weight, so these pumps FERRY sodium across the cell membranes to ensure that the heart is held away from equilibrium. During each beat, calcium ions SURGE into the heart. Interacting with the channels FERRYING the calcium ions into and out of the heart cell, our friend cAMP makes another appearence. As in the slime mould, it operates alongside the enzyme adenylate cyclase.

5.Nos relógios químicos as estruturas DISSIPÁVEIS eram mudanças de cor regulares ou lindas espirais coloridas. Na célula cardíaca podemos ver as estruturas DISSIPÁVEIS como o pulso formado pelo movimento coordenado de filamentos de proteína. Para manter essa pulsação são ESSENCIAIS processos individuais, como, por exemplo, a bomba de sódio. Esse tipo de bomba funciona como se fosse o pêndulo de um relógio que movimenta com um peso que decai lentamente; assim, uma bomba desse tipo TRANSPORTA íons de sódio por toda a membrana celular, garantindo que o coração se mantenha longe do equilíbrio. No decorrer de cada pulsação ENTRAM íons de cálcio no coração. Interagindo com os canais que TRANSPORTAM os íons de cálcio para dentro e para fora das células surge de novo o nosso velho amigo cAMP. Do mesmo modo que no caso do fungo do lodo, o cAMP age junto com a enzima adenilato ciclase.

Metaphors and translation

In the heart the two act in concert in feedback processes which control how the calcium channels FLIP OPEN and SLAM SHUT. On the level of an individual cell, the calcium ions which SURGE into the heart cell trigger the contraction of special proteins by a kind of molecular 'ratchet' mechanism. Clearly, passage of calcium into the heart is only half a heartbeat. (p.239)

No coração, ambos funcionam sintonizadamente em processos de retroalimentação que controlam como os canais de cálcio se ABREM e se FECHAM. No que se refere à célula em particular, os íons de cálcio que se AVOLUMAM na célula cardíaca acionam a contração de proteínas especiais por uma espécie de mecanismo de 'catraca' molecular. Evidentemente a passagem do cálcio para o coração é metade de uma pulsação cardíaca.(pp.210-211)

6.Navigation by the Sun is also used by the wolf spider and some varieties of frogs. Here an internal clock is essential to compensate for the movement of the Sun during the day. Bees also use their clock in order to help follow a 'bee line' back to the hive and to anticipate when plants will release pollen, which may only occur at certain times of the day. This time sense was first recorded by the Swiss naturalist August Forel in 1910 who noticed while breakfasting on the veranda of his chalet in the Alps that bees came to feast on his marmalade at the same time each day, even when the sticky jam had been put away. The existence of the bee's internal clock was confirmed in 1955 when 40 bees TRAINED TO FORAGE IN PARIS at a given time of day were flown to New york, where they continued their French rhythm on arrival. It must have been the first case of BEE JET-LAG.

6.A navegação pelo Sol também é adotada pela tarântula e por alguns tipos de sapos. Neste caso é essencial um relógio interno para compensar o movimento que o Sol executa durante o dia. As abelhas também usam o seu próprio relógio para seguir em linha reta de volta para a colméia e para prever quando as plantas soltarão pólen, o que talvez aconteça apenas em certas horas do dia. Este sentido do tempo foi registrado pela primeira vez em 1910 pelo naturalista suíço August Forel, enquanto tomava o café da manhã no terraço de seu chalé nos Alpes. Ele percebeu que as abelhas iam se banquetear na geléia todos os dias à mesma hora, mesmo depois de o doce ter sido guardado. A existência do relógio interno das abelhas FOI CONFIRMADA EM PARIS EM 1955 quando 40 abelhas treinadas para procurar alimento em determinada hora do dia foram embarcadas num avião com destino a Nova York, onde continuaram no seu ritmo francês. Deve ter sido o primeiro caso de ABELHAS QUE SENTIRAM A DEFASAGEM DE TEMPO PROVOCADA PELA DIFERENÇA DE FUSOS HORÁRIOS. (264)

In this chapter, *The Arrow of Time, the Arrow of Life*, the authors use the metaphor of **clock** and all its unpacking to pass the concept of

periodicity (1). An expression that is difficult to translate and which is repeated throughout the chapter is **tick** used both as verb and noun which literally means the regular sound of the clock when its working to indicate the passing of time. Its association with the clock, however, brings in the feature of periodicity, whereby the passing of time happens with a certain rhythm, in opposition to the straight smoothness of the arrow. The translations miss the feature of periodicity, in ideational terms. Notice, for example, in (1) **And within each of these images of life time ticks steadily on**, the expression **time ticks steadily on** was translated by **o tempo passa sem parar**. The chosen Portuguese expression is literal and implies a smooth movement. In the original time is implied within a clock, which counts a period and works by changing phases: the **tick** and the **tock** and thus establishes a rhythm. Moreover, the simple repetitions of **tick**, throughout the chapter create more explicit links between the sentences (Hoey, 1991) than those achieved by the translator. Considering the individual sentence this feature may not be perceived, but reading the chapter, or the book as a whole it is an important aspect.

The option for a less metaphoric text can be observed in the translation of the first sentence (1). Where **crackles** could be perfectly well translated by **crepita**, the translator chose **agita**, a less colourful metaphor for brain activity. **Crackle** implies a certain noise, it has a usual collocation with fire and, therefore, is associated with light and heat, as well. It is probably closer to the common image of smoke coming out of a head after a lot of thinking, than **agita** which does not evoke any of these features

In the same paragraph, **Somewhere inside an alligator egg, a pattern of stripes is laid down that the reptile will wear all its days**, the **wear** metaphor is demetaphorised in the translation :

> Em algum lugar do interior do ovo de um jacaré começa a se estabelecer um padrão de listras que o réptil terá por toda a sua vida.

If the translator had maintained the metaphor in **vestirá** ou **usará**, he would have preserved the interpersonal function of the text in a better way.

A couple of pages later it is noticed again the translator's tendency to neglect metaphors and use a plain, less unique form: In (4) for example **flash** and **shuttle** lose some of their features in **emitem** and **transportam. Flash** implies sudden and fast emission of light and **shuttle** implies frequent journey between the same two places .

In (5), **flip open** and **slam shut** are translated as abrem e fecham missing completely the quick movement involved both in flipping and slamming, and the force involved in slam. Likewise **surge** misses its force with the plain **entram**.

In (6), the translator also fails to express the pun **bee line** with **bèeline** and translates it according to the lexicalised entry. The lexicalised **beeline** has the meaning of "follow a straight line". This meaning, according to the dictionaries originates from " the belief that a pollen ladden bee flies straight back to its beehive." The translator does not capture the fact that the writer had put quotes around the expression" (to make it salient) and wrote it as two words instead of one.

No solution is beeing offered for this case and I am not saying that it is an easily solved problem also. Quite the contrary, puns for example, are

very hard to translate. The apparent neglect of these expressions, which in the original help to build up a very expressive text though, is criticized.

In the same paragraph another failure to express the interpersonal character of the text is the **bee jet-lag** metaphor which has been glossed in its translated form. **Jet-lag** is well known to the public in its original, therefore, in order to maintain the humour, it could have been borrowed into Portuguese. It also achieves lexical cohesion with the preceding sentence. Why not **Deve ter sido o primeiro caso de abelhas com jet-lag.**?

The task the translator had to face was not easy. Despite the efforts of the original writers to make the content accessible to a wider audience it is still complex and difficult. Nevertheless the translator has caught the overall ideational, although there are a few mistakes. These mistakes do not directly affect metaphors, but may affect the context they are inserted into, such as for example:

Dissipative in (4) and(5) cannot be translated as **dissipável**. **Dissipative** has the feature to provoke dissipation and dissipável has the feature of something which can be dissipated. The correct form should be **dissipativos**. Although not knowing the content and looking only at the translated form a lay person would not notice the mistake.

A local but serious misinterpretation was observed in (6) in the translation of

> The existence of the bee's internal clock was confirmed in 1955 when 40 bees **trained to forage in Paris** at a given time of day were flown to New York, where they continued their French rhythm on arrival.

where the circumstantial **in Paris** is attributed to **confirmed** rather than to **forage**. The correct form should be:

> A existência do relógio interno das abelhas foi confirmada em 1955 quando 40 abelhas, treinadas para procurar alimento, em Paris, em determinada hora do dia, foram embarcadas num avião com destino a Nova York, onde continuaram no seu ritmo francês.

The translated form is ambiguous; we can only infer that the bees were flown from Paris to New York because of the ending clause about their French rhythm. On the other hand, the source text is very clear about where they were trained to forage.

The overall translation may indicate the poor lexicon of the translator in the target language. He may have understood the original text, but was unable to express the creativity of the original. In paragraphs 4 and 5, for example the concept of transportation is expressed with the metaphors **shuttle** and **ferry** which alternate with **transport**. In the translation only **transportar** is used.

Having observed how metaphors work within the text, we can infer how the translator has approached his task: considering the complete text, working sentence by sentence, or word by word. As stressed in the introductory chapters, the functions of the text precede the text (Coulthard, 1987). When he/ she starts writing, the writer has to know what he/she is going to say --the ideational function--, to whom he/she is going to say it -- the interpersonal function--, and how he/she is going to link together the encoding of each item --the textual function. The final text is the result of all the decisions the writer has taken in order to achieve the original ideation. Take, for example, the text **Voyage to Hyperion**, discussed in chapter 2. As pointed out, man is just an observer of a scene where the

writer stresses the role of science and technology. Throughout that small text verbs which normally take a [+ animate] subject come with [- animate] subjects like, for example:

> rocket waits in readiness;
>
> dwarfed by the giant but the reason for its existence, is a tiny triumph of engineering, the *Voyager 1* spacecraft;
>
> Twin solid-fuel boosters filled with aluminium powder and ammonium perchlorate, ignite with a roar;
>
> *Voyager 2* will have the option --duly exercised-- of continuing to Uranus and Neptune;

These metaphors cannot be just a coincidence, but a result of an initial intention to exclude man from the scene and make him a distant observer of the events being described. The writer does not make explicit his intention by saying so, but the way his text is written reflects this feature. The translator has to capture this pre-ideation, in order to replicate the final effect in his text. The text, then, has to be considered as a whole and not sentence by sentence. The work based on the sentence may preserve the ideational aspects of individual sentences but fail to transmit the overall ideational aspect of the text. This is the case of the example cited above. In the translation of the text **Voyage to Hyperion**, the translator misses some of these aspects:

Example 2

Source text	**Translated text**
(1.2) A gigantic Titan III-E/Centaur rocket waits in readiness on the pad at Launch Complex 41, Air Force Eastern Test Range, Kennedy Space Center, Cape Canaveral, Florida.	Um gigantesco foguete, III-E\Centaur, espera de prontidão na plataforma do Complexo de Lançamento 41, na Área Leste de Testes da Força Aérea, no Centro Espacial Kennedy, em Cabo Canaveral, Flórida.

(1.3) In its topmost stage, dwarfed by the giant, but the reason for its existence, is a tiny triumph of engineering, the *Voyager 1* spacecraft.	Em seu ponto mais alto, eclipsado pelo gigante, mas razão de sua existência, encontra-se um minúsculo triunfo da engenharia: a espaçonave *Voyager 1*.
(2.5) Twin solid-fuel boosters filled with aluminium powder and ammonium perchlorate, ignite with a roar that can be heard fifteen kilometres away.	Um par de impulsionadores a combustível sólido, cheios de pó de alumínio e perclorato de amônio, entram em ignição com um estrondo que pode ser ouvido em um raio de 15 quilômetros.
(2.6) The rocket, tall as a fifteen-storey building and weighing 700 tonnes, drags itself skyward from the bottom of Earth's deep gravity well.	O foguete, da altura de um edifício de 15 andares e pesando 700 toneladas, arranca do profundo poço da gravidade da Terra rumo ao céu.
(2.7) At first its motion is painfully slow, and it burns a substantial proportion of its fuel in the first hundred metres.	De início seu movimento é penosamente lento e, nos primeiros 100 metros, ele queima uma proporção substancial de seu combustível.

In (1.2) the translator maintains all the features of the metaphor, but in the next three sentences some of the features are lost. Considered sentence by sentence the translation is appropriate, but within the text more would be required.

In (1.3), for example, **dwarfed by the giant** is a construction with the contrast of size realised by the antonymic pair **dwarf-giant**. By using the metaphor **eclipsado, a nice metaphor,** the translator conveys the idea of hiding, thus changing the original concept which viewed Voyager 1 as smaller due to the comparison with gigantic rocket. A possible construction which maintains the original meaning could be **apequenado pelo gigante**. In this case the option would be for the parallelism and not for the metaphor. The translator opted for maintaining a metaphorical construction.

In 2.6 **The rocket (...) drags itself** is a construction which implies moving slowly, heavily, with difficulty, a concept which is repeated in (2.7). **Arrancar,** the translator's choice, has almost the opposite meaning

implying moving with a certain impetus, momentum. A possible option would be **se arrasta : O foguete, alto como um edifício de 15 andares e pesando 700 toneladas, se arrasta do profundo poço da gravidade da Terra rumo ao céu**. ou **...se liberta com dificuldade do profundo poço da gravidade da Terra...**These two options maintain harmony (Hasan,1984; Hoey, 1991) with the following sentence creating links between **arrastar-se** (or **libertar-se com dificuldade)** and **movimento penosamente lento** (a complex paraphrase).

Although if we read only the translated text we may not detect any inadequacy, when we compare the two forms the source and the translation, we notice that some of the subtleties involved in the creation of a whole metaphor were ignored.

A lot of difficulties in translation can be found when the metaphor in the source unpacks in a lexical network which does not have the same unfolding in the target language. The **Blind Watchmaker** metaphor, for example, unpacks in a complex structure of matching relations as it has been seen in the previous chapters.

Example 3

(24)Paley **drives his point home** with beautiful and reverent descriptions of the **dissected machinery of life**, beginning with the human eye, a favourite example which Charles Darwin was later to use and which will reappear throughout this book	Paley **leva a água ao moinho** com descrições belas e reverentes da **maquinaria da vida, analisada em todos os seus pormenores**, começando com o olho humano, um exemplo favorito, que Darwin mais tarde utilizaria e que aparecerá ao longo de todo este livro.

(25)Paley compares the eye with a designed instrument such as a telescope, and concludes that 'there is precisely the same proof that the eye was made for vision, as there is that the telescope was made for assisting it'.	Paley compara o olho com um instrumento concebido, como o telescópio, para concluir que "existe exactamente a mesma prova de que o olho foi feito para a visão como existe de que o telescópio foi feito para auxiliá-la".
(26)The eye must have had a designer, just as the telescope had.	O olho tem de ter tido um conceptor, tal como o telescópio o teve.
(27)Paley's argument is made with passionate sincerity and is informed by the best biological scholarship of his day, but it is wrong, gloriously and utterly wrong.	O argumento de Paley é defendido com uma sinceridade apaixonada e informada pelo melhor saber biológico de seu tempo, mas está errado, gloriosa e absolutamente errado.
(28)The analogy between telescope and eye, between watch and living organism is false.	A analogia entre um telescópio e um olho, entre um relógio e um organismo vivo é falsa.
(29)All appearances to the contrary, the only watchmaker in nature is the **blind** forces of physics, albeit deployed in a very special way.	Pese embora a todas as aparências em contrário, o único relojoeiro da natureza são as forças **cegas** da física, se bem que desdobradas de forma muito especial.
(30)A true watchmaker has **foresight**: he designs his cogs and springs, and plans their interconnections, with a future purpose in his **mind's eye**.	Um verdadeiro relojoeiro tem **antevisão**: concebe suas engrenagens e molas e planeia as suas inter-relações com um objectivo futuro, com os **olhos de sua imaginação**.
(31)Natural selection, the **blind**, unconscious, automatic process which Darwin discovered, and which we now know is the explanation for the existence and apparently purposeful form of all life, **has no purpose in mind.**	A seleção natural, o processo cego, inconsciente e automático que Darwin descobriu e que hoje sabemos ser a explicação para a existência e para a forma aparentemente intencional de toda a vida, **não imagina qualquer objectivo.**
(32) It has no **mind** and no **mind's eye**.	Não tem **imaginação** nem **olhos da imaginação.**
(33) It does not **plan for the future**.	Não **planeia para o futuro**.
(34) It has no **vision, no foresight, no sight at all**.	Não tem **visão**, nem **ante-visão**, não tem qualquer sentido da vista.

(35) If it can be said to play the role of the watchmaker in nature, it is the ***blind*** watchmaker.	Se se quiser atribuir-lhe qualquer papel de relojoeiro na natureza, será o relojoeiro **cego**.

The Portuguese translator has tried to observe the overall ideation of the text and maintain the same pattern of lexical repetitions still observing the language constraints. The translator understands how the original author has played with the words related to vision and mind, and attempts to replicate the effort. For example, Dawkins plays with the words **mind** and **mind's eye** in sentences 30,31 and 32. **Mind** would be readily translated as **mente**. The translator has opted to use **imaginação**, a meronym of **mente**. Thus in translating **mind's eye** as **olhos da imaginação**, she keeps the same type of link with the original. Moreover she is consistent with her choice, as it can be seen in sentence 31 where the expression **has no purpose in mind** reads in Portuguese **não imagina qualquer objectivo**.

One problem which makes the text read as a translation in this passage, where the metaphor is defined, has to do with sentence 33: **It has no vision, no foresight, no sight at all**. The author starts with a superordinate **vision,** which encompasses both the meaning of "predicting" and "the physical act of seeing", and unfolds it in the two corresponding hyponyms: **foresight** and **sight**. In Portuguese, the published choice does not have the same strength because the terms do not have the same pattern as in the original: **Não tem visão, nem ante-visão, não tem qualquer sentido da vista.** The paraphrase **não tem qualquer sentido da vista**, for **no sight at all** seems very awkward. Having no lexical alternatives, the semantic

alternatives[1] should be investigated: **no sight at all** in this pattern could be translated as **não enxerga nada: Não tem visão, não tem ante-visão, não enxerga nada.** With this construction, the meaning of the original is preserved, despite the fact that the pattern superordinate-hyponyms is lost.

In order to keep this lexical structure, the same strategy the translator herself used to translate **mind** and **mind's eye** could be applied. She opted for a meronym of mind in order to maintain a morphological link between the two: **imaginação** and **olhos da imaginação**. A meronym for **sight**, **discriminação**, one step down the perceptual scale, maintains the same pattern: **Não tem visão, não tem ante-visão, não tem qualquer discriminação.**

The other change which can be proposed for this same sentence is to maintain the same initial pattern of negation. When she uses **Não tem visão, nem ante-visão** she is contrasting **vision** with **foresight**, which is not the case.

Most of the examples analysed above involve interpersonal metaphors which leave to the reader the task of the construction of meaning. Ideational metaphors present fewer problems in terms of translation because of their textual organisation. They occur in a pattern where the metaphor is the preview of metalinguistic details and its unpacking occurs in a succession. Let us take, for example, the text below:

---

[1]The distinction between a lexical field or a semantic field can be traced back to the point of departure of the descriptive process: the lexical item or the concept. If the point of departure is the lexical item it is the focus of investigation and its meanings are compared and contrasted with those carried by the rest of the lexicaon. If , on the other hand, the concept is taken as point of departure, the concept is the focus (the result of perception and its organisation in long-term memory) and a list of lexical items is provided to designate it.

Example 4

(1)Science is a complicated, interlocking structure.	(1) A ciência é uma estrutura complicada, entrelaçada.
(2)Ideas come from anywhere.	(2) As idéias podem surgir de qualquer parte.
(3)A good idea is like an infectious disease: it spreads.	(3) Uma boa idéia é uma doença infecciosa: espalha-se.
(4)No one can predict what it will lead to, no one can confine it within prescribed bounds.	(4) Ninguém pode prever a que levará, ninguém pode confiná-la em limites preestabelecidos.
(5)Ideas do not come with little labels attached: Warning -Topology Avoid contact with the real world.	(5) As idéias não vêm com rótulos, como: Cuidado- Topologia Evite contato com o mundo real.
(6)Unfortunately, many people tacitly assume that they do.	(6)Lamentavelmente, muitos supõem tacitamente que vêm.

Analysing according to the pattern discussed in chapter 5, metaphor: metalinguistic, this text reads as:

General: Preview: (1)Science is a complicated, interlocking structure.

Detail1: (2)Ideas come from anywhere.
Detail 2: Metaphor: preview: (3)A good idea is like an infectious disease: .
Metalinguistic1: it spreads
Metalinguistic2: (4)No one can predict what it will lead to, no one can confine it within prescribed bounds.
Detail3: (5)Ideas do not come with little labels attached:

WARNING- Topology. Avoid contact with the real world.

Evaluation: (6)Unfortunately, many people tacitly assume that they do.

The sentential pattern helps the reader in his interpretation and therefore makes it easier for the translator, who usually operates in terms of sentences rather than whole texts.

This quick overview of metaphors reveals that the concept that the translated text should look like an original in the target language is insufficient. Texts may read well in their translated form, until compared

with the original. Expressions which have been considered to be just decorative and neglected in the translation are, in fact, the result of an overall schema in which every element contributes its share to build the whole text. This study also reinforces the concept that the separation ideational, interpersonal and textual is just theoretical. In practice every element contributes to the three functions.

As has been seen, metaphors are essential when present in a text and cannot be handled carelessly unless we run the risk of affecting the intention of the text. On the other hand, despite the efforts of a good translator, the different constraints of the original and the target language may result in a text which still does not disclose the whole truth.

Final Remarks

Through the analysis of various informative texts containing metaphors I have tried to show that metaphors can assume a cohesive role. As any linguistic element they can be viewed as ideational, interpersonal or textual. Despite the fact that they are presented sequentially, it is important to notice that these three macrofunctions are activated simultaneously. Nevertheless there are constructions where the ideational dimension is enhanced compared with the interpersonal. My analysis has shown how metaphors unpack into lexical and semantic networks, how they create sentential patterns, where glossing follows the metaphorical statement, how they function as encapsulation markers which recover previous portions of texts and also how they can be prospective markers, creating expectations on the part of the reader regarding the content which will follow.

In chapter 1, I developed the concepts of context and convention in the process of writing and reading. These concepts have proven extremely important in producing and reading those metaphors which I characterised as interpersonal discussed in chapter two. My analysis indicated the relevance of the text, the genre, to the understanding of interpersonal metaphors. Chapters 3, 4 and 5 dealt with experiential metaphors, that is those in which the experiential function outstands. In chapter 3 I pointed out the metadiscoursive signs, which indicate the presence of experiential metaphors, and the textual patterns for their glossing, highlighting the role

of matching relations. Chapter 4 viewed the anaphoric features that metaphors can have with a text. Special emphasis was given to encapsulation, a process by which the metaphor recovers anaphorically not just a specific referent but brings forth a whole stretch of text. Chapter 5 looked at the prospective side of metaphors as those elements create expectations to what is coming ahead. The pattern metaphoric-metalinguistic is introduced within the framework of general -particular, preview-detail (Winter, 1986). Throughout these chapters I have stressed the importance of metaphors when they are present in the text, looking at them, not as ornaments, but as fully performing the three functions of language. In chapter 6, I analysed how they are handled in translations and their effect on the translated text. We observed that metaphors are frequently disregarded in translation with little effect on the readability of the text, but with a lot of effect on ideational and interpersonal aspects.

Pedagogical implications for reading

My extensive examination of informative texts and the role of metaphors provoke some reflections regarding the teaching of reading and writing in our schools. Throughout my research I found evidence that we provide information in texts through cognitive operations which involve establishing similarities and contrasts, classifying and categorising. Thus texts reflect ways of thinking. However, our language programs emphasise formal external aspects of texts, such as nice handwriting, good orthography, proper presentation in the page, punctuation, elements which, nowadays, can be automatically achieved with a computer or are a consequence of a coherent text. The presence of metaphors in informative texts has indicated the need to develop reading not as a process of

decoding nor as a process of guessing, but as a process of constructing meaning, where the reader brings in all the linguistic resources he/she has which are relevant to the text. As Rumelhart and Ortony (1977:132) have argued "what makes a metaphor, after all, is that some of the new information will not fit into the old schema". It is the reader's task to bring in the information he/she has to fill in what has been said through a metaphor. The lexicon, then, should be given a new approach, considering the role it has in text and how it is organised and processed in memory so that the individual develops a network expressing all the potential relationships.

My study of metaphors reinforces the concept that reading should not be viewed as a mechanical act of decoding, but as a process of meaning construction based on the text. The presence of interpersonal metaphors is an extreme case where the reader has to create meaning beyond the actual words printed on the page. By the same token, the presence of ideational metaphors (those that are glossed by the writer) are evidence that the reader must attend to what is on the page and not project what he/she thinks something could be.

In the programs of remedial reading for college students (Laboratório de Leitura UFSC) instructors usually have to deal with two extremes: students who read mechanically and are unable to reach the discoursal features of texts and students who project their own interpretation onto the text based on only a few pieces of information obtained. The latter group is usually harder to deal with, because they do not perceive their reading as incoherent.

According to Baker and Brown (1984) a person realises his/her reading activity almost mechanically up to a point when comprehension is not achieved, that is, when the text is no longer coherent for the reader. As long as the message obtained through reading is coherent the reader does not stop to question it. However, if the text presents something anomalous, or the reader, for one reason or another, has not paid attention to a word or does not know the meaning of an item, among other things, he/she will stop and take some action.[1] Another problem may be making sense, but not the sense intended by the writer (McGinitie, Maria, and Kimmel (1987)). Therefore it should be stressed that at the same time we should make assumptions and inferences about the content of what we are reading, we should also pay attention to all the clues provided by the text.

Remedial reading programs should emphasise both cognitive and textual strategies (Sarig &Folman, 1990; Menegassi, 1990). At the same time readers should be alerted to the need to monitoring comprehension, evoking prior relevant knowledge (schemata), they should be made aware of the need of paying attention to metadiscourse clues, making use of explicit cohesion and coherence signals, identifying textual structures among other things.

Most of all, as metaphoric texts have shown, readers have to be conscious of the need to make inferences during their reading. This is a problem both for the automatic decoder who takes things at face value and for the guesser who makes inferences but does not restrict them to the

[1]Though the idea of monitoring seems very clear cut, in practice it is not so easy to explain it. What exactly determines if the reading is proceeding according to the expected or not? In the writing process the author establishes a goal and he monitors his product pairing to the goal. In the reading process, the reader is also constructing a text but he does not have a defined goal in terms of content which may trigger the inconsistencies which may result from a poor reading.

clues given by the text. For both the automatic decoder and the guesser, the metaphoric text may be an exercise to develop monitoring and search for coherence strategies (Sarig, 1989; Hoey,1991b). Monitoring for textual patterns, such as metaphoric-metalinguistic should be stressed, as a way to develop the awareness that the text itself can provide solutions to queries and at the same time provide the constraints for interpretation.

On the other hand attention should be called to the metaphor, despite the fact that glossing has been given. The fact that the writer brought to the text, by means of a metaphor, a word which otherwise would not be in it, has some significance which may not be captured by the glossing. The construction of meaning results from the cues given by all the elements in the text. The activation of all the signs always points to new features of meaning which only the metaphor could make appear. Problems related to careless handling of metaphors were shown when I discussed metaphors and translation (chapter 6). Those cases where metaphors were neglected in the translation had meaning losses. As translations correspond to a reading of the text, we can extrapolate these findings to reading comprehension in general and therefore call attention to the role of metaphors in texts

Most of all the school should develop creative thinking and ways to express this thinking. Creativity is mostly associated with arts, and it is in this realm that they are worked in most schools. Metaphors in the analysed informative texts have shown that such boundaries, literary versus informative texts, for example, are illusory. Informative texts use metaphors and other creative resources to inform, to evaluate, to express the writer's own feelings towards a topic, to involve the reader, to win an

argument, among other things. Students should be able, then, to be creative not just while drawing or writing a literary piece, but just as creative when solving problems or writing an essay. The role of the language teacher looking from this perspective is much more complex than teaching grammar and literature which has been assumed by a big majority. The native language teacher has to develop in his/her students the ability to express their thoughts coherently.

The analysis of metaphors in texts gives us insights about the writer's discourse in terms of how he/she approaches a certain topic and or how he/she wants his/her readers to approach it. The use of interpersonal or ideational metaphors may lead the reader into opposite paths of processing. Interpersonal metaphors let the reader construct the meaning (subjective interpretation) within the constraints of the text. Ideational metaphors lead the reader in the construction of meaning through their glossing, (objective interpretation).

This study makes it possible for us to draw conclusions not just about metaphors but about texts in general. In the literature on text analysis a recurrent issue is the relationship between the concepts of cohesion and coherence (Halliday and Hasan, 1976; Hoey,1991;Widdowson,1979; Tannen, 1984). Cohesion is seen as an important text-feature that facilitates the sense making capacity of a text by signalling the interrelatedness of its elements. Cohesion is commonly seen as a surface level feature. Coherence, on the other hand, refers to the conceptual connectedness of texts and its fitness for the extra-textual situation. An important issue that has been raised regards the relationship between the

two, whether coherence, which is part in the reader's mind and part in the text, depends on the effective use of cohesive devices.

In my investigation of the role of metaphors in texts, I observed a narrow interdependency between the two concepts and not just a one way dependency suggesting that cohesion only contributes to coherence. It is important to notice, however, that they fulfil these roles as long as the interpersonal "let's pretend" function of metaphors is understood by the reader. Except for those cases where the link is metadiscoursively indicated (chapter 3) most often the reader has to infer the connection between the sentences.

Let us reconsider an example first presented in chapter 4.

(1)A **overdose de informação** sobre o Collorgate tem ajudado a despertar um país que muitos diziam condenado ao sono eterno, e em berço esplêndido. (2)Nunca antes as vísceras das elites, políticas e empresariais, estiveram expostas nesse grau. (3)É um desfile ininterrupto. (4)Jornais, revistas, TV e rádio oferecem a passarela, os locutores, os comentaristas. (5)Na platéia, o povo -pela primeira vez com direito a todo o espetáculo. (6)O resultado visível é uma indignação geral, combustível para o impeachment do primeiro presidente eleito diretamente em 30 anos.

(7)Mas a **droga** que causa a revolta é a mesma que anestesia. (8)Com o tempo, vem o inevitável cansaço. (9)Nada mais espanta. (10)Revelações que antes do Collorgate teriam causado horror hoje não conseguem nem manchete de jornal. (11)O leitor-espectador já tirou suas conclusões, a opinião está formada. (12)Difícil é encontrar alguém que não se ache bem informado sobre o drama. (13)A hora do espanto foi substituída pela da espera. (14)Como num lançamento espacial ou numa prova vital de Fórmula 1,curiosidade está ausente. (15)A atenção está toda na contagem regressiva.

The text above, displays links between sentences, such as for example, **overdose** in (1) and **droga** in (7). However we, the readers, have to perceive that **droga** links back to **overdose**, which in this case is related to

informação, in order to understand the sentence. This is extremely important because the conjunction **mas**, a logical act (Sinclair, 1992), is insufficient to indicate that the writer is choosing no more than the previous sentence; that he is picking up the whole of the preceding paragraph, going back to the beginning of the text. The reader has to link **droga** with **overdose**. Therefore cohesion is obtained only when the reader makes the text coherent. It cannot be seen just as a lexicogrammatical phenomenon which contributes to coherence. In fact, cohesive devices are clues, which need interpreting and, therefore, are not absolutes.

A more comprehensive concept regarding the linking of sentences into texts is that of Winter (1986). For Winter, the interpretation of a sentence is always made with reference to its surrounding sentences. It is a cognitive process which takes into account all the choices involved in the making of these sentences. A textual approach, then, needs as a complement a procedural approach to account for the interactional aspect involved in interpretation.

To conclude, it is worth repeating that texts are the result of the many choices the writer has to make. One of them is whether to use a literal expression or a metaphor. Once the choice is made, as I demonstrated throughout this thesis, metaphors become essential in the text with repercussions at all levels -- ideational, interpersonal and textual.

Suggestions for further research

An interesting future study of metaphors, would be to observe experimentally the time taken to process them. In my description of metaphors in text, I adopted the view that there is a dichotomy

metaphorical-literal meaning. Their widespread use, however, suggests that there may not be a sharp opposition between literal and metaphorical expressions, but rather that they exist on a continuum.

Havránek (1964) already indicated this relativisation when he pointed out the automatisation feature of literal expressions as opposed to the deautomatised metaphoric expressions. For example, I have defined metaphors as the superposition of two or more conceptual schemata leading to a rearrangement of ordinary concepts. Once this way of denominating something becomes automatised by the linguistic community it loses its figurative meaning and may in fact be lexicalised. This explains why foreign language students perceive more readily metaphorical expressions (cf. Henderson, 1986), or why in translation sometimes only the main ideational aspect is preserved. Presumably whenever the metaphor does not have a more important textual function it is not perceived as such.

A related topic for further research has to do with the use of text banks such as the Bank of English set up by COBUILD at the University of Birmingham. I have noticed that some metaphors are repeated in different contexts, such as for example:

dance of planets, **dance** of waves, **dance** of the ministers, **dance** of the numbers, a louca **dança** dos poderes, a **dança** dos índices;

orchestra of different rhythms in our bodies, **orchestra** playing to the beat of the heavens;

the dissected **machinery** of life, Each one of us is a **machine,** like an airliner, only much more complicated., o **corpo é uma máquininha eficiente**, a **máquina** do estado, a **máquina** do esporte;

É desse exercício de **anatomia** arqueológica, Essa grotesca **anatomia** foi por diversas vezes associada ao expressionismo;

all the known LSB galaxies were **dwarfs**; **dwarfed** by the giant

Some of these examples may indicate that according to the association, the rearrangement of features in the new schema is different whereas some remain the same. Research based on a large corpus of text could throw light on the linguistic processes involved in the comprehension of metaphors. Having identified the items which are interesting to investigate, we can search the corpus with the help of a concordancer to obtain the occurrences. The investigator would make the final decision of which occurrences are metaphoric and which are literal. It would be interesting to see if there are features in common that remain constant in all examples which could indicate that rather than operating with lexical items we operate with concepts. The metaphor, then, could be the reflection of a concept organisation. For example, **dance** could be viewed simply as a hyponym of movement; orchestra the hyponym of a synchronised action.

At the same time as we have cases where metaphors promote cohesion, there are cases where they are anti-cohesive elements, that is they break the connection which otherwise would exist among the sentences. In **The Arrow of Time**, for example, there is a chapter about biological rhythms where the authors use different metaphors to refer to the same phenomenon: **biological clock**, **biological rhythm**, **biological beat**. **Clock**, **rhythm** and **beat** have different literal meanings, and therefore in this chapter we might legitimately infer that the authors are referring to different things when in fact it is the same phenomenon. It would be interesting to investigate how much metaphor the informative text can stand and still perform its ideational function and observe when metaphor

cease to be an aid and become an obstruction to comprehension. Considering that metaphor requires the construction of a new meaning on the part of the reader, I feel that too many metaphors may affect the reading process which searches for the coherence of the text. The research could extend to other linguistic elements which could be anti-cohesive.

In my research I viewed metaphors in the patterns general-particular, preview-detail, where the metaphor overlapped with the preview element and the metalinguistic element overlapped with details. It would be also of interest to observe metaphors in the problem-solution pattern as a way to evaluate the arguments presented. I have noticed in some texts that inoperative solutions were introduced figuratively in contrast with those solutions which the author considered ideal and were presented literally.

References for the main examples

Black, M. 1979. More about metaphor. In A. Ortony(ed).**Metaphor and Thought**. Cambridge: Cambridge University Press.

Chomsky, N. 1975. **Reflections on Language**.New York: Pantheon Books.

Coveney, P. & Highfield, R. 1991. **The Arrow of Time: The Quest to Solve Science's Greatest Mystery.** London: Flamingo.

Coveney, P. & Highfield, R.1993. **A Flecha do Tempo**. translation J.E. Smith Caldas. São Paulo: Siciliano.

Dawkins, R, 1986. **The Blind Watchmaker**. Oxford: Oxford University Press.

Dawkins, R. 1988. **O Relojoeiro Cego**. translation I. A. Lisboa: Edições 70.

Foss, D. J. & Hakes, D.T.1978. **Psycholinguistics: An Introduction to the Study of Language.** Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Norman, Colin.1981. **The God that Limps: Science and Technology in the Eighties**. New York: W.W. Norton & Company.

Paivio, A.1986. Psychological processes in the comprehension of metaphor. in A. Ortony (ed) **Metaphor and Thought**. Cambridge: Cambridge University Press.

Stewart, I. 1990. **Does God Play Dice? The New Mathematics of Chaos**. London: Penguin Books.

Stewart, I.1991. **Será que Deus joga Dados? A Nova Matemática do Caos**. translation M L X. de A. Borges. Rio de Janeiro: Jorge Zahar Editor.

Revista **Super Interessante**,1989 **17**:18

Revista **Super Interessante**,1993, **64**:56.

Scientific American, 1991: September.

Folha de São Paulo. Domingo, 6 de setembro de 1992, p:10

References

BADDELEY, A.D. 1979. Working memory and reading. In P. A. Kolers, M.E. Worlstad & H. Bouma (eds.) **Processing of Visible Language**. New York: Plenum, 355-370.

BADDELEY, A. D. 1982. Reading and working memory. **Bulletin of the British Psychological Society, 35**: 414-417.

BADDELEY, A.D. & HITCH, G. 1974. Working memory. In G. Bower (ed.) **Recent Advances in Learning and Motivation**. London: Academic Press. 47-89.

BAKER, L. & BROWN, A. L. 1984.Comprehension monitoring and critical reading. In J. Flood (ed.) **Understanding Reading Comprehension: Cognition, Language and the Structure of Prose.** Newark, Delaware: International Reading Association.

BAZERMAN, C.1988. **Shaping Written Knowledge.** Madison: University of Wisconsin Press.

BLACK, M. 1979,1986. More about metaphor. In A.Ortony (ed.) **Metaphor and Thought.** Cambridge:Cambridge University Press.

BOLINGER, D. 1968. **Aspects of Language**. New York: Harcourt, Brace & World.

BOLINGER, D.1980. **Language: the Loaded Weapon**. London: Longman.

BOOTH, W.1978. Metaphor as rhetoric: The problem of evaluation. **Critical Inquiry**, Autumn, 5,1:49-72.

BOYD, R. 1979, 1986. Metaphor and theory change:what is "Metaphor" a metaphor for? In A. Ortony (ed.) **Metaphor and Thought**. Cambridge: Cambridge University Press.356-408.

BROWN, G. & YULE, G. 1983, 1989. **Discourse Analysis**. Cambridge: Cambridge University Press.

CARTER, R.1987. **Vocabulary: Applied Linguistics Perspectives**. London: Allen & Unwin.

CARTER, R. & MCCARTHY, M.1988. **Vocabulary and Language Teaching**. London: Longman.

CLARK, H. H. & CARLSON, T.B.1990. Context for Comprehension. In G.Kirsh & D. Roen. (eds.) **A Sense of Audience in Written Communication**. London: Sage Publications.

CLEMENTS,P. 1979. The effects of staging on recall from prose. In R. O. Freedle (ed.) **New Directions in Discourse Processing**. Norwood, New Jersey:Ablex.

Collins COBUILD English Language Disctionary, 1990.

COHEN, T.1978. Metaphor and the cultivation of intimacy.**Critical Inquiry**. Autumn, 5,1:3-12.

COLLINS, A. M. & LOFTUS, E. S. 1975. A spreading-activation theory of semantic processing. **Psychological Review, 82**:407-428.

COLLINS, A. M. & QUILLIAN, M. R. 1969. Retrieval time from semantic memory. **Journal of Verbal Learning and Verbal behavior, 8**, 240-247.

COSERIU, E.1962. **Teoria Del Lenguaje Y Linguistica General**. Madrid: Editorial Gredos.

COULTHARD, R. M. 1985. **An Introduction to Discourse Analysis**. London: Longman.

COULTHARD, R. M. (ed.) 1986. **Talking about Text**. Birmingham:The University of Birmingham.

COULTHARD, R. M. 1987. Evaluative text analysis. In R. Steele and T. Threadgold (eds.) **Language Topics, Essays in Honour of Michael Halliday**. Amsterdam/Philadelphia: John Benjamins Publishing Company: 181-190.

COULTHARD, R. M. 1992a. **Advances in Spoken Discourse Analysis**. London: Routledge.

COULTHARD, R. M. 1992b. On the importance of matching relations in the analysis and translation of literary texts. **Ilha do Desterro: Journal of Language and Literature**. 27: 33-43.

COULTHARD, R. M. 1994a. On analysing and evaluating written text. In. R. M. Coulthard (ed.) **Advances in Written Text Analysis**. London: Routledge. 1-11.

COULTHARD, R. M. (ed.)1994b. **Advances in Written Text Analysis**. London: Routledge.

COUTURE, B.1986. **Functional Approaches to Writing: Research Perspectives**. London: Frances Pinter.

CRAIK, F.I.M.& LOCKHART, R.S. 1972. Levels of processing: A framework for memory research. **Journal of Verbal Learning and Verbal Behavior**. **11**:671-684.

CRAIK, F.I.M. & JACOBY, L.L. 1979. Elaboration and distinctiveness in episodic memory. In L.G. Nilsson (ed.) **Perspectives on Memory Research: Essays in Honor of Uppsala University's 500th Aniversary**. Hillsdale:Lawrence Erlbaum Associates.

CRISMORE, A.1984. The rhetoric of textbooks: Metadiscourse. **Journal of Curriculum Studies**. **16**:279-296.

CRISMORE, A.1990. Metadiscourse and discourse processes: Interactions and issues. **Discourse Processes, 13**: 191-205.

CRISMORE, A. & FARNSWORTH, R.1990. Metadiscourse in popular and professional science discourse. In W. Nash (ed.) **The Writing Scholar: Studies in Academic Discourse**. Newbury Park: Sage Publications.

CRUSE, D. A. 1986. **Lexical Semantics.** Cambridge: Cambridge University Press, reprinted 1991.

DAVIDSON, D. 1978.What metaphors mean. **Critical Inquiry**. Autumn, 5,1:31-47.

DAWKINS, R.1979. **O Gene Egoísta**. Belo Horizonte: Ed. Itatiaia. São Paulo: Ed. Universidade de São Paulo.

DELL, G. S., MC KOON, G. & RATTCLIFF, R. 1983. The activation of antecedent information during the processing of anaphoric reference in reading. **Journal of Verbal Learning and Verbal Behavior. 22**, 121-132.

DE MAN, P. 1978. The epistemology of metaphor.**Critical Inquiry.** Autumn, 5,1:13-30.

DIJK, T. VAN & KINTSCH, W.1983. **Strategies of Discourse Comprehension**. New York: Academic Press.

Encyclopaedia Britannica

FRANCIS, G. 1986. **Anaphoric Nouns. Discourse Monographs** No. 11. Birmingham: ELR University of Birmingham.

FRANCIS, G. 1987. The teaching of techniques of lexical cohesion in an ESL setting. Seminar at the Institute of Language in Education, Third International Seminar, Hong Kong.

FRANCIS, G.1989. Aspects of nominal-group lexical cohesion. **Interface: Journal of Applied Linguistics.** 4.1: 27-53.

FRANCIS, G. 1994. Labelling discourse: an aspect of nominal-group cohesion. In R. M. Coulthard (ed.) **Advances in Written Text Analysis**. London: Routledge.pp.83-101.

FRASER, B. 1979,1986. The interpretation of novel metaphors. In A. Ortony, (ed.) **Metaphor and Thought**. Cambridge: Cambridge Univesity Press. 172-185.

GARVIN, P.1964. **A Prague School Reader on Esthetics, Literary Structure, and Style**.Washington: Georgetown University Press.

GREEN, T. F. 1979,1986. Learning without metaphor. In A.Ortony (ed.) **Metaphor and Thought**. Cambridge: Cambridge Univesity Press. 462-473.

GREGORY, M.& CARROLL, S.1978. **Language and Situation: Language Varieties and their Social Contexts**. London: Routledge & Kegan Paul.

GRICE, H.P. 1971. Meaning. In D. D. Steinberg and L. A. Jakobovits (eds.) **Semantics: An Interdisciplinary Reader in Philosophy, Linguistics and Psychology**. Cambridge:Cambridge University Press.

GRIMES, J. E. 1975. **The Thread of Discourse**. The Hague: Mouton.

GRIMM-CABRAL, L. 1982 A adequação ao ouvinte em estórias de pré-escolares. In: **Anais da 34ª Reunião Anual da Sociedade Brasileira para o Progresso da Ciência**.

GRIMM-CABRAL, L.1988. Por que um *Laboratório de Leitura*? **Ilha do Desterro: Psicolinguística. A Journal of Language and Literature**.19: 78-87

GRIMM-CABRAL, L.1991(org.) **Fragmentos: Leitura.** Florianópolis, UFSC, vol.3,2.

GRIMM-CABRAL, L. 1991. O papel do vocabulário na compreensão do texto. Trabalho apresentado no Seminário do Curso de Pós-Graduação de Inglês, Abril .

GUMPERZ, J. J.1982. **Discourse Strategies**.Cambridge: Cambridge University Press.

HALLIDAY, M.A.K. 1973. **Explorations in the Functions of Language**. London: Edward Arnold.

HALLIDAY, M.A.K. 1975. **Learning how to Mean- Explorations in the Development of Language**. London: Edward Arnold.

HALLIDAY, M.A.K. 1985. **An Introduction to Functional Grammar**. London: Edward Arnold.

HALLIDAY, M.A.K.1988. On the ineffability of grammatical categories. In J.D.Benson, J. Cummings & W.S.Greaves (eds.) **Linguistics in a Systemic Perspective**. Amsterdam: John Benjamins Publishing Company.

HALLIDAY, M.A.K.1989. **Spoken and Written Language**. Oxford:Oxford University Press.

HALLIDAY, M.A.K. & HASAN, R.1976. **Cohesion in English**. London: Longman.

HARVEY, A. 1992. Science Reports and Indexicality. **English for Specific Purposes, 12**: 115-128.

HASAN, R. 1984.Coherence and cohesive harmony. In J.Flood (ed.) **Understanding Reading Comprehension.** Delaware: International Reading Association.181-219.

HAVRÁNEK, B. 1964.The Functional Differentiation of Standard Language. In P.Garvin (ed.) **A Prague School Reader on Esthetics, Literary Structure, and Style**. Washington: Georgetown University Press.3-16.

HEFFERNAN, J.A.W. & LINCOLN, J.E. 1982.**Writing: A College Handbook**. New York: W.W.Norton & Company.

HENDERSON, W.1986. Metaphors in economics. In R. M. Coulthard (ed.) **Talking about Text:Studies Presented to David Brazil on his Retirement**. Birmingham: ELR, The University of Birmingham. 109-127.

HIMLEY, M. 1986. Genre as generative: one perspective on one child's early writing growth. In M. Nystrand (ed.) **The Structure of Written Communication**.Orlando: Academic Press Inc.

HOEY, M. 1979. Signalling in discourse.**Discourse Analysis Monographs** No. 6 Birmingham: English Language Research, University of Birmingham.

HOEY, M. 1983. **On the Surface of Discourse**. London: George Allen and Unwin.

HOEY, M. 1986.The discourse colony: a preliminary study of a neglected discourse type. In M. Coulthard (ed.) **Talking about Text: Studies Presented to David Brazil on his Retirement. Discourse Analysis Monographs.** No. 14, Birmingham: ELR, University of Birmingham.

HOEY, M.1991a. **Patterns of Lexis in Text**. Oxford: Oxford University Press.

HOEY, M.1991b. Another perspective on coherence and cohesive harmony. In Eija Ventola (ed.) **Functional and Systemic Linguistics: Approaches and Uses.** Berlin:Mouton de Gruyter, 385-414.

HUNSTON, S. 1989. **Evaluation in Experimental Research Articles**. Unpublished PhD Dissertation, University of Birmingham.

HUNSTON, S. 1994. Evaluation and organisation in a sample of written academic discourse. In. R. M. Coulthard (ed.) **Advances in Written Text Analysis**. London: Routledge.191-218.

KAYZER, W. 1948; 1963. **Análise e Interpretação da Obra Literária**. Coimbra: Arménio Amado editor.

KINTSCH, W. & DIJK, T. V. 1978. Toward a model of text comprehension and production. **Psychological Review**, 85: 363-394.

KNEIPP, M. A. 1990. Era uma vez um cruzado... In E. Pontes (ed.) **A Metáfora**. Campinas:Editora da UNICAMP, 55-68.

KUHN, T.S. 1979,1986. Metaphor in science. In A. Ortony (ed.) **Metaphor and Thought**. Cambridge: Cambridge Univesity Press. 409-419.

LAKOFF, G. & JOHNSON, M.1980. **Metaphors we Live by.** Chicago:The University of Chicago Press.

LATOUR, B. 1987. **Science in Action: How to Follow Scientists and Engineers through Society**. Milton Keynes: Open University Press.

LAVANDERA, B.R. 1988. The Study of Language in its socio-cultural context. In F.J. Newmeyer (ed.) **Linguistics: The Cambridge Survey IV Language: The Socio-Cultural Context**. Cambridge: Cambridge University Press.1-13.

LEVIN, S.R.1979,1986. Standard approaches to metaphor and a proposal for literary metaphor. In A. Ortony (ed.) **Metaphor and Thought**. Cambridge:Cambridge University Press.

LYONS, J. 1968. **Introduction to Theoretical Linguistics**. Cambridge: Cambridge University Press.

MANN, W.C. & THOMPSON, S.(eds.)1992.**Discourse Description:Diverse Linguistic Analyses of a Fund Raising Text.** Philadelphia: John Benjamins Publishing Company.

MARSCHRK, M., KATZ, A. & PAIVIO, A. 1983. Dimensions of metaphor. **Journal of Psycholinguistics Research, 12**, 1,17-39.

MARTIN, J.R.1985. Process and text: two aspects of human semiosis. In Benson & Greaves (eds.) **Systemic Perspectives on Discourse**. Norwood, New Jersey: Ablex Publishing Corporation.

MARTIN, J.R. 1990. **Factual Writing: Exploring and Challenging Social Reality**. Oxford: Oxford University Press.

MARTIN, J.R.1991. Nominalisation in science and humanities: distilling knowledge and scaffolding text. In E.Ventola (ed.) **Functional and Systemic Linguistics: Approaches and Uses**. Berlin: Mouton de Gruyter.

MCCABE, A. 1983. Conceptual similarity and the quality of metaphor in isolated sentences versus extended contexts. **Journal of Psycholinguistic Research**. vol.12, 1, 41-68.

MCCARTHY, M. 1991. **Discourse Analysis for Language Teachers**. Cambridge: Cambridge University Press.

MCGINITIE, W.H., MARIA, K.& KIMMEL,S. 1987. O papel das estratégias cognitivas não acomodativas em certas dificuldades de compreensão de leitura. In E. Ferreiro and M. G. Palacio (eds.) **Os Processos de Leitura e Escrita: Novas Perspectivas.** Porto Alegre: Artes Médicas.

MCINTOSH, A. 1966. Patterns and ranges. In A.McIntosh, & M. A. K. Halliday (eds.) **Patterns of Language.** London: Longman:183-199.

MCKOON, G. & RATTCLIFF, R. 1980. The comprehension processes and memory structures involved in anaphoric reference. **Journal of Verbal Learning and Verbal Behavior**, **20**, 204-215.

MENEGASSI, R.J. 1990. **Confronto entre Abordagens de Leitura**.Unpublished Master's dissertation. UFSC, Programa de Pós-Graduação em Letras: Linguística.

MILLER, C.R. 1984. Genre as social action. **Quarterly Journal of Speech**. **70**:151-167.

MILLER, J. R. & KINTSCH, W. 1980. Readability and recall of short prose passages: A theoretical analysis. **Journal of Experimental Psychology: Human Learning and Memory**. **6**: 335-354.

MILOSKY, L.M. 1990. The role of world knowledge in language comprehension and language intervention. **Topics in Language Disorders**. 10 :1-13

MYERS,G. 1990. **Writing Biology: Texts in the Social Construction of Science.** Madison : University of Wisconsin Press.

MYERS,G. 1991. Lexical cohesion and specialized knowledge in science and popular science texts. **Discourse Processes, 14:**1-26.

NASH, W. 1990.**The Writing Scholar: Studies in Academic Discourse**. Newbury Park: Sage Publications.

NYSTRAND, M. 1986. **The Structure of Written Communication: Studies in Reciprocity between Writers and Readers**. Orlando: Academic Press Inc.

O'BRIEN, E.J. 1987. Antecedent search processes and the structure of text. **Journal of Experimental Psychology: Learning, Memory, and Cognition**. **13**:278-290.

O'BRIEN, E. J. & MYERS, J.L.1985 When comprehension difficulty improves memory for text. **Journal of Experimental psychology: Learning, Memory, and Cognition**. **11**:12-21.

O'BRIEN, E.J., DUFFY,S.A.,& MYERS, J.L.1986. Anaphoric inference during reading. **Journal of Experimental Psychology: Learning, Memory and Cognition, 12**: 346-352.

ORTONY, A. 1979,1986. **Metaphor and Thought**. Cambridge: Cambridge University Press.

ORTONY, A. 1979,1986a. Metaphor: a multidimensional problem. In A. Ortony (ed.) **Metaphor and Thought**. Cambridge: Cambridge University Press. 1-16.

ORTONY, A. 1979b 1986. The role of similarity in similes and metaphors. In A. Ortony (ed.) **Metaphor and Thought**. Cambridge: Cambridge University Press. 186-201.

ORTONY, A. 1984 Understanding figurative language. In P.D.Pearson, (ed.) **Handbook of Reading Research**. New York: Longman: 453-470.

ORTONY, A., REYNOLDS, R. E. & ARTER, J. 1978. Metaphor: theoretical and empirical research. **Psychological Bulletin**. 85, 5:919-942.

ORTONY, A., SCHALLERT,D. L. REYNOLDS, R. E.& ANTOS, S.J. 1978. Interpreting metaphors and idioms: some effects of context on comprehension. **Journal of Verbal Learning and Verbal Behavior.**

PAIVIO, A.1979,1986. Psychological processes in the comprehension of metaphor.In A. Ortony (ed.) **Metaphor and Thought**. Cambridge: Cambridge Univesity Press:150-171.

PETRIE, H.J. 1979, 1986. Metaphor and learning.In A. Ortony (ed.) **Metaphor and Thought**. Cambridge: Cambridge Univesity Press 438-461.

PHILLIPS, M.1989. **Lexical Structure of Text**. Birmingham, English Language Research, University of Birmingham.

QUINE, W.V. 1978. Afterthoughts.**Critical Inquiry**, Autumn, 5,1: 162.

QUIRK, R., GREENBAUM, S., LEECH,G., & SVARTVIK, J. 1972. **A Grammar of Contemporary English**. London: Longman.

RAVELLI, L.J. 1988. Grammatical metaphor: an initial analysis. In E.H. Steiner and R. Veltman (eds.) **Pragmatic, Discourse and Text:Some Systemically-inspired Approaches.** London: Pinter Publishers.133-247.

RECH, M.D. 1992. **O Conflito de Expectativas na Interação em Sala de Aula**. Unpublished Master's dissertation. UFSC, Programa de Pós-Graduação em Letras: Linguística.

RICOEUR, P. 1978. The Metaphorical process. **Critical Inquiry**. Autumn, 5,1:143-159

RUMELHART, D.E., LINDSAY, P.H. & NORMAN, D.A. 1971 .**A Process Model for Long Term-Memory**. Technical Report 17, Center for Human Information Processing, University of California, San Diego.

RUMELHART, D.E & ORTONY, A. 1977.The representation of knowledge in memory. In R.C. Anderson, R.J. Spiro & W.E.Montague (eds.) **Schooling and the Acquisition of Knowledge**. Hillsdale, N.J.:Erlbaum.:99-135.

SALAMÉ, P.& BADDELEY, A.D. 1982. Disruption of short-term memory by unatttended speech: Implications for the structure of working memory. **Journal of Verbal Learning and Verbal Behavior**. **21**, 150-164.

SARIG, G. 1989.High-level reading in the first and in the foreign language: Some comparative process data. **Ilha do Desterro, Reading : Creative and Automatic Processes**.

SARIG, G. & FOLMAN, S.1990. Metacognitive awareness and theoretical knowledge in coherence. In M. Spoelders (ed.) **Literacy Acquisition**. Lier, Belgium: Van In and C & C.

SCHANK, R. 1975.The structure of episodes in memory. In D. Bobrow & A. Collins(eds.) **Representation and Understanding**. New York: Academic Press.

SCLIAR-CABRAL, L. 1989.Automatic and creative skills in reading. **Ilha do Desterro, Reading : Creative and Automatic Processes, 21**: 97-113.

SCLIAR-CABRAL, L. 1991. Resenha: primeiras leituras, Livro 1, Cartilha e Orientação ao professor por D´Ávila. **Fragmentos: Leitura**. vol.3, 2, 110-119.

SCLIAR-CABRAL, L. & GRIMM-CABRAL, L.1987. Research on narrativity in literacy improvement. in G.Gagné, F. Daems & S. Kroon, (eds.) **Selected Papers in Mother Tongue Education.** Dordrecht-Holland: Floris Publications.125-134

SEARLE, J. R. 1979,1986. Metaphor. In A. Ortony (ed) **Metaphor and Thought**. Cambridge: Cambridge University Press.92-123.

SHANNON, C.1948. A mathematical theory of communication. **Bell System Technical Journal**, 3: 379-472.

SHIFFRIN, R.M. & SCHNEIDER, W. 1977. Controlled and automatic information processing: II. Perceptual learning, automatic attending, and general theory. **Psychological Review, 84**:127-190.

SINCLAIR, J. M. 1992. Trust the text. In L. Ravelli and M. Davies (eds.) **Advances in Systemic Linguistics: Recent Theory and Practice**. London: Pinter.

SINCLAIR, J. M. 1993. Written discourse structure. In J.M.Sinclair, M.Hoey & G. Fox (eds.) **Techniques of Description:Spoken and Written Discourse. A Festchrift for Malcolm Coulthard.** London: Routledge.6-31.

SOUZA E SILVA, M.C.P. 1992. O Discurso universitário e sua construção. **Ilha do Desterro: Text Analysis. 27** Florianópolis: UFSC, 157-165.

STANOVICH, K. 1980 Toward an interactive-compensatory model of individual differences in the development of reading fluency. **Reading Research Quarterly**. 16:32-71.

STITCH, T. G. 1979,1986. Educational uses of metaphor. In A. Ortony (ed.) **Metaphor and Thought**. Cambridge: Cambridge Univesity Press. 474-485.

STODDARD, S. 1991. **Text and Texture: Patterns of Cohesion**. Norwood, New Jersey: Ablex Publishing Corporation.

SWALES, J. M.1990. **Genre Analysis: English in academic and research setting**. Cambridge: Cambridge University Pres.

SWANSON, D.R. 1978. Afterthoughts on metaphor: toward a psychology of metaphor. **Critical Inquiry**, Autumn, 5,1:163-164.

TADROS, A. 1985. **Prediction in Text**. Discourse Analysis Monograph No. 10, Birmingham: ELR, University of Birmingham.

TADROS, A. 1989. Predictive categories in university textbooks. **English for Special Purposes, 8**:17-31.

TANNEN, D. 1984.**Coherence in Spoken and Written Discourse**. Norwood, New Jersey: Ablex Publishing Co.

TANNEN, D. 1989. **Talking Voices: Repetition, Dialogue, and Imagery in Conversational Discourse**. Cambridge: Cambridge University Press.

TORRANCE, N.& OLSON, D. 1990. Children's understanding of ambiguity and interpretation. In M. Spoelders (ed.) **Literacy Acquisition**. Lier, Belgium: Van In and C & C.

TULVING, E.1972. Episodic and semantic memory. In E. Tulving and W. Donaldson (eds.) **Organization of Memory**. New York:Academic Press.

VANDE KOPPLE, W.J. 1985.Some exploratory discourse on metadiscourse. **College Composition and Communication. 36**:82-93.

Webster's Seventh New Collegiate Dictionary

WIDDOWSON, H. G. 1979. Rules and procedures in discourse analysis. In T. Myers (ed.) **The Development of Conversation and Discourse**. Edinburgh: Edinburgh University Press.

WIDDOWSON, H.G. 1983. **Learning Purpose and Language Use**. Oxford: Oxford University Press.

WINNER, E. 1988. **The point of words:Children's understanding of metaphor and irony**. Cambridge, Ma: Harvard University Press.(apud Milosky, 1990).

WINTER, E.O. 1977. A clause relational approach to English texts: A study of some predictive lexical items in written discourse. **Instructional Science**. 6: 1-92.

WINTER, E.O. 1979.Replacement as a fundamental function of the sentence in context. **Forum Linguisticum,** 4, 2: 95-133.

WINTER, E.O. 1982. **Toward a Contextual Grammar of English: The Clause and its Place in the Definition of Sentence**.Lonfon: Allen & Unwin.

WINTER E.O. 1986. Clause relations as information structure. In R. M. Coulthard (ed.) **Talking about text**. Birmingham:ELR, 88-108.

WINTER, E. O. 1992. The notion of unspecific versus specific as one way of analysing the information of a fund raising letter. In William C. Mann & Sandra Thompson (eds.) **Discourse Description: Diverse Linguistic Analyses of a Fund Raising Text**. Amsterdam:John Benjamins Publishing Company,131-170.