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**Studying Written Irony Comprehension:
Some Theoretical and Methodological Problems**

Hervé Conan

**A Thesis
in
The Centre for Teaching
English as a Second Language**

**Presented in Partial Fulfillment of the Requirements
for the Degree of Master of Arts (Applied Linguistics) at
Concordia University
Montréal, Québec, Canada**

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ABSTRACT

The writer's intentions are not necessarily reflected in the sentence used to make them manifest. The need to infer the writer's intentions from his sentences, and the general distinction between intentions and sentence contents are assumed to constitute one source of children's reading problems. Given that this distinction is particularly noticeable in irony, it is suggested that the study of irony can shed light on children's general difficulty in managing the pragmatic aspects of written communication. To provide the ground for future research into children's comprehension of written irony, models of irony and of reading comprehension are reviewed and several theoretical issues are identified. Theoretical and methodological problems are discussed and a tentative interactive model of literal and ironic communication is sketched. Suggestions are made about possible directions for future investigation of young readers' comprehension of written irony. Finally, the contribution of the study of irony to the field of reading comprehension research is assessed.

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INTRODUCTION

There has been a considerable shift in the area of reading research in the last twenty years (Guthrie, 1980). Researchers have indeed turned from a previous involvement in the study of auditory, visual processes, and visual-auditory integration of words, to the cognitive processes involved in the comprehension of story structures, in drawing inferences, and in relating new and old information. In fact, the shift in question has been twofold; a shift in the issues discussed (from perception to comprehension), and a shift of units of analysis (from words to texts). This evolution has triggered "an unprecedented interest in reading comprehension research" (Durkin, 1981, p. 23) and has established the *comprehension* of written *texts* as the most important area in current reading research. This is not meant to imply that previous researchers had failed to correctly estimate the importance of comprehension. In fact, some of them simply felt ill-equipped to deal with the semantic and pragmatic aspects of written communication. For instance, in discussing the "comprehension device" of his model of the reading process, Gough (1976) admitted: "we have no good idea how that device works For the present purpose, it suffices to assume that some wondrous mechanism (which we might dub 'Merlin') tries to discover the deep structure of the fragment, the grammatical relations among its parts"(p. 519). Since then, progress in Artificial Intelligence, Cognitive psychology, semantics, pragmatics and sociology has shed some light into the "wondrous mechanisms" of written language comprehension.

The present work takes place within the general field of reading comprehension. It comes as a response to the lack of attention shown to one aspect of reading comprehension, namely the study of children's comprehension of written irony. More specifically, the question the present thesis addresses is

"What are the problems involved in conducting research into children's comprehension of written irony?"

To introduce the topic, it will be first necessary to restrict the very wide field of reading research to discussion of the major variables of the reading process. It will be shown that these variables are related to some of the problems children experience in reading. Yet, we will argue that in explaining why a reader may fail to correctly understand text, researchers have overlooked one source of reading difficulties. They have indeed paid little attention to the discrepancy between literal and figurative or indirect meanings and to the influence of that discrepancy on comprehension. The present work aims at investigating aspects of the comprehension of one instance of figurative language use: namely irony. More precisely, the thesis question concerns the study of some of the problems associated with children's understanding of written irony. This research is not an experimental study nor a field investigation of children's comprehension of irony, but the groundwork necessary before such a study could be undertaken. Indeed, the phenomenon of written irony comprehension requires preparatory clarification before any experimental or field work can be carried out. Chapter I is, then, an attempt to show that, given our present knowledge of reading, the study of irony comprehension in children constitutes a *potentially* relevant area of research in much need of preliminary analysis.

The overall perspective of the rest of the thesis is to lay the ground for studies involving empirical field observation or experimental research. The preparation of any study requires that decisions be taken about what would be the most relevant aspects to study and how they should be investigated. Accordingly, the present work addresses some of the theoretical and methodological problems that future research on children's comprehension of written irony will have to tackle. To achieve this, various different disciplines will be surveyed for what they have to say on irony: reading comprehension research, semantics, pragmatics, and research on comprehension monitoring.

The thesis topic is introduced in Chapter I. Pragmatic theories of irony are reviewed and certain crucial issues are identified in Chapter II. As the scope of the present research has been restricted to written irony, and since theories of irony have focused on *oral* lan-

guage, we then turn our attention to theories of reading. Chapter III thus presents some relevant aspects of the reading process, discusses the role of literal meaning, context and inferencing in that process. Chapter IV evaluates the convergences in the issues discussed in Chapter I, II and III, and identifies some of the problems involved in conducting research into children's comprehension of written irony. In Chapter V we then make suggestions about what could constitute the issues and theoretical basis for future research on irony comprehension. Lastly, we conclude by assessing the potential contribution of the study of irony to the field of reading comprehension research .

CHAPTER I: SETTING THE PROBLEM

Introduction

Emile Javal's research on eye-movement carried out in 1879 is most often mentioned as the first research on reading ever carried out. Reading research appears then to be just a little more than 100 years old. Since 1879, studies have accumulated to such an extent that the editors of a recent review of reading comprehension research remarked that the volume of research is simply awe-inspiring ... and it is beyond the capacity of the editors of this book to summarize or synthesize, or indeed simply read, the studies that are being conducted at present and that have been carried out particularly in the past ten years. (Alderson and Urquart, 1984, p. xv)

Two directions have been taken to tackle the problems created by such an abundance, and to organize research findings into coherent frameworks. Some researchers have tried to conceptualize knowledge and theory about reading in the form of reading models (Goodman, 1968, 1976; Gough, 1976; Just and Carpenter, 1980; Kintsch and vanDijk, 1978; LaBerge and Samuels, 1974). In a second, but related direction, researchers have focused on the major aspects of the reading process. The relation between the two directions lies in the fact that models of reading have implicitly or explicitly characterized reading as a multidimensional process with cognitive, visual-auditory, linguistic and social dimensions. Generally speaking, three major sets of variables emerge (Kamil, 1984; Mosenthal, 1984): the text, the reader, and the context. Leaving the description and analysis of the most prominent models of reading for Chapter III, let us restrict the present discussion to research on these three variables and establish the background for the research question.

The Background

As reading is carried out by individuals under specific circumstances and with specific texts, it should not come as a surprise that researchers have focused on the reader, the text and the context as three aspects that could influence reading comprehension. As noted earlier, the sum of the studies that have been carried out to document and analyze these aspects is so large that it has become practically unmanageable. So, the following review of literature does not try to do in a few pages what others have failed to achieve in books. Its goal is rather to provide an overview of the major research findings in the study of each of these three variables.

The Reader

In the reading process, it stands to reason that the reader is the active element. Unlike verbal communication, the reader is alone in most reading events, with no feedback to give and little incentive to expect.

First of all, the reader "decides" whether or not he will engage in the task of reading. McDermott (1985), Labov and Robin (1969) looked at the importance of the reading failure of black children to their peer and community status in urban ghettos. Both studies argued that learning to read is most likely to be viewed by peers as "schoolish" and to result in a loss of status within the peer group. McDermott concluded that "school failure and delinquency often represent highly motivated and intelligent attempts to develop the abilities, strategies, and identities that will best equip the child to maximize his utilities in the politics of everyday life" (p 590). It could, of course, be argued that it is only under these quite extreme circumstances that reader's orientation toward the reading task is a crucial factor.

However, various studies have shown that the reader's interest for the text topic and his motivation play an important role in determining what the process and product of read-

ing will be. For example, Fransson (1984) examined the relation between intrinsic and extrinsic motivation on the one hand, and deep or surface-level reading, on the other hand. He noticed that intrinsically-motivated readers were more likely to choose a deep-level learning strategy (where attention is directed toward text meaning), while extrinsically-motivated readers tended to prefer a surface-level learning strategy (where attention is directed toward learning the text). Fransson concluded that motivation type has important influences on the reading process.

The reader's involvement in reading goes far beyond his willingness or motivation to read. There is indeed increasing evidence that reading comprehension depends crucially on the reader's ability to integrate text elements in a structure that would match his previous knowledge. When texts fail to provide cues to such an interpretive framework, readers typically either misunderstand them or find them uninterpretable. Bransford and Johnson (1972) presented subjects with a passage that was vague and opaquely written, along with two pictures. The passage turned out to be poorly understood and remembered when no illustration was supplied or when the illustration provided only a partial context for the interpretation of the text. In the same vein, Bransford and McCarrell (1974) showed that such a sentence as "The notes were sour because the seam split" is meaningless, despite its straightforward syntax and simple vocabulary. However, when the word "bagpipe" is provided as a clue, the words and the sentence become interpretable in terms of the image that "bagpipe" evokes. It appears, then, that what could be called "text meaning" is as much in the reader's mind as it is in the text: it lies in the interaction between a reader and a text.

This point is supported by the relation which exists between a reader's perspective or experience and his interpretation of a text. Anderson, Reynolds, Schallert and Goetz (1977), Pichert and Anderson (1977) and Anderson and Pichert (1978) established such a relation. They showed that readers tend to recall text elements that are consistent with their experience (Anderson et al., 1977) or with a perspective that is assigned to them (Pichert

and Anderson, 1977; Anderson and Pichert, 1978). Readers not only rated the importance of the various ideas and concepts mentioned in the text in accordance with their point of view but they also discarded information that was not relevant to their perspective. The reader's standpoint thus restricts what he sees in and what he remembers of text.

Broadly speaking, the knowledge readers bring to reading also accounts for some types of distortions found in text recall. For example, when reading texts describing events or concepts associated with a foreign culture, readers tend to remember (more appropriately, they tend to distort) these elements in terms of their *own* cultural background. That tendency to distort culturally sensitive elements in texts was first made clear by Barlett (1932) and was confirmed by Steffensen and Joag-Dev (1984). Far from being limited to cross-cultural situations, these distortions appear as the most visible aspect of a more fundamental dimension of reading: inferencing. Indeed, readers do not only try to find the best match possible between what the text seems to refer to and some meaningful and personal mental construct; they also add information not explicitly expressed in the text itself.

While inferencing can lead to the production of unwarranted inferences, or distortions, it appears as a necessary component of proficient reading. First, because writers are never totally explicit. For example, they assume that once "restaurant" is mentioned, they don't need to specify that the subsequent "waiter" is in fact "the waiter of that particular restaurant", nor do they need to remind us that waiters work in restaurants. In other words, writers, as well as speakers, assume that much information can be inferred from common knowledge. In fact, even if writers wanted to be *totally* explicit, they would not only be faced with the unmanageable task of describing how the human mind works and what it contains, they would also be quite boring. Second, inference generation emerges as a by-product of the reader's interpretation of the text as a whole. As Garrod (1985) suggested, the concept of inference lies in the discrepancy between the information contained in the sentences themselves (the propositional content) and the information that arises from the reader's interpretation of the text (its significance). In trying to produce a coherent interpre-

tation of text, readers bring additional information, inferences, of several sorts. For instance, Trabasso (1981) assumed that we make "text-connecting" and "slot-filling" inferences. The former serve to establish semantic and logical connection between the propositions in the text, while the latter arise because relating these propositions requires additional information. Various inference taxonomies have been put forward in the last decade (Clark, 1977; Trabasso, 1981; Harris and Monaco, 1978). In a recent review of these frameworks, Singer (1988) noted that no fewer than 20 inference categories had been proposed. The variety of inference types that such taxonomies include is in itself a good indication of the complexity of inferencing and of its pervasive presence in written language comprehension.

Research carried out to assess the reader's influence on reading comprehension could be summarized in three general ideas. First, we know that reading comprehension depends crucially on the reader's capacity to construct and retrieve from memory a mental representation that would fit the concepts and descriptions made in the text. A second finding has been that the reader's perspective, motivation, cultural and social background strongly influence both the reading process and what will come out of it. Finally, researchers have established that readers not only retrieve information explicitly given in text, but also add whatever information is necessary to make text coherent. Research on reader variables thus strongly suggests that individuals are actively involved in determining how the reading process is going to take place and what will result of it.

The Text

Some texts are more difficult to understand than others, either because they deal with concepts or ideas unknown to the reader, because their overall structure hinders inferencing, or finally because they lack coherence. There is, of course, a wide variety of text characteristics that have been shown to affect reading (vocabulary, topic, structural organiza-

tion). Vocabulary knowledge, in particular, has received much attention (Anderson and Freebody, 1985), probably because of its assumed relation to readability. Yet, the bulk of the recent research has focused on text structure and its impact on comprehension.

The general idea underlying research on text structure is that concepts and events described in texts can be scaled according to their importance. For expository texts, written materials are analyzed as a set of propositions classified as main or subsidiary ideas (Mandler and Johnson, 1977; Stein and Glenn, 1979). In comparison, propositions are scaled in light of their centrality to the story in narrative texts (Meyer, 1977; Kintsch and vanDijk, 1978).

Both approaches to text analysis share some basic views of written discourse. In particular, story grammars and text analysis procedures assume that (a) stories have an internal structure, (b) this structure can be described in terms of a hierarchy of units of information, (c) this structure corresponds, to some extent at least, to the way people understand and memorize stories (Stein and Glenn, 1979). Accordingly, these procedures are taken as specifications of text meaning. Indeed, in determining what the central and peripheral ideas in text are, these procedures specify in advance what readers will understand and remember of text.

The Context

Reading is not only a cognitive process or a set of cognitive and linguistic operations on printed input; it is also a social event that takes place in specific contexts. That is, although it is true that signals are used to communicate,

it is not the signals themselves that carry the meaning within face-to-face interaction; rather it is the interpretation of these signals that provide the meaning. The interpretation of these signals is based on the nature of the context in which they are used. (Bloome, 1983, p 170).

If understanding involves "grasping the significance of an input for the situation at hand" (Bransford and Nitsch, 1985, p. 86), then it implies the capacity to relate that input to one's knowledge and to the context in which it is presented. Researchers have taken two directions to study the role of "context" in comprehension. These directions correspond to Bloome and Green's (1984) distinction between the "interpersonal" and the "intrapersonal" context of interpretation. The "intrapersonal context" is what the reader brings to the reading task; his background knowledge of text structure, his world knowledge, his skills, etc. The "interpersonal context", on the other hand, involves the way reading events are structured, how the participants in these events interact, how these interactions influence the reading process, etc.

The Intrapersonal Context

The role of the intrapersonal context in reading comprehension has already been discussed (McDermott, 1974; Labov and Robin, 1969; Fransson, 1984; Anderson et al., 1977; Pichert and Anderson, 1977; Anderson and Pichert, 1978; Barlett, 1932; Steffensen and Joag-Dev, 1984). For instance, Bransford and Johnson's (1972) results can be interpreted in terms of the facilitative effect of context (in the form of an illustration) on text comprehension.

The Interpersonal Context

The context of an event is not merely the physical context of the event, or the background knowledge that each individual reader can bring to text understanding, but it involves the interaction of the participants:

Contexts are not simply *given* in the physical setting ... nor in combination of personnel. Rather contexts are constituted by what people are doing and where and

when they are doing it... Ultimately social contexts consists of mutually shared and ratified definitions of situation *and* in the social actions persons take on the basis of those definitions. (Erickson and Shultz, 1977, p 6)

Many different perspectives have been taken in the study of the interpersonal context of reading comprehension (the institutional contexts, the difference between home and community contexts, the influence of the social interactions on reading).

Of particular relevance to the present work is the view that understanding is relative to the social context in terms of which the input is interpreted. Our criteria for what constitute "appropriate reading" and "appropriate understanding" would indeed depend on our perception of the purpose of the reading task. As such, these criteria are not the same when we read for pleasure, when we look for a specific item of information or when we prepare for an exam. As Bransford and Nitsch (1985) argued, it would then appear that one prerequisite for understanding is "the possession of criteria for evaluating the adequacy of one's present understanding" (p. 105). Furthermore, several researchers have argued that criteria in assessing feelings of understanding are flexible because "they vary as a function of the cognitive-perceptual situation in which inputs occur as well as with the nature of the input itself" (Bransford and Nitsch, 1985, p. 106). In other words, there is no single set of criteria for assessing one's comprehension, but several sets depending on the situation and the perceived goal of the reading task. We can then assume that an important part of what is called "understanding" must involve the capacity to correctly estimate the situation and the criteria according to which comprehension will be assessed.

Some researchers have thus studied how students learned to estimate the situation as well as the criteria along which their comprehension would be evaluated. Some studies have focused on the link between classroom reading events and the process of reading comprehension. Mosenthal and Na (1980a, 1980b), for instance, recorded and analyzed students' responses to their teacher during reading lessons and compared them with the type of recall of text these students exhibited. Mosenthal and Na concluded that students

recall text differently depending on what response interaction pattern they maintain with their teachers and that "they adopt the same registers they use to converse with their teachers as they do to recall text for their teachers" (1980b, p.18). For instance, students observed to use an imitative responses register in reading lessons, i.e. students who tended to repeat "part or all of the teacher's preceding utterance such that no new information was added to the teacher's utterance" (ibid, p.8) were shown to be more likely than others to reproduce (vs. embellish or reconstruct) text. Mosenthal (1983) further showed that "the manner teachers organized the social situation of classroom reading events ... influence students' conceptions of what constitutes appropriate classroom comprehension" (p. 544). This would then tend to support the view that students learn the reading skills that correspond to the teacher's definition of appropriate reading and comprehension (reproducing textual information, making inferences, etc.). In a classroom, it is the teacher who has the power to define the context and purpose of the reading event, and it is *his* definition of meaning that becomes the criterion in terms of which success will be assessed. Learning to read and learning to understand in a classroom is thus, in part, learning the teacher's definition of reading and his definition of appropriate understanding. This leads to the view that "the question is not whether the student is making sense of the passage, but rather *whose sense needs to be made* in order that the student is seen as having read the passage, as being successful" (Bloome, 1983, p. 174).

Conclusion

Some conclusions can be drawn from this limited review of literature. The first conclusion is that readers are active participants in the reading event; they come to the text with expectations about its structure, with a perspective, a cultural, a social and personal background that will greatly influence the meaning they will retrieve from the text. A second, and apparently contradictory, conclusion is that the meaning readers will derive from a text

can be identified by means of story grammars or text analyses. The contradiction lies in the fact that the first conclusion characterizes meaning as changing and idiosyncratic, while the second conclusion points in the opposite direction. Yet, the contradiction is more apparent than real. Story grammars and text analysis procedures specify the ways in which texts *constrain* the possible meanings that can be retrieved from them as well as the importance of the ideas and concepts expressed in text. Yet, as Kintsch and vanDijk (1978) remarked, "one may read a story with the processing controlled not by the usual story schema but by some special-purpose schema established by task instructions, special interests, or the like" (p.373). In other words, the interests, expectations, motivation that the reader brings to bear on comprehension can override whatever text structure there is. It thus appears that text meaning is *created* and not simply *extracted* from the text, that it involves the interaction between the reader and the author. Reading can then be globally characterized as a process in which two mental worlds are made to converge (Widdowson, 1983).

The Problem

Characterizing reading as a process in which the reader and writer try to establish a common domain of reference implies that there is always likely to be some mismatch between the writer's intended message and what the reader understands of it. Indeed, as two individuals cannot share exactly the same world knowledge, social background and so on, perfect communication cannot be guaranteed. What can be achieved, at best, is a fairly confident convergence of their respective domains of reference. In some cases, however, the reader's interpretation is so divergent from the one intended by the author that this "mismatch" is better characterized as "misunderstanding".

Misunderstanding: Some Possible Causes

Several writers have tried to specify the reasons why a reader may fail to correctly understand a text (Baker and Brown, 1984b; Rumelhart, 1984). According to these authors, a person may fail to understand a text, one, because he lacks appropriate background or, second, because the writer has failed to provide him with adequate clues to meaning. These two possible causes of reading misunderstanding refer directly to two of the variables we discussed in the preceding section (respectively, reader's variables and text characteristics). The third possibility is that "readers may find a consistent interpretation of the text, but may not find the one intended by the author. In this case, readers will understand the text, but will misunderstand the author" (Rumelhart, 1984, p. 18).

We must notice that, contrary to the first two potential causes, this third possibility is a description and not an explanation of what might have gone wrong in the reading process. Quite interestingly, the three authors mentioned in the preceding paragraph failed to provide such an explanation. Only one example is given in Rumelhart (1984). Several explanations may be possible. One may think, for example, of Bruce and Rubin's (1984) claim that given our limited processing capacity, readers use strategies to cut down the number of hypotheses that a text, or a sentence, can generate. One of their subjects, a mature and sophisticated reader, elaborated and maintained a false but coherent interpretation of the passage despite contradictory evidence (a strategy that the authors call "maintaining inertia"). The existence of such strategies associated with personality factors could thus make some readers particularly prone to that form of misunderstanding. Another possibility is implicitly mentioned in Rumelhart (1984): some texts may lend themselves to several interpretations. Yet, the text Rumelhart refers to is the one purposely designed by Bransford and Johnson (1972) so as to be particularly difficult to read. Since in "normal"

written communication authors do their utmost to be perfectly understood, one could argue that ambiguity is unlikely to be an explanation for some of the comprehension problems readers have.

Form, Function and Reading Difficulties

Rumelhart's (1984) remark would however deserve more attention. Indeed, many oral or written messages can give rise to multiple interpretations. Daily life conversations are full of examples of misunderstanding. In most cases, what is involved is not a problem of failing to understand what has been said (the propositional content of the message), but why it has been uttered (the speaker's intentions in conveying that message).

In the following exchange,

Customer: "Waiter, there's a fly in my soup!"

Waiter: "Not so loud, Sir, they all be wanting one",

misunderstanding does not occur because of the inappropriate understanding of the proposition expressed by the customer, but because the waiter has failed to establish the function (a complaint) that the proposition was intended to serve.

The distinction between form and function has received considerable attention (Widdowson, 1983) and is a key aspect of Austin's (1962) speech act theory as well as a fundamental element in Grice's (1957, 1975, 1978) theory of communication. In this view, understanding depends not only on what is asserted or questioned, but more importantly on what can be inferred from what the speaker said. But, since inferred information and inferences to the speaker's communicative intentions are not necessarily related to the form or content of the message, there is always room for misunderstanding. Harris and Monaco (1978) referred here to "the probabilistic nature of language"(p.2). If misunderstanding is thus an inherent aspect of communication, some forms of language use increase the likelihood that this will happen. Indirect speech acts and figurative language are cases in

point. Indeed, according to Searle (1979) in order to understand indirect speech acts, such as "Could you tell me the time?", the hearer must first compute the literal meaning and force of the sentence (the sentence as an interrogative) and then add an additional level of meaning, the indirect meaning (giving someone an order). A similar process would underlie the comprehension of figurative language. Searle (1979) proposed a stage model for the interpretation of metaphor in which

- The literal meaning of the metaphor is determined,
- The hearer then realizes that the literal interpretation gives rise to an anomaly with respect to the context,
- He is then lead to a re-interpretation of that meaning to remove the anomaly. The end result of this process is the metaphorical meaning.

It is precisely because figurative and indirect language uses seem to involve two layers of meaning that children have specific problems understanding them. Beal and Flavell (1984) showed that 1st graders could detect the ambiguity of a message when uninformed about the speaker's intention, but far less so (39% of the cases) when they had been informed of what the speaker had meant. These authors concluded that young children may have specific problems focusing on the literal meaning of the message and treat message separately from intention. Reynolds and Ortony (1980) found that 6- and 7-year-old children can detect that a simile or metaphor has been used, yet be unable to find the appropriate metaphorical interpretation. Finally, Nelson and Nelson (1978) noted that "during the primary school years, ... the child's tendencies toward rigidly literal interpretations of figuratively-intended sentences remain strong or even increase" (p.261).

Irony and Misunderstanding

The studies we have just reviewed seem to indicate that the passage from literal to figurative meaning poses problems for children. Irony should represent a serious difficulty

in language comprehension. The first reason why this should be so is that the prevailing view of irony comprehension involves the substitution of the literal meaning of the ironical sentence by its *opposite*. If someone says "What a beautiful day for a picnic!" when it is pouring, the contextual inadequacy of that remark is supposed to trigger its replacement by its opposite, its negation ("What a rotten day for a picnic!"). Understanding irony would thus involve understanding the opposite of what has been asserted. In a different perspective, taking the ironical remark literally would mean understanding just the opposite of what the writer/speaker wanted to communicate. A second reason why irony should cause comprehension problems is that irony introduces an element of contradiction in texts. Indeed, if both the ironical comment and the rest of the text are taken literally, the reader is left with a sentence (the ironical comment) that does not fit the context. As reading comprehension involves the integration of all the elements of the text into a coherent mental representation, the integration of these two apparently contradictory pieces of information should be an interesting test of children's reading mastery.

In fact, some experimental evidence suggests that children are poor at understanding anomalous texts. Markman (1979) noticed that after reading a text containing contradictory elements, an important proportion of third graders failed to report the inconsistency, even though half of them had been warned in advance that there was a problem in the text. Although results were better for sixth graders, Markman noted an overall tendency to question the truth of individual sentences rather than the consistency of the whole text. Since inconsistency or contradiction can only be detected when, and if, the reader tries to integrate each piece of information into a higher level structure, Markman claimed that her subjects had treated each piece of information separately. Harris, Kruithof, Terwogt and Visser (1981) also found that older children are better at monitoring their comprehension of anomalous texts. However, when these researchers compared the time 11-year-olds and 8-year-olds took to read the problem sentence, they found that *both* groups spent more time reading these sentences than other sentences that were consistent with the story theme. The

authors thus claimed that, while both young and older children gave a non-verbal indication that a comprehension problem had occurred, only the latter group had the capacity to interpret that indication.

What these studies indicate is that young children have problems dealing with contradiction or inconsistency in written language. What they cannot determine, however, is whether the problem is in children's capacity to interpret the significance of a comprehension difficulty (Harris et al., 1981), or in their ability to integrate contradictory information (Markman, 1979).

Another possibility is that young readers do not necessarily *fail* to understand, but that they *misunderstand* contradictory texts. In other words, it is possible that they have found an "unlawful" solution to the problem contradiction posed them, that they have constructed their own model of what the text meant. Mosenthal (1979) provided some evidence of that phenomenon. Analyzing third and sixth graders' comprehension of contradictory story information, this researcher found an overall tendency to partially restructure text to achieve coherence. Mosenthal assumed that when confronted with contradiction, readers have five choices: they can eliminate the contradictory information, restructure that element, overlook the link between the anomalous sentence and the rest of the text, explain the anomaly in terms of an exception, and finally, explain the contradiction as due to a plausible external explanation. His results showed that both third and sixth graders preferred to eliminate, restructure and overlook the problem. The possibility that readers can find unexpected ways around textual contradiction is supported by Baker and Brown (1984a). These authors argued that readers may indeed fail to report textual contradiction because they have solved that problem by drawing inferences they could not report, because they have found a "good" interpretation, but not the one intended by the author, or because they have been unwilling to report the problem they had.

Summary

It first appears that misunderstanding irony involves understanding the opposite of the writer's meaning. Second, that irony introduces an element of contradiction between "said" and "meant", between the ironic comment and the context. Third, that children seem to have problems understanding figurative language. Finally, that young readers are prone to find their own interpretation of contradictory stories. The overall conclusion we must reach is thus that irony could lead to serious misunderstanding and, in particular, to "understanding the text but misunderstanding the author".

Irony and Reading Comprehension Research

The possibility that irony could lead to serious comprehension problems has not been investigated in reading comprehension research. As we have seen in the first part of this chapter, studies on text characteristics have focused on text structure or propositional content. Yet, figurative language cannot be reduced to a matter of structure or content, nor can it be assimilated to a problem of vocabulary. As Ortony (1984) remarked, figurative language use can be found at several levels of linguistic analysis: at the word level (metaphors), the phrase level (idiomatic expressions), the sentence level (proverbs) and finally at the level of text (structural irony, as in Swift's "A Modest Proposal"). Figurative language, and more particularly irony, has received precious little attention in reading comprehension research. The only notable exception is metaphor (Ortony 1980, 1984).

Would it be possible that the texts used in the experiments we reviewed in the first part of this chapter contained instances of figurative language, and that they in part dealt with the issue of figurative language comprehension? This seems to be quite unlikely. First, because Cochran-Smith (1983) noticed that "the stories used in experiments are rarely real children's stories; rather they are stories based on specific story grammar and/or

constructed specifically for experimental purposes" (p. 203). So, it is most probable that researchers have controlled the type of language, level of vocabulary, etc. in their texts and have eliminated figurative language as one potential variable affecting the phenomenon they were interested in studying. Supporting this possibility, Garziner (1978) commented on the differences between real and experimental stories in the following terms:

The materials used in story research are typically deficient from the point of view of aesthetics They lack the most alluring aspects of style, characterization, figurative language, and the like It may well be that in stripping away the aesthetics, researchers have also distorted the story. (p. 253)

Even if some of these experimental texts could be found to include instances of figurative language, this aspect of text characteristics was not controlled as a variable and it becomes impossible to evaluate its influence on comprehension. The few researchers (Ortony 1980, 1984) who have identified figurative language as a variable in reading comprehension have indeed found that it poses specific problems. So, a better understanding of the way irony is understood requires specific studies which have not been carried out so far.

What emerges from that overview is that we know almost nothing of children's capacity to comprehend written irony. We have some indications on how children understand *oral* irony (Ackerman, 1981, 1982a, 1982b, 1983, 1986) and on how adults understand *written* irony (Gibbs, 1986; Micham, 1984), but not on how children understand written irony. This opens up a wide range of possible questions:

- At what age do children start understanding written irony? - Do children start understanding certain forms of irony before other ones? - What is the relation between understanding irony and individual variables (field sensitivity, intelligence, etc.)?

The Research Topic

Before carrying out any research on aspects of irony comprehension, we need to evaluate their respective relevance. In other words, we must identify which aspects of irony comprehension are the most central and which aspects are peripheral. It is only when the main issues involved in irony are specified that valid research hypotheses and questions can be asked and that a methodology can be worked out. This preparatory work seems necessary for at least three reasons. First, because theories of irony offer somewhat contradictory views about that figure of speech. As is explained in Chapter II, Searle (1979), Grice (1975, 1978), Sperber and Wilson (1981a, 1986), Clark and Carrig (1984) and Kaufer (1981) differ in their evaluation of the mechanisms underlying the production and comprehension of irony, as well as in their views of what is being communicated when an ironical comment is made. Second, these theories have mostly dealt with *oral* irony. As our chief interest is on *written* irony, we need to analyze the field of reading comprehension research for possible convergences with theories of irony. Finally, we must better document the problems children seem to have with figurative language and contradiction in texts. In particular, we need to know if the problems children have in reading contradictory texts are due to poor monitoring comprehension, as Markman (1979) argued, or whether they may be due to a failure to interpret the sense of that monitoring, as Harris et al. (1981) suggested. This distinction could have important methodological implications. Indeed, if Harris et al. (1981) are right, and if the results of Reynolds and Ortony's (1980) study on metaphor are applicable to irony, future research should separate children's capacity to *detect* that irony has been used from their capacity to find the appropriate ironical interpretation.

A related dimension of this preparatory research is to establish the relevance of irony to the field of reading comprehension research. Indeed, if it appears that the main issues in

irony comprehension have some relation to those in reading comprehension, we will have taken a few steps in integrating irony into the field of reading research.

So far, we have shown that irony can lead to serious misunderstanding and that such a possibility has not seriously been considered by researchers. In other words, we have established that studying irony could raise valid and new *questions*. Yet, the almost total absence of research on that topic would seem to indicate that most researchers have concluded that studying irony will not provide interesting *answers* to problems central to theories of reading comprehension and that it will not contribute to our more general understanding of written communication. We can think of two possible reasons why this evaluation has been made: that irony is quantitatively or qualitatively unimportant.

The quantitative issue concerns the relative importance of irony in the type of written materials children are exposed to. It may be the case that irony represents such a tiny portion of the type of written language children read that studying that phenomenon would be of little practical importance. To counter such argument would require an extensive analysis of children's books and of the materials they read in class for evidence of ironical language. At present, such analysis does not seem to have been carried out. However, there are some indications that figurative language (Gardner, 1978; Ortony, 1980), rhetorical questions (Morgan and Green, 1980) are an integral part of children's literature. Using an analytic scheme based on the distinctions between narrator, real and implied author/reader, Bruce (1981) carried out a comparison of basal readers and books written for children from grade 1 to 5. He first noticed that even the most "simple" stories are in fact a complex set of relations between participants which determines several levels of communication, what Bruce called "stories within stories". Bruce specifically mentioned irony as one of the devices used to introduce stories within stories, along with explicit embedding, commentary, unengaged narrator, engaged narrator, immersion and in-effect narration. The creation of a story within a story is made clear in the case of Swift's "A Modest Proposal" where the implied author (the narrator) is part of the satirical artefact created by the real author. The

conclusion Bruce reached is that "even among trade books written for elementary school children we have found that about half of the stories involved embeddings beyond the implied author-implied reader level" (p.933). We then assume, at least provisionally, that irony *could* represent a portion of what children read, either at school, or at home. Even if it turns out that the proportion is quite small, one could still argue that irony is a genuine aspect of written language communication that children or adolescents have ultimately have to come to grips with.

Another possibility is that irony has received little attention, not so much because it is only rarely used in children's books, but because the processes involved in understanding that figure of speech are so specific that they can shed little light on other areas of written language comprehension. Qualitatively, irony could then represent an atypical phenomenon. In the absence of clear data on the quantitative importance of irony in children's literature, the present work deals with the qualitative issues involved in the study of children's comprehension of irony.

As little experimental studies have been carried out on that topic despite its potential importance, the present thesis seeks to lay the ground for a future research on children's comprehension of written irony. Such a perspective involves, first, an identification of what could constitute valid research questions and hypotheses. This means that the main issues addressed in theories of irony and theories of reading comprehension must be surveyed and analyzed. Second, we must try to identify the methodological problems that any research on irony should address. There is, then, an implicit distinction between the theoretical and the methodological aspects on which a future study could be based. However this distinction will not be rigidly made in the following chapters. Both the theoretical and the practical issues are discussed in Chapter II and III, as they often constitute the two interrelated dimensions of a single phenomenon. It is only in Chapter IV - as we identify the main problems involved in studying children's comprehension of written irony - that these two aspects are separated.

The present work has thus one objective and one perspective. Its major objective is to identify and discuss some of the issues that the study of irony raises. By answering the research question, the perspective we wish to take is to be able to evaluate the potential contribution of the study of irony to our understanding of written language comprehension.

The question the present thesis addresses is:

“What are the problems involved in conducting research into children's comprehension of written irony?”

CHAPTER II

SOME ISSUES IN THEORIES OF IRONY

Introduction

This chapter is divided into three parts. In the first, we set the general background to Chapter II. Irony has indeed been studied for over 2000 years by rhetoricians, literary critics, and more recently, by pragmatists. Rhetoric and literary criticism provide the background without which any understanding of irony would be incomplete and they represent what is the most widespread (though not the most accurate) views of irony. Given this, we propose to open our discussion by an overview of some aspects of these traditional theories. After this review we explain our choice to restrict our discussion to verbal irony and to pragmatic theories of irony. In the second part of this chapter, we describe and analyze four pragmatic theories of irony (Searle, 1979; Grice, 1975, 1978; Clark and Gerrig, 1984; Sperber and Wilson, 1981a, 1986). Finally, we close our discussion by recapitulating the main theoretical issues involved in the study of irony and by evaluating the contribution of pragmatic theories to the comprehension of irony.

The Tradition: Rhetoric, Literary Criticism and Irony

Rhetoricians and literary critics have provided a rich literature on irony. They have indeed identified no less than six forms, several possible effects and one central mechanism in the production and comprehension of irony.

Forms and Functions of Irony

Traditional theories identified six forms of irony: verbal, cosmic, Socratic, structural, dramatic or sarcastic (Abraham, 1971). These forms were classified largely according to the functions that irony has been made to serve and to the context in which it was used at different periods in history (Myers-Roy, 1981).

In its original sense, irony refers to the “eiron” or “dissembler”, a character in Greek comedy who deprecated himself, spoke in understatement and deliberately pretended to be less intelligent than he was. He stood in sharp contrast with the “azalon”, the self-deceiving and over-confident character over whom the “eiron” always triumphed. In Socrates' times, irony concerned a general attitude, a covert persuasive technique which involved “the pose of ignorance, an eagerness to be instructed, and a modest readiness to entertain a point of view which, upon his continued questioning, invariably turn out to be ill-grounded or to lead to absurd consequences” (Abraham, 1971, p.82).

By Cicero's times, however, the Socratic sense of irony had been replaced by the characterization of irony as a rhetorical device. This new sense corresponds to our present definition of *verbal irony* as “a statement in which the implicit meaning intended by the speaker differs from that which he ostensibly asserts” (Abraham, 1971, p.80).

Since then, writers have created new forms of irony to suit their communicative purposes. Swift's essay “A Modest Proposal” is an example of *structural irony*, a form of irony which involves creating an imaginary author whose intellectual stance the real author ridicules. *Dramatic irony*, on the other hand, refers to a situation in a play or a narrative where the audience shares with the author some crucial piece of information of which a character is ignorant (for example, Iago's duplicity in Shakespeare's play “Othello”). In narrative texts, *cosmic* (“the irony of fate”) and *romantic irony* both share the essential property that events and people (including readers) are portrayed as puppets in the hands of God, destiny or the writer.

The Effects of Irony

These various forms of irony have been used to create certain effects. Rhetoricians have particularly noticed an asymmetry in the uses of irony: they remarked that irony is more often used to criticize than to praise. Generally speaking then, irony is seen as a means of passing covert criticisms or negative evaluations and to victimize (Booth, 1974; Fowler, 1965).

However, the manner in which this is carried out varies from one form of irony to another. There seems to be at least three distinct processes in the determination of the victims of irony. In some forms of verbal irony, when only two communicators are involved, the ironic utterance can carry critical overtones which are destined to the object or person to which the ironic utterance is addressed. Another process is used in Socratic irony. Indeed, that form of irony relies on the existence of two audiences, as the speaker is speaking not to his primary addressee (the *azalon*) but to a wider audience, to those present who can perceive the irony as well as the primary addressee's failure to detect it. Finally, in dramatic and structural irony, the ironist can pretend to be a naive, unintelligent person speaking to an "uninitiated" audience. In creating several layers of meanings and audiences the writer is assumed to create a sense of conspiracy between the ironist and those who are not deceived by appearance. This is captured in Fowler's definition of irony as "the use of words intended to convey one meaning to the uninitiated part of the audience and another to the initiated, the delight of it lying in the secret intimacy set up between the latter and the speaker" (1965, p. 306).

The Mechanism of Irony

One of the early theorists of verbal irony, Quintilian, observed in the first century A.D. that the ironist tries to convey "other than what he actually says". An implicit distinc-

tion was then made between what is said (the literal interpretation of the utterance), and what is meant (the ironical interpretation). How one can retrieve what is meant from what is said thus became the crux of any theory of irony.

Generally speaking, the comprehension of irony is assumed to involve three different steps. A famous example of such stage models of irony is Booth's (1974). For Booth, the reader is first "required to reject the literal meaning [because he will be] unable to escape recognizing either some incongruity among the words or between the words and something else that he knows" (p.10). Then, he tries out "alternative interpretations or explanations"(p.11) and analyzes these explanations in terms of the knowledge he has of the author. Then, finally, the reader can "choose a new meaning or cluster of meanings with which [he] can rest secure" (ibid., p.12).

Defining the Framework

Now that we have reviewed some of the essential features of the traditional theories of irony, two decisions must be taken. First, as it appears difficult to tackle six forms of irony at the same time, we need to restrict our scope to the one most relevant to our purpose. Second, as a comprehensive review of over 2000 years of debate on irony cannot be achieved in this thesis, we must make some informed choice about the theoretical framework best suited to our perspective. To substantiate our claim that pragmatics offers a promising approach to the study of irony, we present a critical evaluation of the traditional theories and show why pragmatics could offer new insights into the processes of irony comprehension.

Towards a Tentative Definition

It would seem that the uses of the word irony “denote concepts of extremely wide application which it would be vain to attempt a single unambiguous definition of” (Gibbons, 1979, p. 46). Yet, despite this variety of uses, some common characterization is possible. Indeed, all these uses share a sense of duplicity, deception, pretense and manipulation which is achieved by the presentation of appearance as reality. This broad definition rests on the existence of a central mechanism, “a technique of saying as little and meaning as much as possible, or in a more general way, a pattern of words that turn away from direct statement or its own obvious meaning” (Frye, 1957, p.40). Whether this technique is used in face-to-face conversation, by a writer, a teacher or a playwright depends on the complexity of the effect that the communicator wants to achieve and on the medium he chooses to convey his message. Generally speaking, this technique is used to pass covert criticisms and express derogatory feelings. Interestingly enough, this roughly corresponds to the definition of verbal irony and would then suggest that this form of irony is central to the concept of irony proper. We have then chosen to restrict the following discussion primarily to verbal irony without excluding -when needed- the other forms that this figure of speech can take.

Some Limitations of the Traditional Accounts

Although traditional accounts of irony seem intuitively right, they face two major problems. First of all, they fail to provide an adequate distinction between irony and other figures of speech. Rhetoricians and literary critics claimed that the ironical interpretation is first triggered by the contextual inadequacy of the literal meaning. Yet, this does not distinguish irony from metaphor or understatement. Indeed, in these last two cases, the literal interpretation would also be inadequate. Rhetoricians and literary critics further argued that

when the literal interpretation has been rejected, the hearer/reader should realize that the ironic utterance communicates something else than what is literally asserted. Although this captures the sense of indirection in irony, it groups together irony and indirect requests, metaphor, understatement, puns and metonymy which also rely on a distinction between what is explicitly said and what is implicitly communicated. It is precisely to tackle such problems that some rhetoricians came to claim that what irony communicates is not simply "something else", but the *opposite* of the literal meaning. As this point constitutes one of Searle's (1979) most important contributions to the study of irony, we will postpone discussing this proposal until the later discussion of Searle's work.

Second, it appears that traditional theories present the mechanisms and the effects of irony as two separate aspects (Sperber, 1984). Indeed, they showed that the ironist's art consists in saying one thing while meaning another and the effect is to victimize and criticize. However, slips of the tongue, puns, metaphors, understatements and other phenomena also share that element of indirection without having the same effect.

It thus appears that rhetoricians and literary critics have partially failed to provide a coherent theory of irony and have left several important questions unanswered. We propose to turn now to pragmatics as another potential source of reference.

Pragmatics and Irony

"Pragmatics" was first used by Morris (1939) to refer to an area of linguistics distinct from syntax (the study of linguistic forms and structures), and semantics (the study of the literal meaning independent of context). In Morris's framework, pragmatics covered the contextual and interpersonal aspects of language. Since then, the term "pragmatics" has come to cover more and more ground, from indirection, the study of figures of speech to inferences in context about the speaker's intentions (Morgan and Green, 1980). Although this wide scope creates serious problems for any attempt to define pragmatics (Levinson,

1983), it is generally accepted that one of its main goals is to explain “how it is that speakers of any language can use the sentences of that language to convey messages which do not bear any necessary relation to the linguistic content of the sentence used” (Kempson, 1977, p.68). Since irony specifically rests on that capacity, pragmatics seems to focus precisely on the processes most relevant to irony. Besides, as pragmatics tries to explain how language is used appropriately in context, it should make direct psychological claims that future research could investigate. Finally, the wide scope of pragmatics, from “ordinary” expression to indirect speech acts, figures of speech and inference should facilitate our evaluation of the potential contribution the study of irony could make to the study of language comprehension in general.

It would thus appear that pragmatics constitutes an ideal theoretical framework for our purpose. We now turn our attention to some of the pragmatic theories of irony, in the hope that they will provide a more complete account of the mechanisms and effects of irony.

Four Pragmatic Theories of Irony

Searle's Model of Irony Comprehension

Literal and Speaker's Meanings in Searle's Model

A basic idea in pragmatics is that a sentence not only communicates a given propositional content but also makes manifest intentions and performs some function (making a statement, a promise, an offer, etc.). Searle's (1969) specific assumption is that there exist conventions that determine the basic function that each utterance performs. Sentence-types (declarative, imperative, etc.), performative verbs (I declare, I promise, I bet...) and “tags” such as “please”, “why don't you”, etc. clearly indicate the intentions that the speaker is

trying to communicate. For instance, a sentence such as “I ~~order~~ you to leave the room” would directly communicate the speaker's intentions to order his audience to leave the room. Understanding the speaker's intentions would then be a matter of understanding his sentence because the basic function that an utterance performs is built into sentence form and content. That assumption, that some authors have called the “Literal Force Hypothesis” (Levinson, 1981), leads to distinguishing literal from non-literal utterances.

Literal and Ironical Utterances

For Searle, “in literal utterance the speaker means what he says; that is, literal sentence meaning and speaker's utterance meaning are the same” (1979, p.81). A sentence meant literally thus directly communicates the writer's intentions: retrieving the literal meaning is *at the same time* recovering the speaker's meaning.

This contrasts with the relation between literal and speaker's meaning in indirect speech acts and in figurative language, including irony. Indeed, indirect speech acts and figurative language represent *indirect* forms of communication, because the writer's meaning cannot be directly recovered from the literal meaning of the sentence. More specifically, Searle (1979) described the process of irony comprehension in the following terms:

The mechanism by which irony works is that the utterance, if taken literally, is obviously inappropriate to the situation. Since it is grossly inappropriate, the hearer is compelled to reinterpret it in such a way as to render it appropriate, and the most natural way to interpret it is as meaning the *opposite* of its literal form. (Searle, 1979, p.113)

This stage model clearly owes much to traditional theories of irony. However, Searle introduced two new ideas: the distinction between background and context, and the definition of ironical meaning as the logical opposite of the literal meaning.

Background and Context

Searle (1979) argued that understanding irony, metaphors and indirect speech acts involves using two sorts of knowledge sources. The interpretation of literal meaning in the first stage requires “background assumptions” while “context” is used for the interpretation of the ironical, metaphorical or indirect meaning in the second stage.

Searle suggested that background assumptions are those without which utterances would have no literal meaning. For example, Searle (1979) showed that “The cat is on the mat”, has no context-independent literal meaning because its literal meaning rests on a set of assumptions (that the cat is not floating in outer space, that gravitational forces exist, etc). These assumptions represent the set of background assumptions against which the sentence is understood. The background is thus the long-term memory of events, the communicator's and the recipient's world knowledge.

Context on the other hand is required to realize that the literal interpretation of an ironical utterance is inappropriate. Here, Searle defined “context” as the immediate situation in which utterances can be detected as ironical, some “shared background information, both linguistic and nonlinguistic, together with the general powers of rationality and inference on the part of the hearer” (Searle, 1979, p.33). To describe these “general powers”, Searle made a direct reference to Grice's (1975, 1978) Maxims of Cooperation that will be described in the next section.

Ironic and Literal Meaning: A Logical Opposition

Once the literal interpretation has been rejected, the hearer still needs to retrieve the ironical meaning. Here, Searle claimed that a simple negation rule applies: given that the lit-

eral meaning is proposition p , the ironic meaning will be proposition $\neg p$. So, the ironist tries to convey not just "something else" (as many traditional theories of irony assumed), but the logical opposite of what he says.

Some Evaluative Comments on Searle's Model

Searle's account of irony comprehension offers one advantage over traditional accounts. Indeed, defining ironical meaning as the logical opposite of the literal meaning solves one of the problems most traditional theories had, as it singles out irony among the other figures of speech. However, Searle's model has come under some heavy criticisms (Gibbs, 1984, 1986; Kaufer, 1981) to which we turn our attention now.

The Context/Background Distinction

Searle's distinction between the background and the context of interpretation is not clear. Not only did Searle fail to specify what that distinction really covers, but he also did not make clear whether there would be any overlap between these concepts. Characterizing background assumptions as those that simply cannot be missed in determining the literal meaning of a sentence is not very helpful. Indeed, Katz (1981) showed that the contextual assumptions that contribute to establishing the ironic meaning of the following sentence are equally impossible to miss: "That's a fine way to treat your devoted parents, letting them go without food and shelter and laughing at their plight". Furthermore, Gibbs (1984) noticed that it seems strange that the knowledge that both participants in a speech act assume they share (part of their context) should not be part of their background assumptions. In other words, the distinction between these two terms seems vague, so vague that Katz (1981) argued it represents "a distinction without a difference" (p.229).

Furthermore, the view that understanding irony involves first checking the background and, second, the context, is psychologically difficult to maintain. Gibbs (1984) remarked that this amounts to claim that what is directly accessible and immediately perceived (the context) is ignored in favour of background knowledge. It would seem more plausible to assume that “contextual information will guide the activation of background information for figuring out a speaker's intended meaning” (Gibbs, 1984, p.286).

Context and Ironic Meaning

The context in which an ironic utterance is produced is assumed to trigger the rejection of the literal interpretation. We have just seen that specifying what “context” and by extension what “contextual anomaly” is, poses many problems. But, even if “context” were more strictly defined, it would still have to be shown how one can go from rejecting the literal interpretation to recovering the ironical meaning. Here, Searle claimed that once anomaly is detected, the hearer applies a negation rule to the literal meaning. Yet, this is not sufficient, as contextual anomaly of the literal meaning also characterizes mere nonsense, metaphor, understatement and other figures of speech.

Second, retrieving the ironical meaning seems in Searle's model to be determined by one single inversion rule. In other words, for every detected ironical intention, there would be one single type of ironical meaning. Yet, the logical opposite of the literal meaning most often represents not one, but several meanings. For instance, what is the opposite of the ironic remark “That's a likely story”? That the story is somewhat likely, somewhat unlikely, extremely unlikely, or totally impossible? In fact, utterance negation opens up a series of alternatives, because

there is no single set of conditions which guarantees the truth of any negative sentence; but there are a number of conditions the satisfaction of any of which will

guarantee its truth....[what the negation of an sentence means] is not specified in the sentence, but is left vague. (Kempson, 1977, p.119)

Furthermore, while utterance negation opens a range of possible meanings, ironic understandings “do not permit this range of interpretations, but are restricted to contexts either where the story is extremely unlikely, or where the addressee is a classic loser or idiot” (Kaufer, 1981, p.497). So, it appears that Searle's context-free inference strategy would not enable hearers to infer what the ironist has communicated.

Irony as the Logical Opposite of Literal Meaning

Searle's model seems totally inappropriate for a variety of ironic utterances. In a situation where A kicks B in the shin and where B ironically retorts “Thanks”, Searle would predict that A should retrieve “No thanks”, or “It is not the case that I am thanking you” as the ironical meaning of B's utterance (Kaufer, 1981). Yet, that falls short of what we feel the ironist has tried to convey (something like “You have done something that deserves ingratitude”). The reason why Searle's proposal cannot apply here can be found in Kempson's (1977) remark that all that a negative sentence does is specify that the corresponding positive proposition is false, that the set of conditions that would have guaranteed the truth of that proposition is not met. That is, logical negation can apply only to the truth-conditional constituents of an utterance and Searle's logical definition of ironic comprehension is bound to be induced by a truth-conditional constituent. Yet, relating the comprehension of an ironical utterance to the negation of its truth conditions is problematic as “many ironies are triggered by non-truth-functional constituents such as the felicity conditions that govern their appropriate use” (Kaufer, 1981, p.497). In the example above, the literal interpretation denies the felicity conditions of thanking because it is inappropriate to thank someone when that person has done something that deserves ingratitude. So, the

ironic understanding of several utterances depends on the violation of the felicity, and not of the truth, conditions of the sentence.

The Effects of Irony

Searle claimed that for any ironical utterance, there is an obvious, literal meaning ("That's a lovely day for a picnic!") and an indirect, ironic meaning ("That's not a lovely day for a picnic!"). Yet, if all that the ironist communicates is the opposite of what he could have expressed directly, why didn't he choose to say it directly without running the risk of being misunderstood? At least, rhetoricians and literary critics had some answers to such questions, even if they were unrelated to the mechanisms of irony. Searle, on the other hand, analyzed these mechanisms without working out the purpose for which they are used in the first place.

Grice Theory of Communication and Irony

What does it mean that an utterance "communicates" an ironical, or any other, meaning? Can we say that the spots the doctor sees on his patient's face have in fact "communicated" that "Mr X has measles"? For Grice (1957), what we have just described is an incidental transfer of information, a case of "natural meaning" in which direct evidence of a phenomenon makes manifest some element of information. Communication, on the other hand ("non-natural meaning" or "meaning n-n"), involves both intention and agency. If the same patient wants to inform his doctor that he already had measles, he cannot provide direct evidence for it. The only direct evidence he can provide is that of his present intention to inform the doctor he had measles in the past by means of the utterance "I had measles when I was a child". Grice (1957) characterized intentional communication in the following formula: "A meant n-n by x' is (roughly) equivalent to 'A intended the utter-

ance of X to produce some effect in an audience by means of the recognition of this intention" (p. 58). In Grice's views, communication - ironical or otherwise - is thus essentially inferential in that hearers must infer the speaker's intentions from whatever evidence the latter purposefully produced.

Implicatures and the Cooperative Principle

If communication in general, and ironical communication in particular, is viewed as being essentially inferential, not every inference that can be drawn from an utterance has been intended to be recognized as having been intended. In fact, the problem with inferential communication is not that inferences are hard to draw, but on the contrary that there are too many inferences that can be drawn from any utterance. As an example, let us take a situation in which A is writing a testimonial about a student who is candidate for a philosophy job (Grice, 1975, p. 52). His letter reads as follows "Dear Sir, Mr. X's command of English is excellent, and his attendance at tutorials has been regular. Yours, etc.". Now, the person reading that letter can draw several inferences from A's remark or remain utterly confused by the apparent unformativeness of the letter. How can the reader come to decide what A wanted to communicate?

Grice's (1975) answer is that communicators share a general and mutual willingness to be cooperative (what Grice called the "Cooperative Principle"). This general principle is further broken down into a set of four standards of communication: be relevant, truthful, informative and clear. Grice claimed that communicators do not actually produce and interpret utterances by conforming to these standards, but assume that these maxims have been adhered to, not only when there is little reason to doubt that a maxim has been violated, but also when the speaker seems irrelevant, uninformative, obscure or misleading. In the example above, A has clearly violated the maxim of Quantity ("make your contribution as informative as required", Grice, 1975, p. 45) in being far less informative than

what should be expected under the circumstances. Assuming that A is cooperative despite superficial indication to the contrary, the reader is led to assume that since A knows X's capacities for the job and since he knows that his opinion about X's capacities is precisely what is expected of him, then A must be unwilling to communicate his opinion directly. The only plausible assumption is then that A is reluctant to provide the expected information because he thinks that X is not good in philosophy. Since this assumption is the only one consistent with the respect of the Cooperative Principle, the reader of the letter is entitled to think that it had indeed been intended by the writer as an integral part of his message. In other words, in being apparently uncooperative, A has thus lead the reader to assume precisely the information he was unwilling to give explicitly. Ultimately, he has been cooperative.

In interpreting a sentence, i.e. in trying to recover the speaker's intentions, the reader thus tries to establish a connection between what he knows of the situation, A's message, and the assumption that A has been cooperative. The connection is an inference drawn in that specific context, what Grice called a "conversational implicature". Conversational implicatures "arise to preserve the assumption of co-operation: it is only by making the assumption contrary to superficial indications that the inferences arise in the first place" (Levinson, 1983, p.102). Furthermore, as Wilson and Sperber (1981) argued,

the basic rationale behind the notion of conversational implicature is that the hearer posits the existence of an implicature in order to preserve his assumption that the conversational maxims have been observed on the level of what is said. (p. 160)

For Grice (1975), irony as well as metaphor, hyperbole and meiosis can be analyzed in terms of the conversational implicatures that hearers draw when the maxim of Quality ("Try to make your contribution one that is true") is violated. He further claimed that when this happens, the hearer will draw the implicature that the speaker has tried to get across "some obviously related proposition; the most obviously related proposition is the *contradiction* of the one he purports to be putting forward" (Grice, 1975, p.53, emphasis

ours). Grice, in fact, proposed to reanalyze the concept of figurative meaning found in traditional theories of irony, in terms of conversational implicatures. In other words, "X is a fine friend" would conversationally implicate rather than figuratively mean "X is not a fine friend".

Irony and the Context of Interpretation

It appears that neither the Cooperative Principle, nor the maxims are enough to ensure that the inferences the hearer draws are precisely those that the speaker intended him to recover. Let us imagine a situation in which Ann has just offered her Egyptian friend, Ali, a glass of wine. Ali, assuming that Ann knows he is not a religious person accepts her offer in saying ironically "You know I am a good Muslim". Ann, assuming that Ali has been cooperative, further assuming that he actually is a good Muslim and that Muslims are not allowed to drink alcohol, draws the implicature that Ali has refused her offer. Grice argued that Ann's failure to recover Ali's intentions are due to her inability to access the assumptions on which his utterance was produced. In other words, "a mismatch between the context envisaged by the speaker and the one actually used by the hearer may result in a misunderstanding" (Sperber and Wilson, 1986, p.16). Grice (1975) then imposed a further condition for ironical communication to be successful: that communicators have access to the same context of interpretation. This includes

the context, linguistic or otherwise, of the utterance ... other items of background knowledge ... the fact (or supposed fact) that all relevant items falling under the previous headings are available to both participants and both participants know or assume this to be the case. (Grice, 1975, p.50)

People must then not only share the same assumptions, they must also *know* that these assumptions are shared. Furthermore, communicators also need to be sure that the assumptions that are known to be shared are really shared. They must then assume that they know

that "each other knows that they both know" (Grice, 1975, p. 51). Only to the extent that this form of common knowledge is achieved can an implicature can be known to have been meant. So, Grice defined the context of interpretation of an ironical utterance as the set of assumptions that both communicators know that each other know that they both know they can bring to bear on the interpretation of that utterance.

Irony and the Expression of a Derogatory Attitude

Grice (1978) noticed that one can implicate the opposite of what one has said without being ironical. Showing a red hat and saying "This is a black hat" (meaning: This hat is not black) is unlikely to be taken as ironical. How then can irony be distinguished from irrelevancy and playful language? Grice (1978) argued that

irony is intimately connected with the expression of a feeling, attitude or evaluation.

I can not say something ironically unless what I say is intended to reflect a hostile or derogatory judgement or a feeling such as indignation or contempt. (p. 124)

So, it is because "This is a nice black hat" does not carry a critical overtone that it cannot be taken to be ironical, and it is because no derogatory attitude has been expressed towards the utterance itself that the hearer cannot retrieve the ironical implicature.

Some Evaluative Comments on Grice's Model

The advantages of Grice's proposals are numerous. First, it integrates irony comprehension into a coherent theory of language use. Grice showed that the recovery of ironical meaning relies on processes basic to every aspect of language understanding, namely the drawing of conversational implicatures. Second, contrary to Searle, Grice specified under which conditions an utterance will be perceived as ironical. Only when someone overtly violates the maxim of Quality by making a false remark can that utterance be perceived as

ironic. Finally, in clearly associating irony with the expression of negative feelings, Grice proposed an explanation of why people use irony. Yet, Grice's proposals have given rise to four major criticisms.

Irony and the Opposite of the Literal Meaning

We must first notice that Grice's theory is far from being a radical move from either the traditional or Searle's views. All these views start on the same premise that the ironist tries to communicate the opposite of what he has literally said. Consequently, they are all liable to the criticism that were addressed to Searle in that respect. As Sperber and Wilson (1981a) put it "the only disagreement between Grice and more traditional theorists is over whether the substitution mechanisms involved are semantic or pragmatic" (p.296).

Irony and the Violation of the Truth-Telling Maxim

Grice argued that the violation of the maxim of Quality triggers ironic interpretation. Yet, the violation is not a necessary condition because irony can be conveyed through sentence-types to which questions of truth and falsity do not apply. Ironical questions or ironical understatements express propositions that are not necessarily true or false. What's more, irony can be used to express what the speaker truly believes. A driver who has just been cut off by another driver who did not signal his move and who ironically comments "I love people who signal!" is committed to, and truly believes, what he says.

The violation of the maxim of Quality is not even sufficient for an utterance to be perceived as ironical. Grice (1978) himself pointed out that patent falsehood is not in itself a sufficient condition for understanding irony because not every irrelevancy can be interpreted as ironical. Besides, Grice assumed that violation of the maxim of Quality also underlies the comprehension of metaphors and understatements. But this idea brings us back

to the problems that traditional theories of irony faced: How is the hearer supposed to know that in one case irony is used, and in another, metaphor or understatement?

All that we have shown so far is that violation of the maxim of Quality alone cannot account for the comprehension of irony. Could the explanation of how irony is understood be distributed to all the maxims? While this would most certainly help explain a wider variety of verbal ironies, it would at the same time mean that "in distributing the analysis across these maxims, Grice's theory must be judged inadequate insofar as it can do little more than illustrate how the overt violation of any cooperative maxim may or may not result in irony" (Kaufert, 1981, p.501).

A final blow to Grice's proposal comes from the observation that some utterances are ironical without violating any maxim. In uttering "American allies - always there when they need you" (Kaufert, 1981), the ironist is simply echoing and manipulating a familiar phrase with an ironical intention.

As a conclusion, it appears then that the violation of any maxim is neither a necessary nor a sufficient condition for understanding irony.

Irony and Conversational Implicatures

The link between the conversational implicatures involved in the comprehension of irony and those associated with language understanding in general is far from clear. Conversational implicatures are drawn because hearers assume that the violation of the Cooperative Principle is only apparent. To use the same example as on page 38, A has not been uncooperative; his implicature is meant to be *added* to what he has said. The conjunction of what he said and what he implicated then constitutes a contribution "as informative as required".

Yet, in the case of irony, the implicature *replaces* what the speaker has explicitly said. The ironic meaning of "X is a fine friend" is not the sum of the explicit content of that

utterance plus the inferred implicature ("X is not a fine friend"), but only the latter. However, "the fact that an implicature has to be *substituted* for what was literally said ought to confirm the hearer's suspicion that the maxims have been violated, rather than preserving his assumption that they have been obeyed" (Wilson and Sperber, 1981a, p.160). We must then assume that the implicatures involved in understanding irony are different from the standard type of implicatures and that they must be computed according to different principles.

Finally, it seems that the implicatures drawn in the comprehension of some ironical utterances do not -as they should - restore the Cooperative Principle, but further violate that principle. Imagine a situation where someone says "It's a bird - it's a plane - it's Superman" as an undersized boy trips over his feet while finishing last in the school race (Sperber and Wilson, 1981a). According to Grice, the contextual falsehood of that remark should trigger the following implicature "It's not a bird - it's not a plane - it's not Superman". Yet, that implicature - though literally true - is totally uninformative as it represents a statement of the obvious. How such a platitude can be taken as ironical remains a mystery. But more fundamentally, the implicature in question contradicts every expectation of cooperation that communicators are assumed to have. That is, the hearer moves from a false literal meaning (violation of the maxim of Quality) to an uninformative implicature (violation of the maxim of Quantity).

The Context of Interpretation

Grice (1975) argued that the context of interpretation involved several layers of shared assumptions. If both communicators do not know that they both know that each other knows what is being referred to, there won't be any guarantee that the right implicatures will be drawn. Yet, as Clark and Carlson (1981), Clark and Marshall (1981) and Schiffer (1972) remarked, participants must make further assumptions to establish a com-

mon context that would truly guarantee communication. Indeed, they must make fourth, fifth-order assumptions - and so on infinitely- to establish what Schiffer called "mutual knowledge". But as Clark and Marshall (1981) noticed, this would lead to the prediction that understanding an utterance would require checking an infinite number of propositions - a prediction clearly incompatible with the pace of ordinary conversations. So, while Grice made interesting proposals, his definition of context yields to psychological impossibility.

From Detection to Interpretation

A final problem that Grice's theory has to face is the passage from the rejection of the literal interpretation to the recovery of the ironic conversational implicature (Levinson, 1983). Here, Grice (1978) made the interesting point that the recovery of the speaker's derogatory attitude is a crucial element in understanding irony. Yet, the same author did not explain how this attitude is recognized. This is clearly a problem when the addressee has no access to some of the non-linguistic cues (facial expression, tone of voice) that surely help hearers detect that attitude. Furthermore, Grice (1978) viewed the recovery of the speaker's attitude as a *condition* for the identification of the ironical meaning. That is, the main point in using "What lovely weather!" ironically is to implicate its opposite, "What awful weather!", the speaker's negative attitude being only a means of making the implicature more accessible. Yet, the capacity to reject the literal interpretation is based on the knowledge participants share that the weather is awful. In other words, in uttering "What lovely weather!", the speaker is stating the obvious and implicating a proposition the hearer is already fully aware of. Ironical utterances would thus be particularly uninformative as "the speaker would be intending to communicate a certain belief but, in the absence of any special intonation, his intention would only be recognized by someone who already knows that he held that belief" (Sperber and Wilson, 1981a, p.301).

Clark and Gerrig's Pretense Theory of Irony

Clark and Gerrig's (1984) goal was to develop Grice's (1975, 1978) ideas on irony into a full-fledged model of irony. They first argued that for Grice (1978) the ironist is not using one meaning (the literal meaning) in order to get across its opposite (the ironical meaning), but that he is pretending to use the literal meaning to ridicule those people who might agree with that proposition. This interpretation brings us back to the Greek root of the word "irony" and echoes Grice's remark that "to be ironical is, among other things, to pretend" (Grice, 1978, p.125). Clark and Gerrig thus called their model the "Pretense Theory" of irony.

Pretense and the Expression of a Derogatory Attitude

Clark and Gerrig (1984) argued that, in pretending to use someone else's ideas, the ironist expresses a feeling, an attitude or evaluative comment about that person. They further claimed that the interpretation of an ironic utterance involves several potential audiences. First, the victim may be the person the ironist is pretending to be and who is criticized for his misjudgment. Second, it can be the uncomprehending audience which fail to notice the irony and which are criticized for their uncritical acceptance. The existence of two audiences, the ironist's derogatory attitude would provide a unitary treatment of various forms of irony; verbal, dramatic and cosmic irony.

Irony and Common Ground

The second aspect in the pretense theory of irony is the importance of "common ground" (Clark and Marshall, 1981; Clark and Carlson, 1981). These authors showed that while the mutual knowledge hypothesis (Schiffer, 1972) could not be maintained as such,

it could still be reformulated. Clark and Carston (1981) argued that the communicators' mutual presence (physical co-presence), their mutual participation in the speech event (linguistic co-presence), and their common world and socio-cultural knowledge (community membership) can be used as evidence from which common ground can be inferred. When communicators do not have access to the same context, there can not be any guarantee that the speaker's meaning will be retrieved. In the case of irony, a mismatch between the speaker's and the hearer's contexts may be purposefully created. Indeed, Clark and Gerrig (1984) argued that "speakers are not just ironic: they are ironic only to certain listeners" (p.124). What distinguishes the naïve audience, from the true addressee is that the latter has access to the same context as the one intended by the ironist. That implies that the contextual anomaly of the literal interpretation is not a given; it is detectable insofar as the hearer has the same context of interpretation as the ironist. In other words "the perception of irony often hangs on subtle judgments of what is common ground to whom ... So a listener not supplied with the right information may not make these judgments accurately" (Clark and Gerrig, 1984, p.124).

Some Evaluative Comments on Clark and Gerrig's Model

Clark and Gerrig's views offered a radical departure from classical accounts of irony. First, because they made clear that irony involves only one level of meaning: namely, the literal meaning. The ironist is portrayed as pretending to state a proposition with the intention that this pretense be recognized as such, together with the derogatory attitude towards that proposition. In being ironical, the speaker is "expressing a belief ABOUT his utterance, rather than BY MEANS of it" (Sperber and Wilson, 1981a, p.302). There is no question here of any substitution of one level of meaning by another, but of the *addition* of another level of processing to the recovery of literal meaning. Contrary to Grice, the

ironist's main point must be found elsewhere than in his alleged attempt to communicate the opposite of what he asserts.

This is precisely what constitutes Clark and Gerrig's second strong point. They indeed linked the mechanisms and the effects of irony. Defining irony as pretense implies that understanding an ironical utterance involves finding out who the ironist is pretending to be, realizing that a derogatory attitude underlies that pretense and, finally that a judgement is passed on the person whose thoughts are echoed. In doing so, Clark and Gerrig integrated centuries of work on the effects of irony (victimization, "double entendre") and on the asymmetry in the uses of irony into a plausible psycholinguistic theory of irony.

However, Clark and Gerrig's views run into a series of problems. First, while the importance of context in irony comprehension is undisputed, Sperber and Wilson (1982, 1986) and Johnson-Laird (1982) argued that common ground can never be established with any confidence. They particularly pointed out that in Clark's views, common ground is not mutually known, but *assumed* to be known. Yet, if common ground is not undisputed, there will always be some doubts in the hearer's mind that he may have mis-evaluated the speaker's domain of reference. In other words, common ground cannot deliver the *guarantee* of successful communication that it was designed to provide.

Second, in the pretense theory, irony involves an imaginary speaker whose naive or grotesque thought the ironist is pretending to state, as well as an imaginary audience who fail to detect irony. Recognizing irony would thus involve constructing a plausible speaker-audience pair, recognizing who the ironist is pretending to be and whom he is pretending to address. However, Sperber (1984) and Katz (1981) showed that some ironical utterances can hardly fail to be understood as such. How can "John, this murderer, this thief, this crook, is indeed an honorable fellow" (Sperber, 1984, p.124) ever be uttered seriously? How can anyone pretend to be such an improbable speaker, and how could an uncritical audience ever take such a proposition seriously? It appears then that a proportion of ironical utterances does not rest on the existence of a plausible speaker-hearer pair.

Sperber and Wilson's Theory of Irony as Echoic Interpretation

Sperber and Wilson's views rest on the concept of "relevance". An ironical, or any other, utterance will be relevant if it can easily be integrated into a context of interpretation. These authors argued that every utterance comes with a presupposition of relevance which gives the hearer a guarantee that the message is worth taking the time to process. Contrary to Grice, then, there is no set of maxims that communicators violate or conform to.

Relevance and Contextual Implications

To see how the search for relevance underlies every aspect of language comprehension we propose to analyze the following example. Two friends Bob and Mary went to a concert, to hear their mutual friend, Allan, play the violin.

Bob: So, do you like the concert?

Mary: He plays well, indeed.

How is Bob going to understand Mary's remark? Assuming that her utterance is relevant, Bob will seek to process it in terms of its context of utterance. His first task will be to assign a referent to the pronoun "he", and disambiguate "play". To do so, he will have to assume that Mary's utterance can combine with elements of information readily available to him. From his own question, from what he can see (1. Allan plays at the concert), and from what Mary and himself have talked about earlier, Bob can infer the sentence propositional content:

2. Allan is playing the violin.

The interaction of this propositional content with Mary's sentence will give the additional proposition:

3. Mary says (vs. wonders, asks, etc.) that Allan plays the violin well,

which is a step towards establishing the relevance of Mary's answer. As proposition 2 and 3 could not have been inferred from Mary's utterance alone, nor from the context alone, Sperber and Wilson (1986) called them the "contextual implications" of Mary's sentence. An utterance will then be relevant when it has contextual implications. As Mary's sentence (He plays well) is understood insofar as its contextual implication (Mary says that Allan plays the violin well) is drawn, establishing the relevance of an utterance is at the same time understanding it. Of course, the search for relevance does not stop here, as implication 3 is still far from being explicit about Mary's intentions. Once again, the interaction of the contextual assumptions

4. Allan plays well.

with Mary's sentence and with Bob's assumptions that Mary seriously thinks that Allan's performance has been satisfactory can give the additional proposition:

5. Mary *believes* (and not only *says*) that Allan plays the violin well.

The process continues, as implication 5 still fails to provide a relevant answer to Bob's question. Now, the interaction between implication 5 and Mary's sentence can lead to one additional contextual implication:

6. Mary likes the concert.

which firmly establishes the relevance of her literal utterance.

Sperber and Wilson (1986) further argued that other implications could be drawn, providing the hearer is willing to extend its search from an initial context (the ideas and concepts expressed in the preceding utterance), to the utterances that occurred earlier in the conversation, his own world knowledge or the immediately observable environment. As each extension increases the number of contextual implications that can be drawn, Mary's utterance would be optimally relevant only in an over-extended context. At the same time, Sperber and Wilson (1986) remarked that these additional implications require ever increasing processing time and are less and less likely to be drawn given the pace of everyday

communication. So, if relevance is measured by the number of contextual implications an utterance can have, this requirement is balanced by the effort involved in deriving them.

Irony as Echoic Interpretation

Let us take the same utterance "He plays well, indeed!" produced in the same situation except for the fact that it is obvious that Allan does not seem to know a difference between a violin and a drum. How is Bob going to understand Mary's ironical remark "He plays well, indeed"? It is quite obvious that developing the sentence into "Mary says that Allan plays the violin well" falls short of making her comment any more relevant. How then is relevance of ironical utterances established?

First, Bob must realize that Mary is not using that utterance to describe a situation, but to express her feelings about the proposition she utters. This brings us back to the problem experienced by Grice in his attempt to include the implicatures involved in irony comprehension into his general account of communication. For Grice, ironical implicatures are indeed manifested by means of a false literal meaning. However, we argued that there were some major contradictions in this view and that additional concepts must be involved in the recovery of ironical intentions. To develop this view, Sperber and Wilson (1986) stressed that linguistic signs and utterances can be used as representations of concepts and ideas that the speaker wants to make manifest to the hearer - what they called a "descriptive" use of language. But an utterance can also be used as a representation of some other utterance it resembles. We make an "interpretive" use of language "to represent utterance-types or thoughts which are worth considering for their intrinsic properties, and not because they can be attributed to Peter, Mary, the inn-keeper, or public opinion" (Sperber and Wilson, 1986, p.230). When we produce examples to illustrate a difficult concept, when we examine successive preliminary hypotheses before being able to

formulate a better one, we are making an interpretive use of language. Irony is also a case of interpretive language.

So, Bob must realize that Mary's utterance is used interpretively, that it has some intrinsic characteristics that make it worth processing and that its relevance lies in its very words. Furthermore, for each type of interpretation, relevance is established differently. For some interpretations, relevance is achieved "by informing the hearer of the fact that the speaker has in mind what so-and-so said, and has a certain attitude to it" (Sperber and Wilson, 1986, p.238). This type of interpretive utterances is called "echoic". Irony is a case of echoic interpretation where the speaker's attitude is manifested only implicitly and needs to be retrieved from the tone of voice and/or the context.

Bob must then notice that Mary's utterance echoes the comment he has made in the morning to convince her to come to the concert. Yet, this double recognition (that her utterance is echoic, and that it echoes Bob's ideas) does not yet establish the relevance of Mary's comment. Under the circumstances, Bob can assume that

4'. Allan does not play well.

In light of this assumption, Mary's utterance will yield the additional implication

5'. Mary says , but she does not believe, that Allan plays the violin well.

So, as Mary cannot be expected to be serious about the proposition she expresses, she can be taken to utter it precisely to dissociate herself from its content, to express the proposition:

6'. It would be stupid to claim that Allan is a good violonist.

Finally, adding implication 6' to the context of interpretation enables Bob to draw an additional contextual implication:

7. Mary does not like the concert.

Irony and Indeterminate Implicatures

There is an obvious problem in that account. If all that Mary wanted Bob to infer is implication 8, if the entire relevance of her reply depended on the recovery of that implication, she could have spared herself and Bob processing effort in saying it directly. Sperber and Wilson thus argued that in being ironical Mary must have intended to produce some additional effect on Bob. They claimed that her ironical comment has opened up a number of possible additional interpretations that a direct response would never have. By echoing one of his thoughts and by dissociating herself from it, Mary has invited him to draw a series of weak implications which increases the relevance of her utterance:

8. You lack critical judgement.
9. You have no musical ear.
10. You made me waste my time.
11. I should never have trusted your taste....

Ironic utterances have then two levels of contextual implications: those without which the utterance will fail to be relevant (implications 5 to 7) and those that are more or less strongly implicated, but without which the utterance would not be optimally relevant (implications 8 to 11). Whether the latter implications were all specifically intended by Mary cannot be assessed by Peter. What's more, Mary may not have intended precisely these implications to be recovered. However, in choosing to be ironical, Mary must have intended Bob to reach some of these non-fully determinate implications. The possibility that utterance may implicate more than a specifiable list of implicatures echoes Grice's (1975) remark that

Since to calculate a conversational implicature is to calculate what has to be supposed in order to preserve the supposition that the Cooperative Principle has been observed and since they may be various possible specific explanations, a list of which may be open, the conversational implicatum in such cases will be a disjunc-

tion of such specific explanations; and if the list of these is open, the implicatum will have just the kind of indeterminacy that many actual implicata do in fact seem to possess. (p.58)

Sperber and Wilson (1986) argued that the rejection of such indeterminate implicatures is an unnecessary idealization as "in concentrating on fully determinate implicatures ...[modern pragmatists] have deprived themselves of the ability to provide an adequate analysis of stylistic and poetic effects" (Sperber and Wilson, 1986, p.196). But stylistic effects are central in irony because we use irony precisely because it offers a way of communicating thoughts in a specific way and to achieve certain effects. More specifically, "an ironical utterance carries suggestions of attitude - and sometimes of images - which cannot be made entirely explicit in propositional form. This attitude may imply a number of propositions, but is not reducible to a set of propositions" (Sperber and Wilson, 1981a, p.316).

The Context

We have seen that a given utterance is relevant when it can be integrated into a context. Yet, we still have to determine what "context" is and how it affects comprehension.

First, Sperber and Wilson (1981a, 1986) argued that the search for relevance determines what context is required for the interpretation of a given utterance. In our first example, the relevance of "He plays well" depended on Bob's capacity to derive from his own question and from the environment a set of assumptions against which Mary's utterance could yield contextual implications. In that case, the context consisted of his preceding utterance, plus the immediate environment. Now, when the same utterance is meant ironically, it requires a more extended context. Indeed, Bob must not only provide the context just described but also the conversation he had with Mary in the morning as the source of the echo. Sperber and Wilson (1986) thus argued that the hearer selects whatever context is

necessary to establish relevance out of a range of possible contexts: the preceding utterance, the utterances that occurred earlier in the conversation, the hearer's world knowledge or the immediately observable environment. In other words, "it is relevance which is treated as given, and context which is treated as a variable" (Sperber and Wilson, 1986, p.142). In characterizing irony as conveying indeterminate implicatures drawn in a context which is not necessarily the one intended by the speaker, Sperber and Wilson run the risk of presenting irony comprehension as essentially probabilistic. In fact, they fully accepted that view of human communication and argued that "communication is governed by a less-than-perfect heuristic... failures of communication are to be expected: what is mysterious and requires explanation is not failure but success" (1986, p.45).

Second, they remarked that each ironical utterance requires a different context of interpretation and different amounts of processing effort. We have seen that understanding irony involves realizing that the utterance is echoic and locating the source of the echo. So, the more difficult it is to locate the source of the echo in the context, the more difficult irony will be. Sperber (1984), Jorgensen, Miller and Sperber (1984) claimed that when the thought echoed has been explicitly expressed in the preceding utterances, the ironical utterance should be easier to understand. The thought echoed need not have been expressed verbally "all that is necessary is that the thought be attributable to specific people, specific types of people, or people in general" (Sperber, 1984, pp. 122-3). This condition would exclude irrelevant or absurd utterances from consideration. Yet, if the thought has never actually been uttered, hearers can be expected to experience some problems locating the source of the echo. Indeed, hearers would have to search a more distant potential context: their world knowledge about the thoughts that people, specific people or specific groups of people could be expected to entertain. The more opaque the reference, the more difficult understanding irony is going to be.

Irony and the Expression of Negative Attitudes

Sperber and Wilson (1981a, 1986) claimed that the recovery of the ironist's attitude towards his utterance is a crucial element in understanding irony. But, what is precisely the attitude that the ironist tries to make manifest? It seems that ironic utterances can communicate a very wide range of negative feelings, from sheer outrage to mild irritation and amusement (Sperber and Wilson, 1986). As such, it is not radically distinct from *non-ironical* echoic utterances. Let us take the same comment "He plays well, indeed", but in a situation where Allan actually plays the violin very well. In that context, Mary's comment echoes Peter's previous statement and explicitly expresses her total agreement with his opinion. So, echoic interpretations can communicate a wide range of attitudes, from complete agreement to anger and outrage. But if that is so, then irony would not represent a specific and distinct class of phenomena. Indeed,

a speaker can use an echoic utterance to convey a whole range of attitudes and emotions, ranging from outright acceptance and approval to outright rejection and disapproval.... What exists is a continuum, with different blends of attitude and emotion giving rise to a whole range of borderline cases which do not fit neatly into any existing scheme. (Sperber and Wilson, 1986, p.240)

If that is so, then we must conclude that neither the mechanisms nor the effects of irony are specific. In other words, irony dissolves as a genuine natural category of phenomena with a distinguishable role to play in speech production and comprehension. The concept of irony as a figure of speech with specific mechanisms and effects cannot be maintained (Sperber and Wilson, 1981a, 1986).

Some Evaluative Comments on Sperber and Wilson's Model

Sperber and Wilson offered an ambitious and complex treatment of irony. One of its merits is the assumption that communication does not involve a set of maxims that communicators may or may not violate, but a single expectation of relevance. Understanding irony would not involve any departure from a norm, but the same search for relevance as the one that applies to all forms of human communication. At the same time, they account for the difference in the manner in which the implicatures involved in irony are drawn. A second advantage of their theory is their characterization of the context of comprehension as a tentative interpretive framework set up by the hearer. This view puts aside the problem of explaining how people can establish common knowledge with any confidence and fully accepts the probabilistic nature of human communication. Finally, Sperber and Wilson explained why people choose to be ironical, they specify what an ironical utterance communicates that its literal counterpart would not.

However, there may be some problems deciding whether the ironist is pretending to be a naive or unintelligent person or whether he is echoing what such a person has or could have said. As Williams (1984) put it "linguistic judgments as to whether an utterance is better categorized as mention [i.e. echoic] or pretense obviously depend on whether the judge has a broad or a narrow view of the scope of the echoic mention" (p.129).

More crucial is the problem of how hearers can detect that an utterance is echoic, and how they can locate the source of that echo, especially in those cases when the thought has never been actually made. Here, Sperber and Wilson do not provide an explicit explanation. However, some provisional elements of an answer can be proposed. Indeed, in discussing the typical asymmetry in the use of irony, Sperber (1984) and Sperber and Wilson (1981a) argued that certain thoughts are always available for echo. As people generally expect their action to be successful, and since "standards of rules of behaviour are culturally defined, commonly known and frequently invoked" (Sperber and Wilson,

1981a, p.312), it is then always “possible to mention these expectations ironically when they are frustrated ... and to trust that hearers will share them and so recognize them for what they are” (Sperber, 1984, p.115). In echoing such expectations of success when it is obvious that they have not been fulfilled in the situation, the ironist can make obvious that things went wrong. The negative attitude associated with irony could then be related to the implicit reference to frustrated expectations. What's more, although Sperber and Wilson (1986) did not mention it, their ideas seem to be linked to the concept of “felicity conditions” (Austin, 1962). The felicity conditions of an utterance consist of the set of conditions that must be met in the context for that utterance to act as a promise, a threat, a warning, a compliment, etc. If people intuitively come to know these conditions, they must also be able to know when they are not met. For example, they must know that saying “Thanks a lot” after having been hurt is inappropriate as none of the felicity conditions for “thanking” are met. The idea that irony involves the violation of expectations, or the misapplication of standards is also supported by Kaufer (1981). In trying to differentiate nonserious speech from irony, this author argued that “whereas the nonserious speaker uncritically applies an evaluation to a target, the ironist must be seen as critically misapplying one” (p.507). That is, the ironist may apply legitimate standards or expectations to objects, persons or phenomenon that are specious exemplars (“What beautiful weather!” in a downpour), or apply specious standards to persons, objects or phenomena that are legitimate exemplars of these standards (“I admire drivers who don't signal” when another driver has turned without signalling). Then, a good argument can be made that at least some forms of irony are understood in terms of the misapplication of standards of behaviour, or in light of the frustration of expectations conventionally associated with actions. If that is so, we will have taken some steps in explaining how hearers can detect that an ironic utterance is not mere nonsensical or nonserious speech.

Conclusion

We conclude this chapter by recapitulating some of issues which emerge from our discussion before comparing them (in Chapter IV) to those that emerged from the review of reading comprehension research (in Chapter III). We conclude that four aspects of irony are most problematic: the role of literal meaning, the definition of context, the distinction between detection and interpretation and finally, the concept of ironical meaning. We then close our discussion by an evaluation of the contribution of pragmatics to the study of irony comprehension.

Some Issues

The Role of Literal Meaning

Despite a wide consensus that irony involves understanding “something else” than the literal meaning of the ironical utterance, the role of literal meaning in the comprehension of irony is a matter of dispute.

On the one hand, Grice and Searle argued that the literal meaning is first recovered and then rejected in favour of its opposite: the ironical meaning/implicature. For any given utterance, two interpretive processes are posited. When the utterance is meant literally, the hearer uses the “background” (Searle) or the rules of language (Grice) to compute the literal meaning of that utterance and add to it whatever conversational implicature that may be required (Grice). When the same utterance is meant ironically, however, the process must continue. The hearer must consult the context (Searle), realize that the speaker is expressing a derogatory attitude (Grice) and then retrieve the ironical meaning by computing the opposite of the literal meaning. This leads to the view that irony involves specific interpretive

mechanisms. Both these authors thus accept the traditional distinction between figurative and literal language.

On the other hand, Clark and Gerrig (1984), Sperber and Wilson (1981a, 1986) claimed that no substitution of one type of meaning for another is involved in irony. For these authors, the ironist is not using a proposition to imply its opposite, but is using it to express some attitude towards it. The meaning of an ironical utterance is the literal meaning plus the recovery of the speaker's attitude towards that meaning. Clark and Gerrig (1984) further claimed that an utterance can be taken to be ironical or literal depending on what common ground the hearer is using to interpret it. Sperber and Wilson (1981a, 1986) claimed that what influences the interpretation of an utterance is not that it was meant literally or figuratively. Rather, it is the ease with which that utterance can be integrated into a context of interpretation that makes an utterance more or less difficult to understand. Sperber and Wilson thus explicitly concluded that the traditional distinction between literal and ironical language cannot be maintained as such, and proposed instead to distinguish between interpretive and descriptive uses of language.

It appears then that the role literal meaning is assumed to play in the comprehension of irony poses the more fundamental question of the existence of ironical vs. literal utterances.

The Context

The role of context in understanding irony is uncontroversial. It is assumed to trigger the rejection of the literal interpretation of the ironical utterance (Searle, 1979; Grice, 1975) or to trigger its interpretation as pretense (Clark and Gerrig, 1984) or echoic (Sperber and Wilson, 1981a, 1986). Yet, it appears that claiming that context is crucial in understanding irony is far easier than explaining its exact role in that process.

Searle's distinction between background and context, and Grice's argument that communication can only be guaranteed insofar as people share some mutual knowledge, have been criticized for their lack of psychological plausibility.

It is precisely to improve on the mutual knowledge hypothesis that Clark and Gerrig proposed the concept of common ground. Although it seems more plausible than mutual knowledge, common ground fails to offer the type of guarantee Grice had in mind.

Finally, Sperber and Wilson proposed a definition of context as the information the hearer supplies to establish the relevance of a given utterance. In that account, there is no question of mutually shared knowledge, but of the assumptions that the hearer can readily and quickly retrieve, and that he feels justified to provide.

So, it appears that no unitary definition of the concept of context has been offered. What that discussion has made clear, however, is that what constitutes communicators' common context of reference hinges on fundamental questions of how communication is possible and how secure it can be.

From Detection to Interpretation

All theories assume that the hearer must detect that the literal meaning does not exhaust what that utterance was meant to carry, and interpret the significance of that realization (the ironist's attitudes and intentions, retrieving the opposite of the literal meaning). Each theory however has different views of these two steps in the interpretation of irony.

Searle provided the most simple account of how irony is understood in proposing a meaning-inversion rule. Yet, as simple as this proposal seems, it rests on the dubious assumption that one can determine when contextual inadequacy should trigger an ironical and not a metaphorical or any other possible reading. What's more, we noticed that the inversion-rule cannot apply to all ironical utterances and that, when that rule seems to apply, it fails to specify what the ironical meaning will be.

Grice was more specific about the circumstances under which the hearer can detect that the utterance should be interpreted as meaning the opposite of its literal content. Only when the literal meaning manifestly violates the maxim of Quality and when the speaker has expressed some derogatory attitude towards his utterance can hearers suspect he may have been ironical. Yet, it appears that exactly how that attitude is recovered by the hearer is left unspecified. Furthermore, Grice's proposal leads to the conclusion that irony is particularly uninformative as only those who already knew what the speaker's intentions are can recover the implicature he wanted to convey. In other words, Grice proposed a circular characterization of irony comprehension.

Clark and Gerrig (1984) claimed for their part that understanding irony hinges on the common ground that the hearer assumes he shares with the ironist. In some cases, a mismatch between the speaker's and hearer's contexts means that the latter will simply fail to detect any anomaly in the literal interpretation.

Sperber and Wilson (1981a, 1986) claimed that an utterance can be interpreted as ironical when its literal interpretation fails to have maximum contextual implication. They further argued that understanding an ironic utterance implied the capacity to identify it as echoic as well as to locate whose thought is being echoed. This, they indicated, should be easier when the echo refers to cultural expectations and norms as well as when the thought echoed has been previously mentioned.

The distinction detection/interpretation touches on the very heart of the interpretation of irony. Although the four theories we reviewed have failed to provide a coherent view of how this process takes place, they have clearly established the complexity of understanding irony.

Ironical Meaning

Most theories of irony have had problems explaining why people are being ironical and specifying what irony communicates. Searle and Grice in particular argued that the main point in using an ironical utterance is to covertly communicate its opposite. Yet, this account can hardly explain why the ironist has not chosen to express himself directly.

Clark and Gerrig (1984) have tackled the same problem by arguing that irony allows the achievement of a subtle effect (victimization, sense of conspiracy). In doing so, they drew on some of the ideas traditional rhetoricians and literary critics had put forward.

Sperber and Wilson (1986) presented what seems to be the most comprehensive and detailed account of what constitutes the meaning of irony. They claimed that irony not only involves retrieving the speaker's attitude towards the proposition he asserts, but also suggestions of an attitude as well as a range of indeterminate implicatures. In other words, Sperber and Wilson argued that ironical meaning could not be reduced to a specifiable set of propositions.

Theories of irony have proposed two types of characterization of the ironical meaning. Searle and Grice on the one hand proposed a propositional definition of ironical meaning as the opposite of the proposed literally expressed. Clark and Gerrig, and Sperber and Wilson on the other hand have underlined the attitudinal aspect of irony, and the somewhat indeterminate content of the ironical message.

The Contribution of Some Pragmatic Theories to the Study of Irony

The four pragmatic theories of irony we reviewed in this chapter have contributed some important ideas in the debate on irony comprehension. In general, they have tried to integrate irony into wider theories of language comprehension and they have debated the

essential issues in the study of irony comprehension: the context, the role of literal meaning, the distinction detection/interpretation, and the nature of ironical meaning.

However, they have failed to provide conclusive solutions to the problems that plagued traditional theories of irony. These theories were criticized on two grounds. First, because they failed to provide an adequate distinction between irony and other figures of speech both at the level of detection and at the level of interpretation. Second, because they presented the mechanisms and the effects of irony as two separate aspects. It appears that the major pragmatic theories (those of Searle and Grice) also provide inadequate means of characterizing irony. Our discussion of the detection/interpretation process showed that they fail to establish convincingly how hearers can detect the presence of an ironical intention. What's more, they also failed to make accurate predictions about the form that intention takes.

However, progress has been made in providing a better account of irony in relating it with the expression of a derogatory attitude and with a finer description of the context of interpretation (Clark and Gerrig, 1984; Sperber and Wilson, 1982, 1986). But this move has been made possible by reference to more or less plausible definitions of "context". More importantly, from Grice (1978) to Clark and Gerrig (1984) and Sperber and Wilson (1986) one can notice the increasing influence of ideas developed by rhetoricians and literary critics (victimization, expression of a derogatory attitude, indeterminate effects). Given the decision we made to focus on pragmatics instead of rhetoric or literary criticism, it is somewhat ironical that some pragmatists may have come to argue that "a logical-pragmatic theory dealing with the interpretation of utterances as an inferential process must be supplemented by what could be called a 'rhetorical-pragmatic', or 'rhetorical' theory" (Sperber and Wilson, 1981a, p.317). In fact, even though the four pragmatic theories of irony we presented have failed to provide the coherent account we might have expected, they have clearly established the complexity of studying irony. They have shown that the study of irony is directly related to studying human communication, inter-subjectivity and cognitive

capacities. Whether rhetoric, literary criticism or some other field can shed new light into the problems pragmatics has faced remains to be seen. For the time being, we doubt that any single theoretical field can provide a comprehensive and coherent picture of ironical communication. Given the complexity of the issues involved, it seems that the cross-fertilization of various disciplines would be a more promising approach. This is precisely what we attempt to do now in turning our attention to research in reading comprehension.

CHAPTER III

SOME ISSUES IN READING COMPREHENSION RESEARCH

Introduction

In this chapter, we return to research on reading comprehension. However, our focus is different from the one we took in Chapter I. Indeed, while Chapter I dealt with the main *variables* affecting reading comprehension, the present chapter focuses on the *process* of reading comprehension. We first review several recent models of the reading process and propose to classify them in terms of the two major processes underlying reading, namely bottom-up and top-down processes. In the second part of this chapter, we analyze some of the assumptions underlying the views that reading is a bottom-up or a top-down process. Finally, we close this chapter by recapitulating the major issues that emerged from this review.

From Models to Processes

Over the years, several models of the reading process have been proposed (Goodman, 1968, 1976; Gough, 1976; Laberge and Samuels, 1974; Rumelhart, 1985; Kintsch and vanDijk, 1978; Just and Carpenter, 1980; Stanovich, 1980). In the following section, we briefly present each of these models in their chronological order and focus on their view of the comprehension process (as contrasted with letter identification, for instance).

Some Models of the Reading Process

Goodman (1968, 1976)

In Goodman's (1976, first published in 1967) model of the reading process, the reader starts reading by picking up graphic cues, and continues, guided by constraints set up through prior choices and an understanding of what the passage is about. The reader's language knowledge, his cognitive style and the strategies he may have learned also help him to select the most relevant cues. A perceptual image is thus formed, partly determined by what the reader sees and partly by what he expects to see. Then a memory search is carried out to pick up syntactic, semantic and phonological cues in light of which an educated guess can be made about the meaning of the information being processed. If the choice that has been previously made turns out to be incompatible (semantically or syntactically), the reader goes back to the point of inconsistency and looks for some other cue to resolve the problem. Finally, if the choice is acceptable, meaning is assimilated and expectations are generated about next input and next meaning. Goodman (1968, 1976) stressed the importance of "guessing", as the reader is assumed to formulate expectations about incoming information and to sample the written page for supporting evidence. For Goodman, "efficient reading does not result from precise perception and identification of all elements, but from skill in selecting the fewest, most productive cues necessary to produce guesses which are right the first time" (1976, p.498). Indeed, trying to decipher and make sense of each graphic element would result in information overload and loss of access to visual information before the brain has had time to make decisions about it. Goodman's view is supported by Smith's (1986, chap.3) convincing demonstration that reading must be fast, because "if the brain has to spend too long deciding among the alternatives, the visual information that the eye makes available to the brain will be gone"(p.31).

Gough (1976)

Gough (1976, first published in 1972) sought to describe the sequence of events that takes place in the short time (one second) it takes readers to start reading words aloud. Although he accepted the fundamental premise that reading must be fast, Gough claimed “I see no reason ... to reject the assumption that we do not read letter by letter. In fact, the weight of the evidence persuades me that we do so, from left to right” (p.513). Gough tried to show that approximately one or two dozens of letters can be read in one fixation (in 250 msec.), that 3 fixations are made per second and, finally, that 300 words can be processed per minute. In other words, readers can decode words quickly enough to be able to read serially from letters to words, words to sentences and sentences to text.

When words are formed, a lexical search is initiated to determine which meaning will be

assigned to them and when the first entry is located, its contents are accepted as the reading of the word until it proves incompatible with subsequent data; in the case of a systematically ambiguous word, its grammatical category can remain unspecified until further information is provided. (Gough, 1976, p.517)

Then, when a series of words has been deposited in short term memory, a “wondrous mechanism” called Merlin “tries to discover the deep structure of the fragment, the grammatical relations among its parts” (p.519), which constitutes the meaning of the sentence. Comprehension is thus seen as a matter of aggregating the meanings of individual words to construct the meaning of clauses, sentences, paragraphs and texts.

Laberge and Samuels (1974)

Laberge and Samuels' (1974) model begins at the point when visual information is analyzed serially as distinctive features which are later grouped into letters and words. The

same input can be processed directly, or holistically, as spelling patterns or words. Information is more likely to be processed holistically when the reader is competent, or when the word or spelling pattern is frequent and when it is embedded in a meaningful context.

After words have been recoded and translated into their corresponding sound values, the sound representation is matched to an entry in the reader's semantic memory, which they defined as a memory storage which contains our general language and world knowledge. Laberge and Samuels were not much more specific about the comprehension component of their model as "the complexity of the comprehension operation appears as enormous as that of thinking in general" (p.320).

Kintsch and vanDijk (1978)

Kintsch and vanDijk (1978) presented a model in which the reader is assumed to abstract from the surface structure of the text a set of underlying propositions. A first step in reading consists in the analysis of the structure of the text in sets of propositions. A proposition is defined as a predicator followed by one or more arguments. For example, from the sentence "If Mary trusts John, then she is a fool" three propositions will be derived: Prop1. (TRUST, MARY, JOHN), Prop2. (FOOL, MARY), Prop3. (IF Prop1., Prop2.). These propositions are connected into a coherent whole through argument repetition. That is, each new proposition is evaluated for its connection with propositions already processed and stored in short-term memory. If argument repetition succeeds, the new proposition will be integrated as consistent with preceding information. This is what happens in the example given above (MARY appears in the three propositions). If this fails, the reader will search through the text propositions deposited in long term memory for a representation containing an argument of the same kind. In both cases, the semantic coherence of text is realized through "referential coherence", which the authors defined as

“argument overlap among propositions”(p.367). If no connection can be found, the reader will resort to inference. The inference process “adds to the text base one or more propositions that connect the input set to the already processed propositions” (p.369).

Propositions are not only connected locally, but more globally into a final representation of text meaning in memory. Macro-rules transform the propositions of the text into a set of macro-propositions that represents the final representation of the text in memory, the “gist” of the text. These macro-rules delete less important propositions or summarize several propositions into a more general one. This aspect of text processing is guided by the knowledge readers have about story schemata, or by the particular goal they may have in reading.

Kintsch and vanDijk (1978) thus suggested that a text-based propositional representation is the initial product of understanding to which inferences rules would apply to sets of propositions resulting in more propositions that can be added to the data base. However, Kintsch and vanDijk (1978) did not specify how this takes place nor what these rules would be, their model “only says when an inference occurs and what it will be; the model does not say how it is arrived at, nor what precisely was its knowledge base” (p.364).

Just and Carpenter (1980)

Just and Carpenter (1980) presented a model in which visual features are analyzed and activate the representation of word in working memory. Word identification can be facilitated by the wider context in which it appears; word repetition and frequency, the semantic context in which the word is embedded, and the reader's background knowledge contribute to facilitating this process. Relation among words are then categorized into semantic cases (agent, recipient, manner...) along the lines suggested in Fillmore's (1968) case grammar. This case role assignment is made possible, in part, because certain word meanings suggest specific case roles (for example, “a saw” tends to be “instrument” rather

than "recipient"), and in part, because the more general context can suggest a particular case role. For example, the first part of the sentence "He was hit by" suggests that the missing word will be "agent".

Clauses and sentences are then connected. This implies relating new and old information across sentences by checking if the new information is related to the information that is still in working memory, either because it has been repeatedly referred to, or because it is recent. Another possible strategy consists in looking for specific syntactic cues to identify what information the writer presents as already known. Here, Just and Carpenter (1980) referred to Clark's (1977) Given-New scheme (described below) to explain how that second strategy can work.

Finally, sentence and clauses are integrated into a coherent structure. To do so, readers tap their knowledge of conventional text structures since Just and Carpenter (1980) argued that the reader's background knowledge includes "schemas [sic] for particular topics and discourse types" (p.332).

Just and Carpenter (1980) presented a model of reading in which the comprehension of written language is portrayed as involving contextual interpretation. Yet, they underlined the primacy of text-based aspects of comprehension as "the printed words themselves are usually the best information source that the reader has, and they can seldom be entirely replaced by guesses from the preceding context" (p.352).

Stanovich (1980)

The key concept in Stanovich's model is that "a process at any level can compensate for deficiencies at any other level" (p.36). That is, guessing and having expectations about next input may be valuable for poor readers when they lack decoding skills but have knowledge of the text topic. Decoding, on the other hand, may be a valuable strategy for skilled readers when they have little knowledge of the topic. Stanovich's model both in-

volves the interaction of several types of processes and the idea that any reader may rely on better developed knowledge sources when particular knowledge sources are temporarily weak.

Sanford and Garrod (1981)

According to Sanford and Garrod, the reading process is one of accessing, via the linguistic input, a meaningful mental-memory structure, a set of “cognitive constructs or configurations of knowledge which we place over events so as to bring them into alignment with familiar patterns of experience and belief” (Widdowson, 1983, p.54). Along with these entities are specifications about the roles, setting and possible range of values the elements can have. The reader has thus to use the input to identify a possible domain of reference, to find the “situation” to which the text seems to refer. But he also has to use what he knows of that situation to interpret the subsequent text.

Sanford and Garrod (1981) assumed that two types of processing are involved in most reading situations. A primary processing involves selecting a mental-memory structure and using it to interpret incoming text. Yet, when no structure can be found, or if the structure selected is inappropriate for new input, a secondary processing is needed to search for a new and more appropriate structure. Without primary processing, “no local topic would have been established and comprehension would falter. Without secondary processing, no new information would become presented in the mind of the reader” (Sanford and Garrod, 1981, p.131).

Rumelhart (1981, 1985)

Rumelhart assumed that information is analyzed by various knowledge sources at the level of letters, letter clusters, words, and syntactic and semantic groups. This analysis

takes place at all levels, each knowledge source generating hypotheses and evaluating the hypotheses generated by the other knowledge sources. For example, the "lexical-level knowledge" source scans the letter-cluster and letter hypotheses generated at lower levels of analysis. It seeks to find if these hypotheses can form lexical items and when it does, it formulates a lexical-level hypothesis which is then evaluated at a higher level by the "syntactic knowledge" component. At the same time, each knowledge source can evaluate hypotheses generated at a higher level of processing. For example, the syntactic knowledge can generate the hypothesis that sentences will most probably begin with a noun phrase (determiner + noun). This hypothesis is then analyzed at lower levels of processing, namely the letter-knowledge (determiner "a") and lexical levels (noun). All knowledge sources "apply simultaneously and ... our perceptions are the product of the simultaneous interaction among all of them" (Rumelhart, 1985, p. 735).

Classifying Models

The models of reading present different views of the process by which visual information is comprehended. Globally, reading is depicted either as a top-down, a bottom-up, or as the interaction of top-down and bottom-up processes.

First, reading can be portrayed as consisting of a serial process of information processing, from smaller to larger units of analysis (Gough, 1976; Laberge and Samuels, 1974). Features that constitute letters are first detected, letters are recognized and grouped into words which are then concatenated in phrases, analyzed to determine sentence meaning, and sets of sentences are finally considered together to produce the text meaning. These models are referred to as bottom-up models.

Second, the reading process is viewed as being primarily driven by higher levels of processing: the reader's experiential and conceptual background, or the activation of mental-memory structures (Goodman, 1968, 1976; Sanford and Garrod, 1981). One funda-

mental assumption of these models is then that spoken or written language does not in itself carry meaning, but provides directions for the reader as to how he should retrieve and construct the intended meaning from his own knowledge (Adams and Collins, 1985). In these models, "readers are said to have understood the text when they are able to find a configuration of hypotheses ... which offer a coherent account for the various aspects of the text" (Rumelhart, 1981, pp.9-10). These models are called top-down models .

Finally, reading can be described as a process in which "bottom-up and top-down processes operate simultaneously or alternatively, with information from each processing direction feeding into the other and influencing the other's course" (Spiro and Myers, 1984, p.479). Reading is then seen as the interaction of the two types of processes (Rumelhart, 1985; Stanovich, 1980; Kintsch and vanDijk, 1978; Just and Carpenter, 1980). However, interactive models differ in the relative importance they give bottom-up and top-down processing. Some interactive models see the reading process as driven primarily by bottom-up processes (Kintsch and vanDijk, 1978; Just and Carpenter, 1980). Just and Carpenter (1980), in particular, claimed that "the top-down processes can influence the bottom-up ones, but their role is to participate in selecting interpretations rather than to dominate the bottom-up processes" (p.352). Other interactive models strive for a more balanced relation between top-down and bottom-up processing (Rumelhart, 1985). Finally, interactive models can represent the different strategies that readers may use (Stanovich, 1980). So, there are two ways in which the process of reading comprehension can be seen as interactive. Reading is interactive in the sense that readers use both the printed page to generate expectations (bottom-up) and their expectations to analyze the printed page (top-down). Reading is also interactive because "the reader varies the relative amount of emphasis on the various sources of information in the head or in the text, depending on the situation" (Taylor, Harris and Pearson, 1988, p.10).

Beyond Models

We must first notice that the classification of models as top-down, bottom-up or interactive is only relatively satisfactory. Only a few models can unambiguously be depicted as strictly bottom-up, or top-down. Apart from Gough (1976), bottom-up models tend to integrate top-down processes. For example, Laberge and Samuels (1974) assumed that visual information can be analyzed holistically as spelling patterns or words when it is embedded in a meaningful context, thus opening the way to top-down processing. On the other hand, top-down models are only relatively so, in that expectations and schemata need to be activated through bottom-up processing. This is reflected in Goodman's (1968) claim that even at high levels of competence, readers may need to engage in bottom-up processing, particularly "in passages where the phrasing is complex or ambiguous" (p.18). So, we can safely conclude that two basic processes are involved in reading - bottom-up and top-down processes - and that each model varies in the relative importance it gives each one of them. In the rest of the present chapter, we thus abandon a strict distinction between models and choose to focus on the two processes underlying reading comprehension instead. The following discussion analyzes and criticizes the assumptions on which these two views of the reading process rest.

Top-Down and Bottom-Up Processes in Reading

Strict Bottom-Up Processes: Is Meaning in the Text?

In its strictest sense, viewing reading as a bottom-up process implies that text meaning is derived through an invariant set of steps from smaller units (letter features and letters) to units of analysis of increasing length. The strongest support to this strict bottom-up perspective can be found in Gough (1976).

This view rests on two major assumptions. The first is that "language is *actually understood* by the individual's looking up the meanings of the lexemes in some 'internal lexicon' and then putting them together to form the [literal] meaning of the entire sentence" (Rumelhart, 1979, p.82). The second assumption is that the literal meaning of a sentence "is solely derivable from the sentence in isolation with context involved only in the occasional case where a choice must be made between the structural descriptions of an ambiguous utterance" (Spiro, 1980b, p.248). Let us develop these two assumptions.

Literal Meaning in Text Understanding

Literal meaning and compositional analysis.

Gough's (1976) and Laberge and Samuels' (1974) models owe much to the program of semantic analysis put forward by Katz and Fodor (1963). Katz and Fodor proposed a program which contained, on the one hand, a set of meanings for the lexemes of a given language, and on the other, a set of rules of composition whereby the individual meaning of the lexemes are combined to form the meaning of the sentence, their literal meaning. Literal meanings are thus assumed to be those given by a compositional analysis. Fromkin and Rodman (1983) argued that "the literal meaning is based on the normal semantic properties of the words in the sentence" (p.171) and that "we comprehend sentences because we know the meaning of individual words, and we know rules for combining their meanings" (p.183). This program of semantic analysis can thus "provide a reasonable account of the *conveyed meanings* (that is what the listener understands upon hearing the sentence uttered in some context) of many sentences in English" (Rumelhart, 1979, p.81).

Literal meaning and the context of utterance.

A second aspect of the conventional characterization of literal meaning is that it is context-free. Katz and Fodor (1963) wanted to focus on the speaker's linguistic competence, that is to say, what an ideal native speaker would know about the meaning of a sentence without any information about its context. Understanding a sentence in a "null context" (on an anonymous postcard, for instance) despite the lack of any overt context and non-linguistic information is thus supposed to tap the very essence of one's linguistic competence. So, the semantic representation of a sentence deals with a sort of common core of meaning, its literal meaning.

Limitations of Strict Bottom-Up Processing

Limitations of compositional analysis.

The strongest version of the bottom-up view runs into a series of problems, however. First, it would appear that adding the meanings of the individual words of some sentences would fail to even approximate the sentence meaning. For example, the sentence "How about the salt?" does not seem to have any literal meaning (Gibbs, 1984).

More generally, it appears that literal meaning cannot be but only a dim reflection of the speaker's or writer's meaning. Indeed, sentences can be used to convey an infinite number of different thoughts, refer to a variety of individual concepts in different moments in time, and in different locations. Yet, the semantic representation of those sentences cannot integrate the non-linguistic properties necessary to retrieve these elements of information, such as the time and place of utterance, the identity of the speaker, etc. What semantics can do is provide some very general indications as to how the linguistic elements of the message can be interpreted. In the sentence "He came yesterday", a grammar cannot de-

termine who “he” refers to and which day “yesterday” refers to. A semantic analysis can tell us that “he”, in English, always refers to a male referent, that “yesterday” picks out the day before the utterance. The same observations apply to sentences such as “Mark is short” and “His gift made her very happy”. These sentences leave certain things unspecified; by what criteria is Mark short?, in what sense should the ambiguous word “gift” be taken?

The context in computing the literal meaning.

The assumption that a sentence can be assigned a literal, context-free meaning has come under heavy criticism. First, the assumption would imply that contextual features can be directly encoded in the linguistic structure. For example, the pairs rabbit/bunny, dog/doggie, mother/mummy differ in that the second member in each pair is reserved to, or used in, interaction with children. But “since the distinction is one relating to the appropriate users of the terms in context, the distinction would not be part of a linguistic description of English, which would merely note that the members of each pair are synonymous” (Levinson, 1983, p.8). And yet, even if the word “bunny” is written in an anonymous postcard, one can always retrieve the contextual inference that the writer or the addressee is a child. Second, it appears that contextual information is necessary for deriving the propositional content of the utterance. Indeed, determining spatio-temporal reference is regularly needed *before* a reader can recover the propositional content of the sentence. The same applies to many non-indexical expressions which can only be interpreted and disambiguated in context. In the following example (taken from Garrod, 1985),

A. The policeman noticed a bus accelerating towards him. He put up his hand and stopped it.

B. The goal-keeper noticed the ball heading for the net. He put up his hand and stopped it.

the same sentence “He put up his hand and stopped it” in two different contexts (A., B.) not only points to different referents, but also to two different situations. In each case, such

words as "he", "his", "it", "stopped" take on a different value. What's more, the same sentence refers in each case to two different scenarios; a policeman stopping a car or a goal-keeper stopping a ball.

Finally some of the studies we reviewed in Chapter I demonstrated that factors outside the text (the reader's knowledge of text topics, reader's motivation, reader's purpose in reading) strongly influence how the text is processed. In fact, extra-textual factors seem so important that they restrict what readers see in the text (Anderson et al., 1977; Pichert and Anderson, 1977; Anderson and Pichert, 1978). The importance of the knowledge readers bring to text comprehension, its influence on text processing seems now undisputed and undermines the assumption that there exists a literal interpretation common to all readers.

Literal meaning and the final representation of meaning in memory.

It appears that the final mental representation of text meaning includes the additional information that the reader needs to supply in order to realize text coherence (Kintsch and vanDijk, 1978; Thorndyke, 1976). For instance, Thorndyke (1976) had subjects read a text which contained sentence A. "The hamburger chain owner was afraid his love for French fries would ruin his marriage" followed by sentence B. "The hamburger chain owner decided to join weight-watchers in order to save his marriage". In order to understand B, the reader must make a backward reference to A. and draw A.1 "The hamburger chain owner was very fat" from the interaction of A and B. In fact, when subjects were given a recognition task, they erroneously reported 58% of the time that the additional information they had to supply (A.1) had been explicitly expressed in the text.

Primary Bottom-Up Processing

The idea that reading involves a strictly linear process of information processing stages from letter to text is clearly untenable. Understanding discourse requires that we go beyond the explicit language with which it is expressed. Most bottom-up models have then allowed for the extra-textual determination of text meaning.

However, if meaning is not entirely in the text itself, we would like to know what knowledge source readers use to contribute to text meaning and how this contribution manifests itself. The conventional answer to the first aspect of that question is represented by Spiro's (1980b) remark that these resources come from the context because "discourse is contextually embedded, and the contexts in which it occurs ... guide extra-textual construction" (p.251). In other words, the full interpretation of any utterance requires that two sources of information be used: the information in the sentence itself (its propositional content), and the context in which the sentence is used. The context would thus be used as a knowledge source from which inferences are drawn. Inference, which we define as "a process of inferring information which is not given in the sentence itself, on the basis of information arising from the reader's interpretation of the discourse as a whole" (Garrod, 1985, p.162) thus constitutes the reader's contribution to text meaning. The view that interpretation of sentences requires drawing inferences from the context is now uncontroversial. "What is controversial, however, is exactly how and when the so-called text inferences are arrived at during the course of reading" (Garrod, 1985, p.162), as well as how "context" is defined. We propose to discuss these two issues separately, starting with the concept of "context" and then by the view of inferences in models where bottom-up processes are dominant.

The Context

Context as linguistic context.

The conventional characterization of context can be found in the dictionary definition of that term as "the parts of discourse that surround a word or passage and can throw light on its meaning" (The Webster's Ninth New Collegiate Dictionary). This definition focuses on the semantic, syntactic and discourse components of context. We propose to refer to it as the "linguistic context". Let us examine how the linguistic context can be used to enrich sentence representation.

A first example can be found in Clark (1977). This author argued that communicators share a general willingness to explicitly mark in their sentences what they expect is already known to the other participant and what is introduced as new information. This Given-New contract helps the recipient to search back in his memory for the antecedent of what the speaker presents as Given. For example, in the sentences "Mary brought a beer and two oranges. The beer was warm", the second sentence contains a noun phrase marked as Given ("the beer"). The reader is thus required to search the text for a possible referent, which is found in the previous mention of "beer" in the first sentence.

More generally, it appears that the surface structure of sentences can permit logical inferences to be drawn (Harris and Monaco, 1978). For instance, in the sentence "I know you tried to be nice", the verb "know" necessarily or logically implies "You tried to be nice". Logical inferences are thus "derived solely from logical or semantic content" (Levinson, 1983, p.104). It could then be argued that the linguistic context can generate a number of inferences crucial to text understanding.

Some problems with linguistic context.

There are strong doubts that the linguistic context alone can provide all the information that readers regularly need to supply to realize text coherence. This can be shown, first, when no antecedent can be found for an element of information present as Given (Clark, 1977). For example, there is nothing in “Mary unpacked the picnic things” to clarify “The beer was warm” in spite of the fact that “the beer” (vs. “a beer”) is marked as Given. Clark then argued that the reader, assuming that the writer has actually provided a referent to “the beer”, is led to draw a non-logical bridging inference to relate “the beer” to “picnic things” through a part-whole relation between these two elements of information.

A second indication of the need to go beyond the linguistic context can be found in a short text, adapted from Rumelhart (1979). In “The policeman raised his hand. The car stopped”, there is nothing in the syntactic structure of each individual sentences, or in the meaning of “hand” or “car” that would enable us to relate the two sentences. That is, everything should lead us to treat the two sentences as two separate elements and not as meaningful discourse. To connect these two simple sentences, the reader must infer that the policeman stopped the car by raising his hand. This involves that a series of inferences is drawn: that the policeman didn't stop the car physically, that the car is not the policeman's but someone else's, etc. Yet, none of these inferences can be drawn from the sentences themselves, but from the situation these sentences evoke. Indeed, the structure of the first sentence enables a series of logical inferences to be drawn: someone raised his hand, a man raised his hand, the policeman raised something, the policeman is a man, etc. but not that policemen can make cars stop by raising their hands. This crucial piece of information cannot be found in the text itself, but comes from the reader's knowledge of policemen's rights and drivers' duties. So, “it is difficult to imagine how the meanings of the individual lexemes could be put together in such a way as to generate such an interpretation” (Rumelhart, 1979, p.86). It appears then that readers must not only derive logical, but also pragmatic

inferences which are drawn "when an utterance leads the hearer to expect something neither explicitly stated nor necessarily (logically) implied in the sentence" (Harris and Monaco, 1978, pp.2-3). Pragmatic inferences are thus one consequence of processing sentences against a non-linguistic context.

An extended characterization of context.

An appropriate definition of context should thus go beyond the conventional characterization of context as linguistic context. When we examine the models in which bottom-up processes are dominant, researchers seem to have characterized that non-linguistic context in different ways. A first tendency has been to argue that the reader's context is his knowledge of story structures (Kintsch and vanDijk, 1978; Just and Carpenter, 1980).

Another trend has been to include a variety of knowledge sources in the definition of context. Kintsch and vanDijk (1978) claimed some propositions "are inferred during the process of interpretation with the help of various kinds of context-specific or general knowledge" (p.365). Yet, the same authors failed to specify what these kinds of knowledge are. Other researchers have tried to be more specific. Warren, Nicholas and Trabasso (1979) argued that propositions are connected through relations of motivation, physical or psychological cause, enablement, temporal succession or co-existence. For example, "Carol tripped" is linked by a physical cause connective to another character's action "He tied her shoelaces together", the inference being "His tying Carol's shoelaces caused her to fall down". So, Warren et al.'s (1979) inference scheme would enable the reader to establish connection between propositions on the basis of inferring relations of reference, time, spatial locations, logical or causal connections, etc. between events and characters.

Clark and Haviland's (1977) New-Given contract allows readers to use their general world knowledge to draw inferences. For example, knowledge that picnic things include beer can be used to establish a part-whole relation between "picnic things" and "the

beer” and to lead to a part-whole inference, in the same way as the realization that “ceiling” is a necessary part of “room” leads to a necessary part inference in the sentence “I looked into the room. The ceiling was very high”.

Inferences in the Extended Context

The view that reading is primarily bottom-up (Kintsch and vanDijk, 1978; Laberge and Samuels, 1974) has integrated the concept of contextual inferences. In this perspective, literal meaning is seen as but one step in the interpretation of a sentence. In other words, sentences would first be assigned a preliminary semantic-literal representation prior to full interpretation. This position would limit inferences to cases when the sentence literal meaning is incomplete and when a given sentence cannot be integrated into a coherent representation of the text (Kintsch and vanDijk, 1978; Just and Carpenter, 1980; Mitchell and Green, 1978). So, the interpretive process would be to establish the basic propositional matrix, replace the indexical expressions with their discourse referents and establish the particular significance of the whole sentence within its more general context.

Let us examine the two basic assumptions about inferences in the bottom-up perspective: that inferences are used to connect propositions, and that inferences are drawn when the basic interpretation of a sentence has been established.

Inferences as text-connecting.

The conventional view of the inference process in a bottom-up perspective is found in Kintsch and vanDijk's (1978) remark that the inference process “adds to the text base one or more propositions that connect the input set to the already processed propositions” (p.369). One can think of Clark and Haviland's (1977) New-Given contract and of Warren et al.'s (1979) inference scheme to explain how clauses and sentences can be related into a

coherent structure, through part-whole relations, necessary part relations, reference, time, spatial locations, logical or causal connections, etc. between events, concepts and characters mentioned in the text.

A propositional representation of text will thus restrict the definition of inference to what Garrod (1985) called "propositional inferences", i.e. inferences that are derived from the text base by the application of special inference rules which enable additional propositions to be inferred through the logical or pragmatic relations between propositions in the text base.

Processing capacities and inferences.

There seems to be strong arguments for the idea that inferences should be drawn only when they are absolutely necessary. Indeed, one assumption common to most researchers is that "all the interacting processes share a total system of limited capacity" (Spiro and Myers, 1984, p.479). As it appears that our processing capacities are limited (Smith, 1986, chap.3), a process which has to draw a variety of different inferences by applying inference schemes to sets of independent premises will probably be computationally very costly. Indeed, if all the possible inferences were being drawn all the time, there would be no end to the inference drawing. From any sentence, numerous logical and pragmatic inferences can be drawn. In the sentence, "The hamburger chain owner was afraid his love for french fries would ruin his marriage" (Thorndyke, 1976), a large number of inferences can be drawn : "He got his french fries for free", "His wife didn't like french fries", "He was very fat", etc. What's more, even if the number of possible inferences could be shown to be limited in number, it still remains that many of them would turn out to be irrelevant to the rest of the text. In the text "The hamburger chain owner was afraid his love for french fries would ruin his marriage. He decided to join weight-watchers", only "He was very fat" is relevant for understanding the second sentence. This line of rea-

soning leads one to conclude that inferences “make relatively heavy demands on the comprehender's resources and, hence, contribute significantly to the difficulty of comprehension” (Kintsch and vanDijk, 1978, p.369).

Some Problems with the Bottom-Up Dominant Perspective

An over-extended definition of context.

Besides the general suggestions that context should include the reader's general background knowledge and his awareness of story schemata, no detailed characterization of the reader's context of interpretation has been offered in bottom-up models. That is, we don't know how this general world knowledge is organized nor do we know how it can be accessed. Most of the characterizations of context would thus allow almost every aspect of a reader's knowledge to belong to the context. For example, by “context”, Spiro (1980b) meant four distinct knowledge sources: the linguistic context in which a sentence is processed, the perceived task requirement of a given situation, the situation itself and finally the interests, motivation and preexisting knowledge of the reader. In fact the definition has been so extended that Smith, Glenberg and Bjork (1978) complained that the concept of context has turned into “a kind of conceptual garbage can”. So, it becomes difficult to explain how an individual reader can access the relevant information in such a large collection of concepts stored in his memory.

Some problems with propositional inferences.

The view that inferences logically or pragmatically connect propositions on the basis of implicit relations of reference, time, spatial locations, logical or causal connections, etc. between events and characters runs into a series of problems.

Although propositional inferences can be classified in terms of the implied relation they establish between propositions, one can have some doubt that the psychological processes by which they are drawn are distinct. Let us take the following example (taken from Sanford and Garrod, 1981) and apply Warren, Nicholas and Trabasso's (1979) inference scheme.

1. John wanted to go to Hawai.
2. He called his travel agent .
3. He said they accepted Master Card.

According to Warren et al. (1979), sentence 3 calls for an "informational"(reference) inference in determining who "he" refers to, in the same manner as "he" in sentence 2 has been connected with "John". Yet, in order to retrieve "the travel agent" as the referent of "he", the reader must draw what Warren et al. (1979) called a "logical" inference which they defined as involving "the causes, motivations, and conditions which enable events and are made in response to the questions Why? or How?" (p.26). That inference is that, in the situation, it is the travel agent, and not John, who is entitled to determine what will be the appropriate way of being paid. So, what started as an "informational" inference ends up in a "logical" one. Instead of different processes underlying different types of inferences, Sanford and Garrod (1981) argued that "it is most likely that [inferences] derive from a single source, namely the reader's attempt to discover some unique mental model of what the writer is talking about" (p.8).

Several experimental studies suggested that what is remembered from the text is not the addition of propositions and text-connecting inferences, but the model of the situation that the text referred to (Stein and Bransford, 1979). Garnham (1979) also suggested that in its final representation the sentence that was read is represented in a way that reflects contextual significance rather than exact wording. He had subjects read sentences such as "The housewife cooked the chips" and then, cued their recall of the sentence by presenting the exact verb "cook", or the related verb "fry". Garnham found that recall was enhanced in

the latter case. These results seem difficult to explain if one assumes that what is remembered is the sentence itself, or its propositional representation. However, they are totally compatible with the view that readers access, via linguistic input, a model of the situation (chips are usually fried) that the sentence refers to.

Processing capacities and inferences: when are inferences drawn?

The view that we cannot draw all possible inferences all the time is uncontroversial. But, that readers must wait until the whole sentence has been processed to draw the necessary inference(s) can be called into question.

First, it appears that the contextual interpretation of some linguistic entities is a precondition to retrieving the propositional content of a sentence. For instance, Wilson (1975) remarked that the semantic meaning of "and" is neutral with respect to temporal dimension, i.e. there is no semantic difference in the content of the two structures "p and q" and "q and p". So, there is no difference between "getting married and having a child" and "having a child and getting married" in the sentence: "Getting married and having a child is better than having a child and getting married". But if that is so, (and contrary to our intuitions as native speakers), the sentence should be meaningless as it represents the structure "p and q > to q and p", where "p and q" = "q and p". Levinson (1983) thus concluded that "the sentence can only be... given the correct semantic representation, if the pragmatic significance of 'and' in this sentential context is taken into account before doing the semantics" (p.35).

Experimental results also support the view that readers do not first assign a literal interpretation and only then enrich it with information taken from the context. Dell, McKoon, and Ratcliff (1983), for example, showed that reference assignment seems to occur as soon as the indexical expressions are actually encountered. These authors measured the time subjects took to access antecedent information during reading. They showed that subjects were able to retrieve the antecedent of an anaphoric noun phrase in a very short

period of time. Dell et al. (1983) concluded that these results couldn't be explained unless one assumes that readers recovered the referent at the time they encountered the anaphor. Garrod and Sanford (in press) reported 2 experiments in which they used a technique for assessing on-line interpretation by measuring spelling error detection latency. The materials they used depicted 2 characters: Elizabeth (a very inexperienced swimmer who starts to panic as soon as she is out of her depth), and a lifeguard. After that presentation, a target sentence was presented in one of four possible conditions, with or without misspellings (senk, jimped):

4.(4*) Within seconds Elizabeth sank (*senk) beneath the surface.

5.(5*) Within seconds the lifeguard jumped (*jimped) into the pool.

6.(6*) Within seconds Elizabeth jumped (*jimped) into the pool.

7.(7*) Within seconds the lifeguard sank (*senk) beneath the surface.

So, in two cases, the verb that followed the mention of Elizabeth or the lifeguard was consistent (4, 4* and 5, 5*) or inconsistent (6, 6* and 7, 7*) with what the reader knew of the two characters. The experimenters recorded the time it took subjects to detect the misspellings. The results showed that misspellings in inconsistent contexts (6* and 7*) took significantly longer to detect than those preceded by consistent verbs. Authors thus concluded that "readers do not just establish discourse reference on-line but also seem to have immediate access to much more extensive information about the likely state of the referent given prior context" (Garrod, 1985, p.167).

Top-Down Processes

We argued that a top-down approach focuses on the expectations and knowledge readers bring to text and according to which linguistic elements are processed. So, such a view puts great emphasis on what we called the non-linguistic context of interpretation and on the reader's contribution to text meaning. In the following discussion, we first tackle the

top-down view of context and then discuss the implication of such a view for the way in which inferences are drawn.

Top-Down Processes and the Reader's Context of Interpretation

For a long time, top-down models faced the same problems as bottom-up models when they tried to characterize the reader's non-linguistic knowledge. For example, Goodman (1968) talked about the reader's "general experiential" and "general conceptual" background, without specifying how this background was structured or how it could be accessed. However, the hypothesis that humans use mental structures to store, process and retrieve information during reading has brought new impetus into discussion of the reader's personal knowledge.

Schemata as context.

Various terms have been used to describe the personal knowledge that readers bring to texts: "frame" (Minsky, 1975), "script" (Schank and Abelson, 1977), "scenario" (Sanford and Garrod, 1981) and "schema" (Rumelhart, 1981; Widdowson, 1983). Generally speaking, although these terms are not synonymous, "schema" is the most widely used and seems to be the one term of the widest applicability (Widdowson, 1983; Rumelhart, 1981). We then restrict our discussion to the concept of "schema" which is defined as

a data structure for representing the generic concepts stored in memory. They are schemata representing our knowledge about all concepts: those underlying objects, situations, events, sequences of events, actions and sequences of actions.

A schema contains, as part of its specification, the network of interrelations that is believed to normally hold among the constituents of the concept in question.

(Rumelhart, 1981, p.5)

Let us develop this definition. First, schemata exist at all levels of abstraction. For example there are schemata for letter; a schema for letter K may consist of three sub-schemata; a vertical line on the left, an oblique line extending upwards, and an oblique line downward (Adams and Collins, 1985). At the other extreme, there may be schemata for actions or events, such as a "eating in a restaurant".

Second, schemata are structured. That is, a schema contains a number of variables which remain globally constant throughout variations. For example (Anderson and Pearson, 1984) a "ship christening" schema contains a "celebrity" variable, a "new ship" variable and a "bottle-broken-on bow" variable. Along with these variables, the schema contains "variables constraints", information about the typical values of the variables. In the "ship christening" schema the "celebrity" variable cannot be filled with a "barmaid character" or a "blue collar character", but with an individual of some renown.

Third, schemata also contain a specification of the temporal, causal, spatial, etc. relations between these variables. In the same example, the "ship christening" schema, contains a specification of the chronology of events that constitute such an act, of the respective roles of the persons involved in the christening, etc. As Anderson and Pearson (1984) showed, if schemata were not organized in that manner, the relations between variables would be arbitrary and unmotivated. If that were the case, then such a sentence as "During the ceremony on the ship, Princess Ann took a swig from the bottle of champagne" could wrongly activate the ship christening schema.

Using schemata in understanding written texts.

How can schemata act as context in the reading process? A partial answer to that question can be found in Anderson's (1985) claim that two of the functions that schemata perform in comprehension is to provide an "ideational scaffolding" for assimilating text information and to enable inferential elaboration.

Indeed, schema variables help identify the various aspects of a situation to which the text refers. When the reader knows or suspects that the text is referring to a "buy" schema, he can suspect that the animate being mentioned must most probably refer to the "purchaser" or the "seller" variable of that schema.

Second, when variables are not filled with information found in the text, they can still act as "default variables". That is, they can serve as the basis of forward inferences, or expectations, when the text does not explicitly provide information that can be bound to an important variable slot. For example, when the "eating in a restaurant" schema has been activated and although the information may not be explicitly given in the text, one can assume that the situation involves a waiter, a menu...

In a schema-theoretic perspective, linguistic signals activate in our mind a whole range of concepts on which the interpretation of subsequent information rests. This schema-based view of reading helps to explain some of the unexpected results mentioned earlier in this chapter (Garrod, 1985). In the sentences,

6*. Within seconds Elizabeth jumped into the pool.

7*. Within seconds the lifeguard senk beneath the surface.

the reader could not easily discover an interpretation of "senk" as "sink" in the misspelt version. This would be explained by the fact that as soon as "lifeguard" schema has been activated, information concerning his swimming capacities and physical conditions will be activated as well. This information being inconsistent with his sinking would mean that no

satisfactory interpretation for sentence 6* and 7* can be established during the primary processing of the sentence, but needs secondary processing.

Schema-Based Inferences

The assumption that the reader's world knowledge is organized in schemata has important implications for one's view of the inference process. Indeed, if we assume that inferences are drawn by applying inference rules to a set of premises, then we must also assume that inferences can only be drawn after the propositional content of the sentence has been established, because drawing inference this way is computationally costly. Yet, "the computational cost of inference depends very much on how the inferences are derived, and this in turn depends upon the nature of the mental representation of the text itself" (Garrod, 1985, p.168). Instead of assuming a propositional representation of text, schema theory assumes that linguistic input calls up representations of schemata along with information about the roles, setting and possible range of values of their variables. That has an important implication for the manner in which inferences are drawn because "by mapping into a scenario, predictability of the behaviour of a given entity is secured at the same time as presenting a possible interpretation explosion" (Sanford and Garrod, 1981, p.116). Collins, Brown, and Larkin (1980) supported the schema or "model-based model" of inference according to which "a central purpose of inference is to synthesize an underlying model, which organizes and augments the surface structure fragments in the text" (p.386).

If we assume that texts are understood via the activation of schemata, the information that is left implicit in texts can thus be partly activated as default variables of the schema that the text has called up. If these implied entities are mentioned later in the text, they can be directly accessed at little extra processing cost. That means that decisions about the interpretation of elements in a sentence may be made even before the critical sentence is

encountered. To support this interpretation, Sanford and Garrod (1981) had subjects read two sets of sentences

1) Mary put the baby's clothes on. The clothes were made of pink wool.

2) Mary dressed the baby. The clothes were made of pink wool.

They hypothesized that there should be no difference in the time subjects took to read the two sets. Indeed, since the schema associated with the verb "to dress" in 1) activates a whole array of different values ("put clothes on someone", "change someone from 'unclothed' to 'clothed'", etc.), they hypothesized that the word "clothes" is already predicted or implicitly present in reading "to dress". Their results supported their prediction and showed a non-significant difference of 7 msec. in reading 1) vs. reading 2). To capture the fact that implicit information may be derived without being inferred, Garrod (1985) proposed to call "pseudo-inferences" those inferences which are directly available through a schema during primary processing. These pseudo-inferences would thus require little computation energy and would leave our limited processing capacities almost intact for other more demanding tasks.

However, one can wonder what happens when no schema can be brought to bear on the text, or when the schema that has been activated turns out to be inadequate. Garrod (1985) assumed that readers need to draw "true inferences" which he defined as "an indirect inference, through schemes applied to discrete premises" (p.172) and which are "triggered by failures at the primary level and is possibly subject to the reader's control" (p.174). True inferences would then be what Kintsch and vanDijk (1978), Clark (1977) and Warren et al. (1979) described. To show under which circumstances true inferences are drawn Sanford and Garrod (1981) gave subjects passages like the following:

a. John was not looking forward to teaching math.

The bus trundled slowly along the road.

He hoped he could control the class today.

b. John was on his way to school.

The bus trundled slowly along the road.

He hoped he could control the class today.

They found that readers spent more time reading the final sentence in version b) than in version a). These results are consistent with the view that the reader initially assigned John the role of pupil in b) but the role of teacher in a). So when the final sentence is encountered, there is no problem to find an interpretation of "control the class" in a). In b) however, the reader has to change his schema of the situation by reassigning John to the role of teacher rather than pupil. True inferences would thus be involved to introduce a modification to the discourse model which will enable connectivity to be established in the secondary processing of the sentence.

Some Problems With Top-Down Dominant Views

A first problem in including schemata in a definition of the context is how this knowledge source can be accessed. The problem is to explain the manner in which the reader will select among the thousands of schemata available in his memory only those that fit the text best. So, we need to determine how bottom-up processing can be integrated into such a top-down view. Apart from titles and other indications that the author may have provided, the reader has to rely on clues and form hypotheses about the schema most likely to account for the text. Discussing top-down models, Gough (1976) noticed that although highly predictive contexts can facilitate word recognition, "most words are not predictable and so can only be read bottom-up" (p.688). Stanovich (1980) also noticed that top-down processing would be inefficient when the reader has little knowledge of the topics being discussed. However, researchers have remarked that although "relevant schemata must be activated ... the processes by which schemata are evoked are not well understood" (Carrell, 1988, p.105).

A related problem that schema-theoretic views of reading have experienced is their "almost total neglect of aspects of top-down processing efficiency, despite the fact that inefficient top-down processing can, in principle, contribute as much to reading deficiencies as inefficiencies in word identification" (Spiro, 1980b, p.265). A common assumption has been that schema availability conditions comprehension and recall (Bransford and Johnson, 1972; Anderson and Pichert, 1978). Yet, "it is not true that schema availability is a sufficient condition for successful top-down processing - available schema also have to be used correctly and efficiently" (Spiro and Myers, 1984, p. 482). Indeed, although readers have lots of knowledge stored in memory, they still need to know how to retrieve the relevant piece of information. What's more, Spiro (1980b) claimed that there are various kinds of schema-based breakdowns: children may fail to combine schemata so as to meet the needs of a given text, they may have problems maintaining schema activation for the time required to evaluate its goodness of fit, or they may be accurate but so slow in this top-down processing that they exhaust their processing capacities. Finally, Carrell (1988) showed that over-reliance on one's schemata can cause serious comprehension problems. Indeed, that author interpreted results of Barlett's (1932) and Steffensen and Joag-Dev's (1984) studies (see Chapter I) as the substitution by readers of a schema they do not possess by the closest schema they can find. This would suggest that top-down processing is complex and potentially risky.

Given that "we lack finely specified models of top-down processing that could guide empirical research" (Spiro and Myers, 1984, p.481), and that the mechanisms by which schemata are activated are not fully understood, the problems of schema activation and control are still unanswered.

Conclusion: Some Issues in Reading Comprehension

Our review of the processes involved in reading leads to several conclusions. In a first part of the conclusion section, we briefly recapitulate the pros and cons of the models of reading presented in this chapter. Then we conclude that three main issues emerge from our discussion, namely the role of literal meaning in text comprehension, the context of interpretation, and the role of inferences in reading.

Concluding Remarks About the Models of Reading

Models of reading have described written language processing as a top-down, bottom-up and interactive process. Strict bottom-up models have notably failed to account for the contributions readers must make to text meaning and for the importance of processing language in context. Top-down models, on the other hand, have offered only partial solutions to the problems of schema activation and control. The double realization that top-down and bottom-up models had failed to allow for the interfacilitation of lower and higher levels of processing has led to the development of non-linear, interactive models in which all knowledge sources apply simultaneously. That type of model has become the dominant view of the reading process (Samuels and Kamil, 1984; Spiro and Myers, 1984). A consensus has emerged that both top-down and bottom-up processes are used in reading, depending on the reader's decoding skills, motivation, previous knowledge of text topics, task demands, and situation in which reading takes place. This brings us back to the first chapter of this thesis, in that this list of conditions that can affect the reader's reliance on top-down or bottom-up processing corresponds to the three variables we identified in Chapter I (the text, the reader and the context). Interactive models thus account for the necessity of integrating the two types of processes and are more flexible than linear models. However, they have not yet provided suggestions about the fundamental issues of reading

comprehension, namely how readers can select the appropriate knowledge structure and how they can control the degree of fit of that structure.

Some Issues in Reading Comprehension

Literal Meaning

Bottom-up and top-down processes diverge in their evaluation of the respective contribution of the text and of the reader in the construction of meaning. In a strict bottom-up perspective, meaning can be retrieved from the text alone, with no recourse to extra-textual source of information. Yet, the view that texts have context-free literal meanings is clearly not tenable. At the level of the sentence first, there seems to be strong evidence that "even in determining the propositional content expressed by a sentence the reader will in almost every case have to take account of information only recoverable from prior discourse" (Garrod, 1985, p. 163). Second, it appears that part of the meaning we assign texts is not retrieved but constructed from the linguistic structures that constitute the texts. Finally, research has shown that personal characteristics can bias the reader towards one interpretation of the text, towards one "literal" meaning. Meaning is thus not to be extracted from the text, but "derived from the interaction of the elements of the [text] (nonverbal as well as verbal) and the hearer's conceptual data base" (Keenan, 1978, p.23).

Most researchers agree that such literal-context free meaning cannot be taken as representing what the writer has said. Miller and Johnson-Laird (1976) noticed that "perhaps we should say that there is no such thing as the literal meaning of a sentence, only the literal meaning that a given listener places on a given utterance of it" (p.704), and Rumelhart (1979) added that "the supposition that conveyed meanings are ever identical to literal meanings (where literal meanings are assumed to be those given by a compositional semantic theory) is surely suspect" (p.86). Samuels and Kamil (1984), although they first

established a distinction between literal and inferential comprehension, acknowledged later on that “even the simplest type of literal comprehension requires that we engage in inferencing” (p.207) - a position that is shared by many researchers in the field (Allwood, 1981; Anderson et al., 1977; Anderson and Pearson 1984; Olson and Hildyard, 1983; Anderson,1985).

Yet, if most researchers accept that the initial analysis of the sentence must be enriched and developed into its full propositional form through an inference process, there is an important disagreement as to when this process takes place. On the one hand, Kintsch and vanDijk (1978) and Just and Carpenter (1980) suggested that inferences are drawn after the propositional content of the sentence has been established. On the other hand, Sanford and Garrod (1981), Wilson (1975), Levinson (1983) and Garrod (1985) argued that contextual information could be taken into account as the sentence is being processed. So, we have two positions, one according to which the literal meaning is but one step in understanding utterances and one in which literal meaning dissolves in a wider interpretive process.

The Context of Interpretation

The realization that the text is only one element in the interpretation of written language has led to a new interest in the source of the additional information readers have to provide in understanding texts. In a bottom-up perspective, the context of interpretation was defined as not only the linguistic context in which a sentence is embedded, but also a more general knowledge (world knowledge, knowledge of conventional story structures). However, characterizing this general knowledge has proved a difficult task and no clear definition has been provided. Models in which top-down processes are dominant have assumed that readers use structures of knowledge stored in their memory to process texts. The concept of schema appears as central in this perspective. We argued that defining the

context of interpretation as the schemata that the reader can bring to bear on understanding a text provides a coherent description of the contents and organization of the information that readers use during reading. However, top-down models have partly failed to explain how contextual knowledge is accessed as readers process the text. We argued that schema theory has offered only partial solutions to these problems. We further claimed that delicate questions about top-down processes, schema control, evaluation and change have not been answered and limit the comprehensibility and explanatory power of top-down models.

Inferences in Reading Comprehension

The concept of inference has been used to describe the manner in which the reader contributes to establishing the meaning of a text. Far from being limited to logical inferences, readers can use their background knowledge to draw pragmatic inferences and construct a coherent representation of text meaning in memory. Several inference schemes have made clear the implicit relations between linguistic entities, events and characters on which inferences can be drawn (Clark and Haviland, 1977; Warren et al., 1979). However, as Singer (1988) and Garrod (1985) suggested, the concept of inference depends on one's assumptions about the mental representation of text and about the process of text comprehension. Consequently, two different views of the inference process have been offered.

In a bottom-up perspective, propositions are first recovered from the sentences of a text and gradually incorporated in paragraph and sequences. This perspective focuses on a "text-based" approach to inference, according to which "the inference process looks for meaningful relations between different propositions in the text" (Collins, Brown and Larkin, 1980, p.386). However, we have questioned the assumption that the different types of inference that have been identified in text-based approach rely on different psychological processes. Finally, the idea that the final mental representation consists in the list of propositions implicitly or explicitly expressed in the text leads to the view of inferences as

“filling the missing connections between the surface structure fragments of the text by recourse to context and knowledge about the world” (Collins, Brown, and Larkin, 1980, p.386). This proposal has the merits of allowing only the necessary inferences to be drawn - a necessary requirement when one thinks of our processing limitations. However, some experimental data seem to indicate that some inferences, at least, can be drawn during - and not after - sentence processing.

A second approach to inference has emerged from the schema-theoretic view of reading. Such concepts as “variables” and “default values” have been used to explain on what basis inferences can be drawn. In particular, the activation of schemata and of their variables implies that pieces of information not explicitly mentioned in the text can be directly accessed without being inferred. This new perspective makes it possible to distinguish between true inferences that are derived by applying inference rules, and implicit elements of information directly accessible when a schema is activated.

It thus appears that the definition of inference involves complex considerations about the assumed representation of text in memory, the relations established between propositions, concepts, events and characters as well as the demands that various types of inference make on the reader's limited processing capacities. The extra-textual information that readers regularly need to provide in text understanding is also directly linked to the concept of context and literal meaning.

In the following chapter, we attempt to show that these issues, combined with those identified in our discussion about the theories of irony, constitute some of the major issues involved in studying the comprehension of written irony.

CHAPTER IV
SOME THEORETICAL AND METHODOLOGICAL PROBLEMS IN STUDYING
IRONY COMPREHENSION

Introduction

In this chapter, we try to establish the problems involved in studying children's comprehension of written irony. As the following discussion shows, these problems are precisely related to the preparatory work that needs to be done before any research is carried out.

Clarifying the Theoretical Debate

Future research requires, first and foremost, a clear theoretical background. To provide such a background, we must regroup the models and concepts described in Chapter II and III and accommodate them into some general theoretical framework. We must also evaluate the usefulness of the resulting framework (and of current models) for future research. Two related problems underlie this theoretical clarification.

Our first problem is to provide a synthesis of four models of irony and eight models of the reading process. Indeed, models are not only numerous, they have also clearly tackled two different aspects of written irony comprehension. Models of irony have barely touched the dimension of the medium in which ironical intentions are communicated and models of written language comprehension have not discussed the problem of figurative and irony understanding. We must then try to determine if there is a system of underlying opposition and convergences in light of which models and issues can be regrouped.

Our second problem is to assess the relevance of this framework and of these models for future study on irony comprehension. Indeed, the seven issues identified in

models of irony and of reading comprehension suggest a series of potential areas of research and provide preliminary explanations for children's problems with irony. However, we are in much need of some theoretical clarification before these preliminary suggestions can be translated into relevant research questions. Indeed, the concepts that would be used in translating issues into research questions have been defined in so many different ways that no single coherent definition seems near. In addition, criticisms have been made against models (Chapter II and III) that future research should consider. This clarification leads to the realization that our preliminary theoretical framework is inadequate for future research on irony.

Making Methodological Choices

When the theoretical clarification is made, practical choices must be made about the methodology best suited to explore children's comprehension of written irony.

Some Theoretical Problems

Providing a Synthesis

Our first problem is to reduce the number of models to a manageable size and to provide a clearer theoretical background for future research on irony comprehension. To achieve this, two distinct steps are taken. First, we regroup the models of irony and reading comprehension into four general models of comprehension. From this initial synthesis, we then outline some common points and divergences between models. In a second step, we claim that these divergences represent a potential source of confusion and that our initial synthesis should be developed into a superordinate theoretical framework. We then describe this superordinate framework and show that it can regroup the knowledge sources involved in comprehension, such concepts as literal meaning, ironical meaning and monitoring, and their relation to hypotheses about children problems with irony.

A First Synthesis

Intuitively, there seem to exist four major categories of models of literal and irony comprehension. These general categories correspond only roughly to specific models. As we argued in the last two chapters, most models have indeed tended to depict comprehension as a multi-faceted and multi-dimensional phenomenon. Our four major categories rather try to represent and distinguish the fundamental *dimensions* of comprehension that models have depicted in a more subtle manner. We should then not be surprised to find actual models in two different types of model.

Model A (Searle, 1969; Katz and Fodor, 1963; to a lesser extent, Gough, 1976; Laberge and Samuels, 1974; Booth, 1974).

In this first perspective, intentions are assumed to be retrieved through a decoding process which “starts from a signal and results in the recovery of a message which is associated to the signal by an underlying code [i.e. language]” (Sperber and Wilson, 1986, p.13). Language would indeed provide a set of meanings for the words of the sentence, as well as a set of rules for combining these individual meanings into sentence meaning. A semantic analysis then leads to evoking a coherent model of the situation that the writer seeks to make manifest. So, the decoding process automatically pairs any occurrence of a well-formed sentence with its literal meaning (a model of the situation) and with its literal force, irrespective of the specific context in which the sentence is uttered (see Searle's Literal Force Hypothesis, Chapter II). The sentence's linguistic meaning is thus psychologically real because it represents what the reader understands of the sentence, that is, the situation that the writer wanted to evoke as much as the specific intentions he meant to convey by evoking that situation. In other words, the writer's “intentions will in general be achieved if the hearer understands the sentence, i.e., knows its meaning, i.e., knows the rules governing its elements” (Searle, 1969, p. 48). The literal interpretation of an utterance is then directly accessible to anyone who has some basic knowledge of the language because it is “built in” the sentence itself.

But what about sentences in which the writer has chosen to communicate his literal meaning, or his intentions, *implicitly* ? Wouldn't it be true to say that context and inference are needed under these circumstances and that Model A is limited to the very few occasions when the writer has been fully explicit? To this argument, Searle (1969, pp. 19-20) replied that inferences, context use and implicitness are *theoretically* non-essential. That is, although writers occasionally fail to be explicit, full explicitness is still theoretically possible: The speaker could have been explicit and/or language can always be enriched so that

his literal meaning and his intentions can be directly communicated. For example, although most ironies require a contextual reading, some ironies have become so conventional that "what the expression formerly had as an implicature, it now has as literal meaning" (Morgan, 1978, p. 263). Such expressions as "Can you pass the salt ?", "Your room is a pigsty" or "A fine friend you are!" can then be directly interpreted as a mild order, a metaphor and an ironical comment. So, the code in terms of which sentences are understood not only include conventions of language per se but also conventions of language use. Knowledge of the code would then enable us to automatically pair conventional figurative expressions with their "non-literal" meaning. We must then conclude that "even in cases where it is in fact impossible to say exactly what I mean it is in principle possible to come to be able to say exactly what I mean" (Searle, 1969, p. 19). From this, one can further claim that "cases where the speaker does not say exactly what he means - the principal kinds of which are nonliteralness, vagueness, ambiguity, and incompleteness - are not theoretically essential to linguistic communication" (Searle, 1969, p. 20).

Irony comprehension is then viewed as theoretically "non-essential", a deviant way of communicating one's intentions. Whereas literal communication involves the direct conveyance of the writer's intentions by means of the sentence structure and/or verb, ironical interpretation involves combining the sentence's literal meaning with contextual assumptions and using knowledge sources other than linguistic.

Model B (Kintsch and vanDijk, 1978; Laberge and Samuels, 1974; Just and Carpenter, 1980; Searle, 1979; Grice, 1975, 1978).

Writers are seldom ever fully explicit. Advocates of a more moderate view than the one presented in Model A have then held that comprehension starts by decoding the sentence into its linguistic meaning. However, that first step would represent only the potential content of that sentence. This initial decoding step would be followed by the develop-

ment of the sentence linguistic meaning into the literal meaning communicated by the speaker through that sentence. As that process involves assigning referents and disambiguating words, it calls for drawing inference and using the linguistic context (Chapter III and Grice, 1975). The inferences needed in the development of literal meaning is however "seen as simply a matter of choosing a single sense and reference from a limited set of alternatives" (Sperber and Wilson, 1986, p.180).

The extent to which the literal meaning reflects speaker's intentions can then be evaluated. When there is no reason to question the writer's cooperativeness, his intentions can be inferred directly from his literal meaning. The implicature involved here can be thought of as an inference "by default", a type of information that is derived because there is no obvious reason not to infer it. By contrast, any apparent violation of the Cooperative Principle will trigger an indirect or figurative reading of the sentence - what Garrod (1985) called a "true inference".

A distinction is thus made between the minimal linguistic context needed to recover the literal meaning and the larger intrapersonal context (including the Cooperative Principle) involved in inferring the writer's intentions. An additional contrast is made between literal utterances - in which literal meaning provides direct evidence for speaker's intentions - and indirect and ironical utterances. Making an ironical interpretation indeed requires using a complex of knowledge sources: knowledge of the situation and of the common ground, knowledge of social conventions, and knowledge of the specific inference rule by which literal meaning can be replaced by its figurative counterpart. So, recovering ironical intentions involves detecting that the literal interpretation is not warranted and shifting perspectives, from the bottom-up processes involved in retrieving literal meaning to the top-down processes underlying the passage from literal to ironical meaning.

Model C (Goodman, 1968, 1976; Gibbs, 1984, 1986; Ortony, 1984; to a lesser extent Clark and Gerrig, 1984).

In a radically different perspective, some authors (Gibbs, 1984, 1986; Ortony, 1984; Fish, 1983) hold that the speaker's intentions can be retrieved directly and that people can use "pragmatic information at the earliest stages of sentence processing without having to first construct a complete semantic representation for a sentence" (Gibbs, 1984, p. 298). This accords well with Grice's (1957, 1975) suggestion that communication is possible as long as there is a way of recognizing the speaker's intentions, even without a code, even without any propositional content. The presence of prosodic cues, for example, can manifest the speaker's intentions to ask a question although it may not be clear what that question is about. In the same way as reference assignment and disambiguation can take place when the indexical or ambiguous elements are encountered, inference about the general function that the utterance performs can also be made immediately. Contextual expectations should make it possible to immediately dismiss any literal interpretation of an ironical utterance in the same manner as different assumptions would immediately lead to dismissing any figurative interpretation of a literal utterance. The direct interpretation of the writer's literal or ironical intentions would then be possible not only when the expression is conventional ("Your room is a pigsty", "You are *such* a genius!"), but also whenever the context provides sufficient information about these intentions.

Model D (Sanford and Garrod, 1981; Just and Carpenter, 1980; Kintsch and vanDijk, 1978).

The need to account for the comprehension of innovative ironies, the fact the reader may not have immediately mobilized the correct context leads to a revision of Model B (Gibbs, 1984, 1986; Ortony, 1984). When context is adequate or when the figurative

expression is conventional, no full compositional analysis would be needed and comprehension could then be direct. However, when no clear indication about speaker's intentions can be found in the context, or when the expression is innovative, the reader would have to use the sentence meaning as a cue to the speaker's intentions.

Beyond the Preliminary Synthesis: Some Common Points

There seems to be several points on which most models agree. First, most researchers have assumed that "communication is successful not when hearers recognize the linguistic meaning of the utterance, but when they infer the speaker's 'meaning' from it" (Sperber and Wilson, 1986, p. 23). To infer speaker's intentions most authors also agree that one must use different knowledge sources: one's linguistic knowledge, one's knowledge and use of the context - both linguistic and social - and one's monitoring and inference capacities. It is precisely because various knowledge sources are tapped in comprehension that understanding irony has been characterized as a multi-faceted phenomenon, involving such components as literal meaning, context and inference.

Beyond the Preliminary Synthesis: Some Divergences

Models diverge more than they agree about the process of comprehension, the definitions of such basic concepts as literal meaning, ironical meaning, context, detection, interpretation and about children's potential problems with irony. Although our preliminary synthesis somewhat reduces the number of models we deal with, it has not reduced the complexity and confusion that has emerged from our description (in Chapter II and III) of models of irony and reading comprehension. It is already obvious that literal meaning, context and ironical meaning have received different, and sometimes contradictory, definitions. What can explain that the same concept has been defined in so different terms? Is

there a relation between the definitions of different concepts, or is one's definition of literal meaning, for instance, independent of one's definition of context and of ironical meaning? Furthermore, we need to determine if our theoretical choices are neutral with respect to hypotheses about children's problems with irony. Is it possible that the choice of one specific definition carries with it implicit assumptions about the sources of children's comprehension and miscomprehension processes?

We argue that these questions are so important and affect so many different aspects of irony comprehension that they cannot be left unanswered. Indeed, disagreement is so substantial that it could lead to a confused and fragmented view of irony comprehension. At a first level, one may indeed fail to notice that important distinctions exist between definitions of the same concept. For example, Gibbs (1984) and Morgan and Green (1980) seem to have erroneously attributed Searle's definition of literal meaning to Grice. At another level, one may take a fragmented view of irony comprehension. A fragmented perspective would dissociate the various dimensions of comprehension and would obscure the relations between concepts, process of comprehension and predictions about children's comprehension problems. In practical terms, this would mean that future research could use an operational definition of literal meaning or context with no clear understanding of the theoretical implications (or risks) of making such a choice. In the same manner, future investigation could fail to correctly evaluate the theoretical implications of empirical results and to generate relevant hypotheses for further research.

What we need, then, is to move from our preliminary synthesis to a more integrated view of comprehension, to a superordinate theoretical framework in which models, processes, issues, concepts and predictions could be integrated. Our first step toward establishing that framework will be to review and analyze the various definitions of the basic concepts of irony comprehension.

A problem of definitions.

Literal meaning.

Literal meaning has been first defined as the sentence's linguistic meaning (Searle, 1969), as opposed to what the speaker said or meant by means of that linguistic meaning. In a second perspective (Grice, 1975), literal meaning is what the speaker says explicitly in uttering a given sentence in a given context as opposed to the implicit intentions that the writer has tried to make manifest by means of that sentence. Finally, literal meaning has been defined as what the speaker means when his utterance is used literally, vs. what he means when the same utterance is used figuratively or indirectly (Gibbs, 1984, 1986; Fish, 1983). In that last perspective, there would indeed be a literal (i.e. obvious) interpretation for each utterance. Calling this interpretation "literal" or "ironical" would then have little to do with differences in comprehension processes (Rumelhart, 1979). This definition of literal meaning as the contextual interpretation of the utterance would further lead to the conclusion that

most sentences have meanings conventionally associated with them given some context ... and in many instances these conventional meanings are *not* their literal ones (as with "Can you pass the salt"). One could consider these sentences' conventional interpretations as their literal meanings. (Gibbs, 1984, p. 293)

This last position could then be developed into the confusing and contradictory statement that the literal (i.e. compositional) meaning of some expression may not be literal (i.e. simple and obvious).

Context.

Strict bottom-up perspectives have been criticized for having made an over-extended definition of context as whatever information is available to the reader (Chapter III). As there is every reason to assume that context must be restricted, some researchers have argued that the recovery of the sentence's literal meaning and that of the speaker's meaning taps different "layers" of context. For Searle (1979), this means opposing the background to the context of interpretation (linguistic context, the Cooperative Principle). For Grice (1975), the contrast is rather between the limited context needed to develop linguistic meaning into literal meaning (the immediate linguistic context) and the more extended context tapped in inferring speaker's meaning (the Cooperative Principle, common ground, inference rules). In both Searle and Grice, these two types of context apply in sequence - thus making context use manageable.

Other researchers have tried to explain how one's total background knowledge can be managed and used efficiently. The definition of context as common ground is one such proposal (Clark and Carlson, 1981). However, questions have been raised about the view that common ground is the necessary basis for communication. The question is then whether the context consists of the information known to the reader prior to the act of comprehension or whether context can be in part created in light of what the sentence requires for its own comprehension.

Ironical meaning.

Defining irony meaning is at the same time making assumptions about the motivation for being ironical. Conventional views have defined irony meaning as the opposite of the sentence's literal meaning (Searle, 1975; Grice, 1975). In doing so, they have characterized ironical meaning as an inference, as the outcome of an inference rule applied

to a premise (i.e. literal meaning). However, this does not seem to explain why the ironist may have chosen to imply what he could have said directly. Alternative definitions have then focused on the rhetorical impact of an ironical utterance and its relation with the idea and person that the utterance ridicules or criticizes (Clark and Gerrig, 1984; Sperber and Wilson, 1986). In that second perspective, what the ironical comment expresses does not seem to be reducible to an inference, or to the outcome of a single inference rule.

Beyond Divergences: Towards a Superordinate Theoretical Framework

The existence of different definitions for the same concept is not surprising. Each definition derives from a specific perspective and is thus relative to that specific viewpoint as well as to the other concepts within the same perspective. For example, Searle's (1969) assumption that language plays a primary role in comprehension is reflected in the view that sentences are decoded. This, in turn, leads to an extended definition of literal meaning and, by implication, to a restricted definition of context as background. By contrast, the views presented by Goodman (1968, 1976), among others, have put great emphasis on the role of context and have questioned the very existence of literal meaning. What defines a given concept is thus the sum of its relations with the other concepts within the same perspective.

Furthermore, the definition of one concept must also be envisaged across perspectives. For example, to fully understand Searle's definition of literal meaning as "sentence linguistic meaning" one must contrast it with Grice's definition of the term as "speaker's sentence meaning". In the same manner the latter definition must be contrasted with Gibbs' definition of literal meaning as "what speaker literally meant". So, what defines a given concept is also the sum of its opposition with related concepts in other perspectives.

What this discussion illustrates is that one's definition of literal, ironical meaning, context and monitoring is intimately related to one's assumptions about the role of language (vs. contextual assumptions and expectations) in comprehension. So, it seems difficult to isolate, for example, one's definition of context from one's definition of literal meaning or from one's general assumptions about comprehension. Furthermore, our discussion indicates that literal meaning, context, inference, detection/interpretation exist as *issues* because they represent the points on which models diverge. Given that these definitions are directly related to one's opinion about the major knowledge sources tapped in comprehension we then assume that issues reflect disagreement about these knowledge sources and about the sequence in which these sources apply. Models indeed differ in what is assumed to be the primary source of knowledge in comprehension: language or context and contextual expectations. This basic disagreement is reflected in the contrast between bottom-up processes (in which language plays a central role) and top-down processes (in which contextual expectations and assumptions are crucial). When we review our synthesis, it is clear that it encapsulates a range of positions about the role of bottom-up and top-down processing in literal and irony comprehension. From Model A to Model B, we have indeed moved from an exclusive to a dominant bottom-up view in the same manner as we have shifted from an exclusive to a dominant top-down perspective in Model C and D. Our suggestion is, then, that models presented in Chapter II and III can be divided along a single dimension, namely their respective preference for bottom-up or top-down processes. We further claim that such issues as literal meaning, context, inference, detection and interpretation are linked to the role of bottom-up and top-down processing in comprehension. Lastly, we show that these general perspectives and their related issues lead to making hypotheses about the source of children's assumed problems with irony. Let us look more closely into the interaction between knowledge sources, processes, issues and hypotheses.

Suggestions About a Superordinate Framework

Relating bottom-up perspectives (Model A and B), issues and predictions.

Underlying the bottom-up view is the assumption that *language* plays an essential role in comprehension. This general assumption can be further broken into two ideas. The first idea is that sentences directly communicate a first-level representation, that is *literal meaning*, from which speaker's intentions can be recovered. Second, that in some forms of communication, literal meaning gives direct access to what the speaker means. By implication, there would also exist other forms of communication - among which irony - in which literal and speaker's meaning are at variance. In these forms of communication, the failure to retrieve speaker's intentions directly should trigger a secondary step in which top-down processing applies on literal meaning. The concept of *inference* and the distinction between *detection* and *interpretation* would reflect the need to engage in top-down processes in irony comprehension.

This view leads to making predictions about children's difficulties with irony comprehension. Irony would be difficult to understand because it is a figure of speech, a case of indirect communication. Given that sentences directly communicate their literal meaning, the most simple form of communication is then the one in which the writer has been literal. Indeed, it is only when the writer has been literal that his intentions are marked in the sentence itself (Searle, 1969) or are directly available from the literal meaning (Grice, 1975). On the other hand, ironical utterances are opaque and indirect because the interpretation automatically given to the sentence must be discarded in favour of its opposite. The difficulty of understanding irony would be related to the indirect relation that exists between literal and speaker's meaning, and to the need to tap knowledge sources other than linguistic (context, maxims of cooperation, inferential abilities, etc.). Lastly, understanding irony involves realizing that the literal interpretation is not warranted and knowing what to

do when this has been realized. In other words, understanding irony involves the reader's capacity to monitor his own comprehension. Children's problems could then be attributed to their lack of experience in monitoring their own comprehension: they would fail to integrate textual elements into a coherent structure and/or would not know the interpretive rules needed to understand ironical uses.

Relating top-down perspectives (Model C and D), issues and predictions.

Top-down models have focused on the role of *context* and have minimized the role of language knowledge in comprehension. As a consequence, they have downplayed the role - and even questioned the existence of - literal meaning. In top-down perspectives, the reader would indeed need to engage in bottom-up processing and to tap language knowledge only when top-down processing has failed. The comprehension of some ironies would then be based on the interactive concepts of context management and control. However, these processes are performed in light of the context brought to bear on comprehension. In other words, context is assumed to exist prior to the act of comprehension and to be modified when the input does not fit the context.

This view suggests that ironical intentions cannot be found directly in the sentence but must be inferred in context. What would be crucial in ironical understanding is the richness and direction of the personal and contextual expectations brought to bear on comprehension. Serious comprehension problems should occur when the necessary information is not readily available to, or cannot be used by, the reader. Children's problems with irony can then be attributed to their lack of background or to their inability to correctly manage the intrapersonal context they already have.

Conclusion

Models of irony presented in Chapter II can be analyzed in the same fashion as the one we adopted in Chapter III for models of reading comprehension: as essentially top-down or bottom-up. This gives us a single comparative principle, enables us to move towards a general theoretical framework of written irony comprehension and suggests explanations for children's problems with irony. More important, our general perspective enables us to abstract from actual models and to discuss the contribution of bottom-up and top-down processes in irony comprehension. Furthermore, by focusing on processes and not on models the following discussion can shed light into views that have not (or not yet) been formalized in a model (Gibbs, 1984, 1986; Fish, 1984; Ortony, 1984), and into models which cannot be described as either top-down or bottom-up (Rumelhart, 1985; Sperber and Wilson, 1981a; 1986).

Evaluating Current Views

Do current models of irony comprehension constitute a relevant basis for prospective study in irony? As answering such a question involves reviewing these models, we run the risk of simply rephrasing what we have already said in the last two chapters. To avoid this, we choose to evaluate the relevance of bottom-up and top-down perspectives for what they have to suggest about children's problems with irony.

Bottom-Up Views

Irony would be difficult to understand because it is a case of indirect communication. In contrast, literal forms of communication would be simpler because they involve the direct conveyance of speaker's intentions by means of the sentence's literal meaning.

Two major assumptions underlie this general explanation for children's problems with irony.

The first assumption (Assumption A) is that a sentence is directly associated in some neutral context (Searle), or in some limited linguistic context (Grice) with its literal meaning and only optionally to the intentions that the speaker meant to convey that meaning. A second assumption (Assumption B) is that utterances differ in the manner in which intentions can be recovered. For Searle (1969), there is a strict opposition between the direct and transparent conveyance of speaker's intentions in literal utterances, and the unusual and opaque relation between literal and speaker's meaning in ironical utterances. Grice's (1975, 1978) alternative position is to oppose literal and ironical utterances not in terms of their respective transparency vs. opacity, but in terms of the inferential, monitoring activity and interpretive rules involved in each case.

Assumption A. : The difference between literal and speaker's meaning.

Searle's position:

Most sentences require contextual support to be given a literal meaning. However, such explicit sentences as "The cat is on the mat" can be understood in some neutral context. One can indeed immediately associate such a sentence with its literal meaning and force - and this despite the lack of any contextual indication. The comprehension of explicit sentences thus supports Searle's (1969) views that sentences can be understood by relying exclusively on one's linguistic knowledge, that sentences are automatically associated with a model of the situation that the words of that sentence evoke (the sentence's literal meaning).

If the greater simplicity of the literal interpretation is, in a large part, due to the automatic and context-free pairing of any sentence to its literal meaning, the question is

whether stripping an explicit sentence from its (unnecessary) context facilitates understanding. The fact that children experience serious comprehension problems when asked to understand sentences in isolation suggests otherwise (Bransford and Nitsch, 1985; Osheron and Markman, 1975; Olson, 1977).

To explain this, we must recall that everyday comprehension involves retrieving the speaker's intentions and that our criteria for assessing our comprehension is precisely the extent to which these intentions have been recovered (Chapter I). The sentence propositional content is thus expected to manifest these intentions. When the same sentence is presented in some neutral context, however, we can expect the readers to be confused because the sentence only points to what someone could say for some reason at some place and time. Not only is it impossible to relate the sentence's linguistic meaning to what is being said but also to what is being meant in the experimental situation.

Children's problems with decontextualized comprehension can thus be due to their inability to change their criteria for evaluating comprehension as well as to their inability to create the context in which that sentence can be understood. Indeed, the only way one can understand the sentence out of its context of utterance is by realizing that the purpose of the comprehension task is not to recover the intentions and propositions that someone has communicated by means of the sentence, but to analyze the sentence itself. Decontextualized comprehension rests on one's capacity to correctly evaluate the purpose of the experimental situation, the researcher's expectations and to radically modify one's criteria for evaluating the adequacy of one's understanding. In short, decontextualized comprehension involves the capacity to recreate a context of comprehension.

Lastly, decontextualized comprehension involves the capacity to take sentences as objects worth considering on their own right and this

presupposes that the child can use language not only as a code for reality but also as an object of thought in its own right ... This amounts to the ability to look at language rather than through it. (Osheron and Markman, 1975, p. 214)

This capacity is clearly related to the development of metalinguistic abilities which develop only gradually, more particularly from age 6 to 10 (Wallach and Miller, 1989). Given that "even older children have a strong tendency to understand information in terms of their immediate situation" (Bransford and Nitsch, 1985, p. 86), we suggest that decontextualization increases the comprehension problems that young children experience.

So, we reject the view that sentences, even the most explicit ones, can be given any literal meaning in a contextual vacuum. On the contrary, the conveyance of a literal meaning supposes the existence, or creation of, a context in which that literal meaning can be taken to manifest relevant intentions. So, it appears that "meaning is not something possessed by stimuli or input or something stored solely within the organism. Meaning resides in organism-environment relations" (Bransford and Nitsch, 1985, p. 109).

Grice's position:

In Grice's perspective, the distinction is between the contexts (background, linguistic context vs. Cooperative Principle and common ground) and the inferences (simple inference vs. implicature) involved in recovering literal and speaker's meaning. The question is then not whether context and inference can be avoided in computing literal meaning but rather what context needs to be tapped, when it must be used, what type of inferences is required, and how they are drawn.

We must first realize the complexity involved in developing a sentence into a literal meaning. There is indeed nothing in the text to point to the referent or sense intended by the writer. Such a sentence as "He said they accepted Master Card" (Chapter III) makes clear that even the simplest cases of reference assignment involves considerable world knowledge. More important, still, the need to infer is not limited to indexicals and to some ambiguous words. In fact, it would appear that "there is very little constancy of reference in language" (Hurford and Heasley, 1983, p. 27) and that "in context, just about any noun

can be used to refer to just any sort of thing" (Green, 1989, p. 51). So, if in everyday discourse almost all of the fixing of reference comes from the context, "what is abnormal is for language items not to be modified in some way by the context" (Davies and Widdowson, 1974, p. 171).

It is then surprising that readers draw complex inferences as soon as indexicals or ambiguous words are encountered (Dell et al., 1983; Garrod 1985, described in Chapter III) and that they have done so without realizing that a choice have been made (Anderson et al., 1977, Chapter I; Thorndyke, 1976, Chapter III). In other words, readers have reacted as if it would be

inefficient for the processing system not to make contextually appropriate decisions at the time when it encounters the relevant expressions in the sentence rather than have to reinterpret the whole sentence after the initial propositional representation has been established. (Garrod, 1985, p. 164)

But this obviously contradicts Grice, Searle, Kintsch and vanDijk's views that inferences can be drawn only *in terms of* the sentence's compositional meaning.

Drawing inferences is pervasive and complex and yet, only limited time and attention can be allocated to the task (Smith, 1986). The most likely explanation is that readers try to develop the sentence into the propositional form most consistent with their expectations, and with their perception of what constitutes the context of interpretation (Wilson and Sperber, 1981; Récanati, 1981; Green, 1989). It is because of these expectations that the reader can immediately eliminate any interpretation which does not accord with the assumption that the writer has been relevant. In processing "Refuse to admit them" as a relevant answer to "What should I do when I make mistakes?" the hearer can then immediately resolve the ambiguity of "admit" and the indeterminacy of "them", without even noticing that they exist (example from Sperber and Wilson, 1981a). This, in fact, means that the maxims and Cooperative Principle are as much involved in the recovery of literal meaning as in the computation of implicatures (Récanati, 1981; Sperber and Wilson, 1981, 1986).

But this is opposed to Grice's and Searle's argument that a distinction exists between the context involved in constructing the literal meaning and the one involved in inferring the speaker's meaning.

A final characteristic of literal meaning is that it should be directly available to all readers. But then, how can we explain that the same common principles can warrant different inferences (Anderson et al., 1977; Pichert and Anderson, 1977; Anderson and Pichert, 1978; Barlett, 1932; Steffensen and Joag-Dev, 1984)? Is it because readers misuse an otherwise fool-proof mechanism or because the principle itself cannot offer any guarantee of success?

Let us first notice that the maxims can function efficiently as an inference scheme only if they are applied on the assumptions that the writer used in producing the utterance. However, discussion of the common ground hypothesis (Chapter II) showed that the "ground" that readers use is what they assume is the most relevant and accessible set of assumptions. The literal meaning that one retrieves is thus directly related to one's assumptions about what constitutes the common ground of comprehension. So, literal meaning is always someone's meaning and no fool-proof mechanism can guarantee that the reader's literal meaning is similar to the writer's intended literal meaning.

This discussion sheds doubts on the validity of defining literal meaning as compositional. Recovering the writer's literal meaning involves making assumptions about his intentions and asking such a question as: What did the writer want to communicate by writing "there", "played", "the day before"? The only way his intentions can be recovered is if one uses the same principles as those involved in recovering implicatures. Then, what the writer said is as much inferred as decoded. If we accept the idea that no assumption is simply decoded and that the recovery of any assumption requires an element of inference, it is then no longer possible to clearly distinguish explicit content (literal meaning) from implicit intentions (speaker's meaning). Furthermore, if context is needed for comprehension to occur, we must question the view that the meaning given to literal utterances are

only linguistically determined. This directly leads to the question of the assumed transparency of literal utterance.

Assumption B: The difference between literal and ironical utterances.

Searle's position:

Let us return to the interpretation of the sentence "The cat is on the mat". We have already seen that such a sentence is assumed to be automatically decoded into a literal meaning conveyed with a specific force. Now, one can further argue that when a writer uses "The cat is on the mat" literally, he describes a state of affairs that is true in the specific context of utterance. Under these circumstances, the context is tapped "by default", that is, only to validate the existence of the state of affairs explicitly evoked by the sentence. So, it is not surprising that the sentence "The cat is on the mat" used literally communicates exactly the same literal meaning and force as when it is understood out of context. Indeed, in both cases, sentence interpretation rests essentially on the indications provided by the sentence proper. Theoretically, then, understanding the sentence in a neutral context is similar to the process of understanding the literal utterance of that same sentence. But if the literal interpretation of a sentence is immediately available, then understanding the literal utterance of that sentence should be particularly simple. In other words, if we can show that a declarative sentence and an explicit performative verb directly communicate one's intention to assert its propositional content, then Searle's (1969) distinction between literal (i.e. transparent and simple) and ironical (i.e. opaque and difficult) forms of communication is valid. To evaluate that position, let us take the following conversation between A and B (from Grice, 1975)

A: "I'm out of petrol"

B: "There is a garage around the corner"

B's reply does not violate any maxim and could then be regarded as literal. Not only has the sentence directly communicated a propositional content (1. "There is a garage round the corner") but also the speaker's intentions (to assert that there is a garage around the corner). This last aspect is indeed made possible by the use of the declarative form, conventionally associated with the utterance of assertions.

However, asserting that *p* involves not just saying that *p* but also communicating that one believes that *p*, in the same manner as to actually order one must communicate one's intentions to give an order. Irony, in particular, makes clear that one can say "I declare that this is a beautiful day for a picnic" without asserting it. In the same way, I can say "I order you to leave the room" with no intention to give you an order (for example, when answering the question "What do you do if I make too much noise?", from Verschueren, 1985). For B's sentence to function efficiently as an assertion, A must assume that B is committed to the truth/relevance of his utterance. In other words, he must go from proposition 2 to proposition 4:

2. "B says that there is a garage round the corner".
3. "B believes that there is a garage around the corner".
4. "There is indeed a garage around the corner".

So, even when the utterance meant literally contains an explicit performative, "une inférence est requise pour passer de l'énonciation, par le locuteur, d'une phrase indiquant explicitement l'accomplissement d'un certain acte illocutionnaire, à l'accomplissement effectif de cet acte" (Récanati, 1981, p.212). The very fact that "I order you to leave the room" can be interpreted literally in two different ways indicates that the so-called literal interpretation of that sentence as an order is only one context-specific interpretation.

Furthermore, we can notice that speaker's intentions in using a literal utterance usually go beyond the utterance of a propositional content with a given force. Searle (1979) argued that a speaker has been literal when the utterance of the sentence's literal meaning does not violate any of Grice's maxims of cooperation. However, in the dialogue

above, B's reply would in fact violate the maxim "Be relevant" unless "he thinks, or thinks it possible, that the garage is open, and has petrol to sell; so he implicates that the garage is, or at least may be open, etc." (Grice, 1975, p. 51). So, even if his utterance does not violate any of the Maxims, B must have meant (indirectly) to imply

5. "The garage round the corner is open and sells petrol". Understanding a "literal" utterance would then involve not only retrieving the propositional content it conveys (proposition 1), the speaker's attitude towards that proposition (proposition 3) but also the implicature that the utterance of such a proposition in a given context conveys (proposition 5). If a speaker usually means more than what he says even when he means what he says, the real scope of literal communication must be limited. To a large extent, we can assume that full literality is more the exception than the rule (Levinson, 1983; Récanati, 1980, 1981; Sperber and Wilson, 1986).

Finally, in discourse an utterance usually "serves a number of different functions at the same time, according to your focus or to the level of analysis you are using" (Nuttall, 1982, p. 104). If a sentence can indeed be at the same time an assertion, a prediction, a proposal of a solution, the expression of a hope as well as a conclusion, it seems impossible for these various functions to be all marked in the sentence itself. Understanding a sentence meant literally would thus require recovering several layers of meaning, most of which not explicitly marked in the sentence but depending on the speaker's rhetorical intentions.

Grice's position:

A possible retreat position is to oppose literal and ironical utterances in terms of the inferential activity involved in each case (Grice, 1975, 1978). Irony would involve more difficult comprehension mechanisms: It would rely on the reader's capacity to *detect* that the literal meaning must be rejected. More important still, irony comprehension taps one's

knowledge of the inference rule needed to go from literal to figurative meaning. Indeed, unlike any other implicatures, the implicature drawn when an ironical utterance has been expressed should be substituted to the literal meaning. So, if "the message conveyed by the speaker does not incorporate the literal meaning at all" (Akmajian, Demers and Harnish, 1984, p. 397) and if literal meaning is not part of speaker's meaning, the burden of comprehension falls on knowledge of the specific inference rule which underlies the interpretation of irony. Given that there should exist specific rules for each figure of speech (opposition for irony, comparison for metaphor, etc.) the reader must know under which circumstance each rule must be used.

However, discussion in Chapter II showed that the reader could feel justified to apply the negation rule and interpret the sentence as ironical whenever any, or none of the maxims has been violated. The presence of a derogatory tone as a precondition for the detection of irony should not solve the problem either because it is also found in utterances which do not manifest ironical intentions. Furthermore, if knowing the writer's attitude towards his sentence (that he does not believe that P) is a precondition for replacing literal meaning and literal force (X says that p) by the implicature (X does not believe that p), then ironical meaning fails to achieve any informativeness or relevance. Finally, the motivation for rejecting the literal interpretation of an ironical utterance should also apply *after* the ironical meaning has been inferred. Indeed, far from restoring the Cooperative Principle, the conventional definition of ironical meaning as the opposite of the sentence's literal meaning means shifting from a false literal meaning to an uninformative or to an irrelevant implicature (e.g. respectively, "It's a bird - it's a plane - it's Superman" and "American allies...").

These difficulties lead to questioning Grice's assumption that ironical meaning is indeed an inference based on the application of a negation rule. To work as an inference scheme, Grice's maxims should indeed make it possible to retrieve ironical intentions from expressions which could violate no maxim ("American allies...") or any maxim of coop-

eration by using a variety of different inference rules. Indeed, given that ironical meaning is not necessarily the opposite of the sentence's literal meaning, it would seem that there are more than one inference rule underlying irony comprehension. But then, it seems difficult to see how any inference scheme can be so flexible as to meet the requirements listed above. In other words, any time a literal meaning violates the truth maxim we would have to take into account

not only the literal senses of an utterance, but also the whole range of figurative senses that are loosely based on them via relations of resemblance, continuity, inclusion or inversion ... the set of possible interpretations becomes to all intents and purposes unenumerable. (Sperber and Wilson, 1981a, p. 299)

What Grice's theory can do is thus explain retrospectively that the recovery of the ironical meaning can be accounted for by the Cooperative Principle, the context and the utterance, but it fails to show "that on the same basis, an equally convincing justification could not have been given for some other interpretation that was not in fact chosen" (Sperber and Wilson, 1986, p. 37). We suspect that the implicatures involved in figurative language comprehension cannot be assimilated to propositional inferences and that the implicatures drawn in irony comprehension must be based on other principles than the violation of Grice's maxims of cooperation. What still needs to be determined, however, is the implications of such a change of perspective on the assumed distinction between literal and ironical utterances.

Top-Down Views

We want to discuss the view - central in and most favourable to any top-down perspective - that at least *some* ironies are understood directly when their context of utterance is rich. This discussion starts with the discussion of the concept of "rich context" and then moves to questioning the view that, at any moment, there would be only one context

available for comprehension. We then discuss the process of context selection and suggest that the sentence plays an essential role in that process. This leads to our rejecting the view that a rich context could make irony comprehension direct. We then support the view that context management may be a critical component of successful understanding. At the same time, we suggest that the opinion that children's problems can be explained in terms of their lack of background must then be qualified.

The concept of "rich context".

A context is rich when it contains the information necessary for comprehension, when the writer has provided the information without which ironical intentions cannot be retrieved.

However, not everything that the writer has made manifest is necessarily manifest to the reader: What the writer has tried to activate may have little echo in the reader. Indeed, not every assumption can be made manifest: every communication necessarily presupposes some common knowledge. All the writer can do is foresee what an hypothetical reader must be told explicitly and what he can be left to find by himself. However, the fact that communication breakdowns occur points to the need to distinguish between what is made available (by the writer) and what is actually available (to the reader), between the linguistic and the intrapersonal context. In the same manner, the reader's background knowledge can make available information not communicated in the text. So, this discussion highlights the difficulty of separating what in comprehension is "in the text" and what is "in the reader's head".

Is there only one context?

At any moment in comprehension, one could then say that a rich text suggests a rich context in the reader. Comprehension problems could then be due either to the writer's failure to provide rich information or to the reader's failure to use these cues efficiently.

But is it true that the text suggests one context? On the contrary, it appears that the context is not only what the words and sentences refer to but also whatever additional assumptions these expressions generate in the reader. That is, if the text refers to a restaurant, it evokes not only a "restaurant schema", but also a host of memories about restaurants, menu, food - any of which could be relevant for understanding the next sentence.

Besides, context is a changing reality, as each utterance adds to the context relevant for the interpretation of a subsequent utterance. Furthermore, context may not consist of the utterance just preceding it: The relevant piece of information may be two, ten utterances or a couple of paragraphs away. So, the text represents not one but a series of potential contexts, each of which could be relevant for understanding incoming input.

But then, if the context consists of any of sentence preceding the expression and if each of these sentences evokes a full range of assumptions, there is no limit to the information the reader may feel justified to provide. We must then conclude that no context of interpretation, no more than any sentence's literal meaning, forces itself on the reader.

From contexts to context: the role of the sentence.

If an unlimited number of contexts is available, it becomes difficult to see how comprehension - defined as the recovery of "only a set of propositions that the speaker specifically intended to convey" (Sperber and Wilson, 1981b, p. 283) - can take place. The most likely explanation would be that comprehension is not only dependent on context

availability as on the reader's capacity to restrict that total possible context to just the context necessary and sufficient for understanding a specific utterance.

To restrict the context, shared assumptions (common ground) and inference schemes (Cooperative Principle and maxims) are needed. The Cooperative Principle then guides the selection of the context: An appropriate context for understanding sentence X is the one in terms of which the utterance of X will accord to the maxims of cooperation. However, this cannot be enough, because the Cooperative Principle does not exist in and for itself. It must apply on some premise. If "a major source for common ground in comprehension is, naturally enough, linguistic co-presence" (Clark and Carlson, 1981, p. 323) then it would make sense to argue that these premises must include the sentence being interpreted. The sentence would then play a crucial role in determining the context necessary for its own comprehension. Context would then be restricted in light of what the utterance indicates and in terms of what needs to be found in context to make that utterance fully cooperative.

Common ground as a precondition for understanding.

Comprehension should then be possible only in terms of the common ground that both communicators share (Chapter II). However, this puts enormous constraints on communication. In particular, this constraint makes it impossible to account for the fact that one can understand utterances which presuppose some piece of information that the hearer does not have. For example, Gibbs (1984) argued that it is when the reader has failed to access the writer's perspective that he must engage in bottom-up processing, make a compositional analysis and then combine propositional meaning with contextual assumptions to finally retrieve speaker's intentions. But which contextual assumptions are needed to retrieve speaker's intentions indirectly? It seems that they are precisely those which caused a failure to understand irony directly, i.e. knowledge that the writer is not

committed to the serious utterance of the sentence propositional content. Why should they be more accessible now? It would then seem that what caused the failure to directly understand irony would also cause a failure to understand it indirectly.

Nonetheless, we seem to be able to understand utterances even when they rest on assumptions which are clearly not part of the common ground. Let us examine the following dialogue (taken from Sperber and Wilson, 1982)

A. Do you ever talk to Charles?

B. I never talk to plagiarists.

B's answer can only be interpreted as a relevant yes/no answer if A combines B's utterance with a proposition from the common ground, i.e. "Charles is a plagiarist". Given that Charles is a plagiarist and that B never talks to plagiarists, B can be taken to have provided a negative answer.

However, in a situation in which that proposition is not known to A, B's answer should not be understandable to A. But how can we explain that we can understand that sentence although A and B are fictions and despite our total lack of personal knowledge of Charles? We then must question the view that the context must necessarily consist in what both communicators assume they already both knew prior to sentence comprehension. Indeed, if speaker's intentions can be recovered only in terms of what both participants know they both know, then "there might not be much point in communicating: they may be stating the obvious" (Johnson-Laird, 1982, p. 42). It would rather seem that the context is flexible and must incorporate what was not known prior to reading the sentence.

Conclusion

Understanding an utterance is trying to reach "a state, the opposite of confusion. We comprehend the situation that we are in if we are not confused by it" (Smith, 1986, p.

15). Yet, neither top-down nor bottom-up perspective has produced a coherent explanation for the manner in which we can understand irony.

Discussion about bottom-up views leads to rejecting the view that each explicit sentence is automatically decoded into one literal meaning. An explicit sentence suggests a *range* of potential literal meanings and intentions whose specific value can only be determined in context. As nothing in the sentence determines a unique literal meaning, it is because readers come to reading a sentence with expectations about its appropriate context of interpretation that the compositional analysis and inferential activity can be performed quickly and to the reader's satisfaction. It is then because context and assumptions are immediately brought to bear on sentence comprehension that the sentence indeed comes to have a "literal" meaning. The role of context in comprehension leads to re-evaluating the distinction between literal and speaker's meaning in literal utterances. As both levels of interpretation are recovered in terms of the same principle, it becomes extremely difficult to determine what in a sentence has been decoded and what has been inferred. Furthermore, if sentence meaning cannot be independently characterized without reference to what people wish to perform in using that sentence, it seems no longer possible to rigidly separate direct/literal from indirect/figurative forms of communication. Lastly, the assumption that the writer's ironical intentions can be recovered in terms of a specific inference rule in Grice's inference scheme poses important problems. Such problems undermine the claim that irony is necessarily more difficult than literal language.

Top-down perspectives portray irony comprehension as a linear process in which comprehension is possible in terms of a context (a set of assumptions existing prior to the act of comprehension). Poor context would then be the primary source of problems in irony understanding. However, the argument that we understand only that for which we already have some previous knowledge begs the question of "how theories that emphasize the importance of assimilating information to pre-existing knowledge can account for the fact that it is possible to understand stories for novel situations" (Bransford, 1985, p.

388). We then argued that the context in which irony can allegedly be directly understood is not given, but constructed in part in light of the sentence itself. Understanding irony would then require both top-down and bottom-up perspectives and the difference between "direct" and "indirect" ironies would be more a matter of quality than of kind. This view leads to a re-evaluation of the role of compositional analysis in irony comprehension. Although this is not a direct support for the existence of literal meaning, it suggests that comprehension involves the reader's capacity to engage in bottom-up processing to create a context in which the sentence could make full sense.

In conclusion, discussion of top-down and bottom-up perspectives leads to the view that each perspective must incorporate views from the other. We have indeed shown that neither literal nor ironical intentions can be recovered directly. Contrary to strict bottom-up views, context is required to assign a sentence its literal meaning and to recover the intentions that the speaker has made manifest. Contrary to strict top-down views, context alone cannot lead to sentence understanding. Quite obviously, there are important problems in choosing *the* best definition for such concepts as "literal meaning" or "context" and in choosing the most promising theoretical perspective. Before arguing (in Chapter V) that a shift of perspective could solve most of the problems encountered by top-down and bottom-up perspectives, we now turn our attention to discussing some of the methodological problems that future research should tackle.

Some Methodological Problems

What methodological choices must be made to study the comprehension of written irony? Quite simply, it requires choosing a text, a situation as well as a manner in which irony comprehension can be assessed. The present section discusses the problems involved in making these choices.

Choosing a Text

Are all ironical texts equally appropriate to study *children's* comprehension of irony? We must answer negatively if we accept the view that comprehension depends on the reader's capacity to access or retrieve specific contextual information. It is indeed plausible that texts do not all provide the information necessary for understanding, or that they do not do so with equal clarity. Future research on children's comprehension of written irony would thus involve assessing the difficulty of the ironical text.

Assessing the Difficulty of the Linguistic Context

If we accept the reflexive and echoic nature of irony, we could have a way to evaluate the possible difficulty of irony. Indeed, we can predict that ironies that are echoes of a proposition explicitly made in a near context could be easier to understand than those in a more distant context. By the same account, explicit echoes should be easier than implicit ones, as the former facilitate the realization that the sentence has been used interpretively.

Echoes.

Jorgensen, Miller and Sperber (1984) had subjects read short texts ending with an ironical utterance. Some of those texts' final utterances were echoes of a statement explicitly expressed earlier in the text, others were not. In general, the results "seem to support only the relatively weak claim that the probability of perceiving irony is increased by echoic mention, not that echoic mention is necessary" (p. 118). Indeed, although subjects made more ironic interpretation in the echoic than in the non-echoic version, irony was still perceived in the non-echoic version in 10 out of 48 answers. These results were later supported by Gibbs' (1986) study.

However, the facilitating effect of the linguistic context should not necessarily be taken as support for Sperber and Wilson's claims. Indeed, Williams (1984) argued that the non-echoic version could simply not yield to an ironical interpretation, not because the source of the echo was implicit but because it did not provide the contextual background necessary for irony comprehension. That is, the ironical remark in the non-echoic version is totally irrelevant and unmotivated because it referred to an element of information to which readers have no access. Williams (1984) thus remarked that

the utterance that the subsequent ironical utterance supposedly echoes provides part of the necessary background information for defining the target as ironical....There often cannot be a judgement of irony, because there is no context, not because there is no echoic mention.(p. 128)

This highlights the difficulty of isolating precisely *what* in the linguistic context should make irony more or less difficult. This does not mean, however, that there is no room for investigating the role of linguistic context in irony comprehension. Ackerman (1982b), for instance, showed that even 1st graders can interpret sarcasm correctly but only under conditions that facilitate the integration of context and utterance information, that is, when contextual information was presented after and adjacent to the utterance.

Given that children's mnemonic capacities are limited, and in particular their ability to activate and compare two pieces of information simultaneously (Gombert, 1990), we may indeed expect that the placement of contextual information plays an important role in children's understanding of irony.

Assessing the Intrapersonal Context

An additional problem in assessing the difficulty of a text is to tell a difference between the linguistic and intrapersonal context of interpretation. In discussing top-down views of irony, we indeed claimed that the "richness" of a text is not an essential quality of that text as much as a function of the knowledge that the reader brings to text comprehension. The choice of a text should then be based on an evaluation of the *type* of irony it contains as well as on an evaluation of the cultural and social knowledge it requires from the reader. For example, we may expect that such ironies as "American allies, always there when they need you", or "I like drivers who signal" may have little impact on children for whom politics or the laws of the road have little relevance.

Choosing A Context

There are some reasons to doubt that comprehension is only a cognitive process on linguistic input. Indeed, messages are also *socially* negotiated, as both interactants influence one another to ensure that some convergence of their respective point of view is achieved.

In written communication however, the social context could have less impact in comprehension. The writer is not there to provide corrective feedback or re-direct the reader's erroneous interpretation.

So, if text meaning is always the resonance that a text has for a specific reader, then discussion about text meaning necessarily takes place among *readers* and revolves around the relevance of *their* respective interpretation. Obviously, it is the reader himself who determines for himself what sense the text has. However, there is every reason to believe that the reader's criterion in assessing feelings of understanding are flexible, as they "vary as a function of the cognitive-perceptual situation in which inputs occur as well as with the nature of the input itself" (Bransford and Nitsch, 1985, p.106). The same reader may then use different comprehension strategies at different times in different contexts. We must accept the view that "language comprehension is a relative phenomenon - relative to how readers choose strategies for integrating information and relative to the social domain in which strategy selection is made" (Mosenthal, 1979, p. 342).

Furthermore, if comprehension and text-meaning is always reader-based, the question is then not *what* but *whose* sense needs to be made (Bransford and Nitsch, 1985; Bloome, 1983). In a classroom setting, we may then expect the children to have learned to assume the teacher's interpretive frame and implicit definition of what constitute appropriate comprehension (reproduction, inference, etc.). One can assume that "if teachers view reproduction as a more desirable form of understanding, then they would teach in such a way that they establish the optimal conditions which render sufficient student reproductive responses" (Mosenthal and Na, 1980b, p. 2). There may then be a link between the context of reading and the manner in which young readers adapt their comprehension strategies to the reading task. Mosenthal (1983) showed that children tend to adopt what the teacher assumes is the best way to approach and recall text and concluded that "one factor that influences the way children learn what constitutes appropriate comprehension is how a teacher structures the social situation according to his or her ideology of instruction" (p.546). In studying the influence of task formality on children's recall of textual information Mosenthal and Na (1980b) found that in formal situation, poor and average

readers “appear to minimize risk and ambiguity by reproducing the information” (p.524). That is, they tended to reduce their inferences and treat text literally. On the other hand, good readers reacted to the high formality of the task by bringing more schema to bear on the text. Some readers may then have associated task formality with reading strategies that block irony comprehension (for instance, reproducing vs. embellishing and inferring text meaning).

A cautionary note is, however, in order, because “classroom lessons are socially constructed events, no matter how strongly any one participant may dominate, nor how compliantly other participants may react” (Allwright, 1984, p. 159) The same author then stressed that lessons, no matter how well-planned they may have been in advance, “are finally determined by classroom interaction, not by the original pre-class decision making” (Allwright, 1984, p. 166). Whatever is learned about reading in class, including what counts as appropriate reading and comprehension, is also in part determined by the students in interaction with their teacher(s). Furthermore, we must be cautious in assuming that the same teaching behaviour must influence all students in the same manner (Gardner, 1974).

Any experimental research also creates a specific context and may influence the type of comprehension mechanisms activated by readers. Spiro (1977), in particular, warned that certain characteristics of laboratory experiments could favour a differentiation between the text and the reader’s cognitive structures and background knowledge. Indeed, “the subject can be expected to assume that the information in the discourse is of no future usefulness....it would be foolish to update [his] knowledge with the useless, isolated and probably false information usually found in experimental prose” (p.140). We can then expect readers *not* to try to relate input to their world knowledge, but rather to process text as if it had nothing to impart apart from its linear content. Under these circumstances, irony would be almost invisible.

Choosing a Task

The major problem that researchers studying mental processes face is that the phenomenon they want to research cannot be studied directly. How can we determine *what* readers do when they read irony? Furthermore, we are not merely interested in studying whatever the reader is doing while reading. We want to better understand his comprehension processes when he understands as well as when he fails to understand irony. How can we evaluate whether readers have understood the writer's intentions? In the following section, we do not try to evaluate all the methodologies that could be used in studying irony comprehension. Our objective is rather to discuss one method that has often been used to study children's comprehension mechanisms, namely the reading time paradigm. In doing so, we hope to shed light into a number of problems than any method should tackle.

Using the Reading Time Paradigm

A possible solution to the problem of studying unobservable phenomena is to take time as an indication of the presence or absence of a given process. Since processing and comprehension takes time, processing time can be used as a major variable in studying comprehension processes (Marsh, 1978). However, it is likely that the reaction time to a task is filled with more than one process. The problem then is to isolate the process of interest and to measure its duration. To tackle that problem, one can compare two tasks and make sure that they are identical, except for the presence/absence of the process of interest. The reaction time of the task that contains the process of interest is thus compared to the reaction time of the comparison task. The difference between the two reaction times is assumed to represent the length of time that is required to execute the deleted process.

Some researchers have applied that technique to the study of irony comprehension, and more particularly to the thorny question of the role of literal meaning in figurative language comprehension (Gibbs, 1979, 1983, 1986; Glucksberg et al., 1982; Ortony, Schallert, Reynolds and Antos, 1978). If literal meaning is indeed necessarily present in irony comprehension (Searle, 1979), then one must expect a difference in the times required to read a literal sentence and its ironical counterpart. Gibbs (1986), in particular, tested Searle's predictions by recording the time 40 undergraduates took reading a sentence that was either a sarcastic evaluation ("You're a big help"), a non sarcastic evaluation ("You're are not a big help"), a literal evaluation ("You're a big help") or a simple statement ("Thanks for your help"). Subjects were then asked to make a paraphrase judgement - a task designed to assess the reader's adequate comprehension of the literal and ironical sentences. That is, the subjects who read the sarcastic version of the story ("You're a big help") were to decide as quickly as they could if the literal paraphrase of that sentence ("You're not helping me") was true or false. Gibbs found that subjects took less time reading and making paraphrase judgement for sarcastic remarks than non-sarcastic equivalent remarks. These results led Gibbs (1986) to conclude that literal meaning was not a necessary component of irony comprehension - a conclusion supported by similar studies on the comprehension of indirect requests (Gibbs, 1983), and metaphor (Glucksberg et al., 1982; Ortony, Schallert, Reynolds and Antos, 1978).

Some Problems with the Reading Time Paradigm

The reading time paradigm, and the conclusions that it warrants presents several problems.

The interpretation is as good as the model.

When we use the reading time paradigm, all we do is measure the time it takes to perform two specific tasks. Interpreting the lack of difference as an indication that literal meaning can be bypassed in irony comprehension is possible only against *one* implicit model of literal language comprehension. Indeed, it assumes that the comprehension of a literal sentence involves only *one* meaning (literal and speaker's meaning being identical). It is only against such a view of literal communication that a lack of difference in reading times of literal and ironical utterances can be interpreted as showing that ironical intentions too can be accessed directly, in a single step.

However, the interpretation of the same results are quite different if we assume that understanding "You're a big help" said literally is not simply retrieving the literal meaning of the sentences (i.e. "You have helped a lot"). If we accept that it would rather involve recovering the intentions that this literal meaning makes manifest ("I don't know how I would have done it without you, etc."), then a lack of difference in the reading times of literal and ironical sentences may not necessarily mean that literal meaning can be bypassed in ironical sentences.

Gibbs (1986) may then have mis-evaluated the complexity of literal comprehension. The lack of difference between reading times can be explained by the fact that literal comprehension, as much as irony comprehension, involves retrieving not one but two levels of interpretations (the literal meaning and the speaker's intentions). So, the lack of difference may not be due to the unexpected *simplicity* of irony as to the unexpected *com-*

plexity of literal language. After all, inferring "I don't know how I would have done it without you" from the sentence "You are a big help" meant literally is no more obvious or simple than inferring "You have not helped at all, you can't be trusted" from the same sentence meant ironically. Each interpretation rests on the reader's assumptions about the character's state of mind, his attitude and his commitment to the truth of what he says. Under different circumstances and given contextual information, one of these interpretations is more strongly suggested, but neither is in any way guaranteed. If this tentative conclusion is correct, then studies of the stage model cannot be taken to have provided conclusive evidence that literal meaning can be bypassed in irony comprehension.

If the same results can be taken to support different theoretical models, the reading time paradigm may then very well lack the type of sensitivity we expect in study on irony comprehension. Given that the difference of reading times is interpreted in light of what is assumed to take place in irony and literal comprehension, our interpretation is as convincing as our theoretical model. Research could then very well be circular. Generalized to other methodologies, we suggest that each methodology should be evaluated for the type of evidence it provides on irony comprehension and for its implicit theoretical assumptions. Other methods, for example, verbal reports (Hosenfeld, 1978) or on-line processing measure (Harri-Augstein and Thomas, 1984), could be better suited to provide indications about the process of irony comprehension.

Mis-evaluating literal and irony comprehension.

The reading time paradigm presupposes defining in advance what is going to count as appropriate literal and ironical understanding. It is indeed only insofar as the reader has demonstrated his understanding of the literal and ironical utterance that a comparison between reading times can have any value. A second major problem with the reading time paradigm is then the assumption that we know precisely *what* we compare.

The reading time paradigm can indeed be taken to provide valuable data insofar as one assumes that the processes underlying literal understanding are already known, and that they can be used to shed light into the mysterious process of irony comprehension. But what is literal understanding is in fact as much controversial as irony comprehension. What is a literal utterance? Is it an utterance that communicates, and communicates only, its propositional content? In that case, only a few utterances would qualify as entirely literal, because we usually express a proposition for some other purpose. Can we then say that a literal utterance is any utterance that communicates the speaker's intentions without violating any of the maxims of cooperation? But we have already shown that the utterance of an ironical sentence does not necessarily violate *any* of the maxims. So, it may be that the "literal" utterance in light of which irony comprehension is evaluated could as well be characterized as indirect speech. For example, if "You're a big help" is meant to implicate "I don't know how I would have done it without you", then we can wonder if it is truly literal. This brings us back to the issue of the distinction between literal, indirect and figurative language.

Furthermore, the reliable evaluation of children's comprehension of irony also requires that ironical comprehension be operationally defined. In Gibbs' (1986) study this operational definition is the subject's capacity to make a paraphrase judgment ("You're not helping me") on target sentence ("You're a big help"). The implicit operational definition of irony is then the reader's capacity to know that the state of affairs referred to by the ironical utterance is false. More simply, an ironical utterance communicates the opposite of its literal counterpart. However, defining ironical meaning as the opposite of the literal meaning should confuse detection with interpretation and lead to a poor evaluation of reader's understanding. There is indeed ample evidence that "the reader may appreciate that the writer is up to something with the use of irony, but may not be able to figure out what it is" (Micham, 1984, p. 101). One's capacity to reject the literal interpretation of an ironical utterance does not necessarily entail one's being able to interpret the communica-

tive relevance of that rejection (Ackerman, 1978, 1982a, 1983). Readers can indeed detect the apparent contradiction in the utterance of "What a beautiful day for a picnic" and yet interpret in a non-ironical perspective (assuming that the person likes rain, that he is so happy that particular day that any kind of weather would be beautiful, etc.). Since one can detect inconsistencies without being able to interpret their communicative purpose, identifying detection with comprehension leads to an over-estimation of children's understanding of irony.

Alternatively, children's inability to interpret the message in the way anticipated by the writer cannot necessarily be taken to mean that they have not detected that the literal interpretation is not warranted. Readers are known to find unexpected and "illegal" interpretations for the inconsistencies they find (Mosenthal 1983; Ackerman, 1986; Baker and Brown, 1984a). As children frequently make a variety of different inferences to resolve apparent inconsistencies, a failure to recover the writer's intended message does not necessarily indicate poor comprehension monitoring. This sheds doubts on Markman's (1979, see Chapter I) claim that children's failure to report their problems is reliable indication of their poor monitoring capacities. As shown by Harris et al. (1981, see Chapter I), a confusion between the detection and interpretation phases of comprehension would indeed lead to an under-estimation children's monitoring capacities. Children may understand some ironies, but not all (i.e. understand those ironies for which they have background knowledge).

This should lead us to take a cautionary look at any theoretical pre-conceptions about what the subjects *should* understand in irony - not only at definitions of ironical meaning as the opposite of literal meaning. Jorgensen et al. (1984), for instance, took the opposite and radical position that subjects who would suggest that "the speaker was joking, teasing, fooling, humouring, amusing or playing a game, *suggestions that the character said the opposite of what he or she meant*" (emphasis ours, p.117) would be considered as having failed to understand irony. However, there is every reason to think that at

least part of the meaning of an ironical utterance is that the ironist does not believe what he says and most often that he thinks otherwise.

Lastly, there is some indication that ironical meaning may *not* be standard across readers and reading situations (Micham, 1984). So, if we adopt a methodology which presupposes that ironical meaning is necessarily univocal, we may lose sight of what readers *really* understand, of the possible link between what they understand and what they think of the view being ridiculed. In addition, our methodology should be sensitive to the fact that comprehension admits degrees, that one can understand the writer's intentions at some level (at the level of what is said, for instance) and yet fail to recover his intentions at another level. Measuring readers' comprehension could involve tapping their feelings of understanding - something that has rarely been done (Ackerman, 1986). In this manner, the researcher could distinguish readers who detected and yet failed to interpret the ironical utterance from those who detected and interpreted the utterance. In the latter category, the researcher could further ask the subjects for their specific interpretation and make additional distinctions between those subjects who understood the text but misunderstood the author from those who understood *both* the text and the author.

Although providing an operational definition of literal and ironical comprehension certainly proves necessary to study the process of irony comprehension, it also has some unwanted consequences. We may indeed lose sight of the fact that the process of comprehension is also related to what is, after all, one of the crucial elements we would wish to document, namely the specific impact of the ironical sentence or text on a specific reader. What still needs to be seen is if we could arrive at an operational definition of irony and literal comprehension that would not impose strict restrictions on our evaluation of the reader's comprehension.

Conclusion

Methodological choices do not take place in a theoretical vacuum. On the contrary, our discussion of the choice of a text, of a context and of a task has constantly drawn on theoretical debates about the nature of context, literal and ironical comprehension. A general methodological problem seems to use theoretical insights enough to avoid making unsound decisions, and yet at the same time, to avoid letting one's theoretical stand-point determine in advance precisely what one seeks to uncover. Methodological choices should indeed involve avoid confusing the linguistic, intra- and interpersonal context of comprehension. One should also analyze each methodology for the sort of information it can provide on irony comprehension as well as for its operational definition of literal and ironical comprehension.

Furthermore, we accept the view that "any method...which evaluates meaning only by reference to a pre-established experimenter-defined version inevitably discards most of the information relevant to a more complete and significant understanding of the cognitive processes involved in its attribution" (Harri-Augstein and Thomas, 1984, p.253). Our methodology should then reflect our attention to the somewhat imprecise nature of ironical meaning. Finally, we acknowledge that "the importance of obtaining converging evidence becomes more crucial as the cognitive activity of interest becomes more complex and more remote from directly observable events" (Baker and Brown, 1984a, p. 24). So, we suspect that no single methodology can provide adequate and reliable data on the multi-faceted phenomena of irony comprehension. In future research, more qualitative methods, such as verbal reports or on-line processing measure could then profitably be used instead of, or on interaction with, such quantitative methods as the reading time paradigm.

Conclusion

The present chapter evaluates some of the problems involved in studying children's comprehension of written irony.

Our first task was to provide a synthesis of Chapter II and III. To do so, we argued that models of irony and of reading comprehension should be grouped into a superordinate theoretical framework. This framework was based on the realization that models diverge in what is assumed to be the primary knowledge source used in comprehension, that is, language or context. This distinction was then related to the contribution of bottom-up and top-down processes in the models described in the last two chapters. So, models of irony and reading comprehension were separated in bottom-up and top-down perspectives. Each perspective was then related to its central concepts and predictions about children's problems with irony. Bottom-up views were associated with the assumption that literal meaning, monitoring capacities and knowledge of inference rules play a crucial role in comprehension. These views also suggested that children's problems with irony may originate in the indirect relation between literal meaning and ironical intentions, and in the complex processes needed to shift from the former to the latter. Top-down processes were linked to the view that context plays an essential role in irony comprehension and to the assumption that a lack of background knowledge and a failure to manage context would explain children's comprehension problems.

In a second step, we discussed the potential relevance of bottom-up and top-down perspectives for future study of irony. We criticized both perspectives and challenged current definitions of literal meaning, context, monitoring and irony meaning.

In a final stage, we evaluated the implications of these theoretical debates on the methodological choices that future research will have to make.

So, we must conclude that dominant top-down and bottom-up views, and their related definitions of literal and ironical meaning, context and monitoring, do not offer the

basis on which prospective investigation of irony comprehension can be carried out. This does not mean, however, that one cannot arrive at a more satisfactory and more promising account of irony comprehension. In our next chapter, we seek to develop that view and we make our personal suggestions about a model of irony and literal comprehension.

CHAPTER V

SUGGESTIONS FOR FUTURE RESEARCH ON IRONY COMPREHENSION

Introduction

In this last chapter, we try to determine the type of theoretical adjustment needed to provide a clearer theoretical basis to future research on irony comprehension. In a first part, we present our tentative theoretical model of irony comprehension and we reanalyze the concepts and issues discussed in Chapter IV in this new light. In a second part, we discuss some of the implications of our model for hypotheses about children's problems with written irony.

Some Personal Suggestions

Towards an Interactive Model of Irony Comprehension

The dependence of top-down and bottom-up views suggests that exclusive choices for one definition or model would most likely cut us off from relevant dimensions of irony comprehension. How can the necessary choices be made?

We suggest that if definitions are not flexible enough to account for the multiple facets of irony comprehension it is perhaps because models themselves are not flexible enough. Indeed, our superordinate theoretical framework shows that most models have tended to depict the process of irony comprehension in mutually exclusive terms, as a top-down or bottom-up process. Although some interaction has been provided for, that interaction is in both cases assumed to be an additional component to a dominant top-down or bottom-up view. The interaction between top-down and bottom-up processes is then assumed to apply in sequence.

However, the need to account for interactive (or simultaneous) processing in irony comprehension seems well established. Contrary to bottom-up views, we showed that sentence meaning is not established previous to context determination because context is required in order to establish literal meaning. Contrary to top-down views, we know that restricting the total context to the context of interpretation cannot be performed previous to sentence comprehension. This process seems to be made in terms of sentence meaning. So, if “what a context consists of cannot be known prior or independently of what is said and meant[and if] the meaning of the speech is also context dependent.... [then] deciding the meaning of speech (and writing, of course) is through and through an interpretive affair” (Heap, 1980, p. 283). In other words, neither sentence meaning nor context can be established prior to, or independently of, the other: They must be constructed in interaction with one another.

Our suggestion is that we should move from a view of irony comprehension as a linear process (bottom-up followed by top-down processes, or vice versa) to an interactive view of irony comprehension (Rumelhart, 1985; Stanovich, 1980; Sperber and Wilson, 1981a, 1986). Top-down and bottom-up processes would operate in parallel and in interaction at every stage of the comprehension process. Quite obviously, the mutual dependence of knowledge sources would lead to a re-analysis of the concepts of literal meaning, context and inference in relative rather than mutually exclusive terms.

The Sketch of an Interactive Model of Irony Comprehension

We assume that comprehension is an overall process in which propositional content and speaker's intentions are recovered jointly (see Rumelhart, 1985). In other words, the likelihood that a given propositional content indeed represents what the writer meant is weighted against what it can manifest of the speaker's intentions and whether this interpretation would make sense in terms of the reader's background knowledge, of what he

knows of the writer, etc. At a first level, the reader uses contextual expectations and expectations of relevance to disambiguate "plays" and assign "he" to its referent in trying to figure out what the speaker meant in writing "He plays well". At a second level, the final decision that the writer has indeed said "Allan plays the violin well" in writing that sentence is made when the reader can determine the purpose for which that propositional content has been expressed. Since there is little in the sentence itself to *explicitly* indicate what has been communicated, we argue that there is no way one can feel satisfied that one has disambiguated and assign referents until that disambiguation and reference assignment has served some relevant purpose, has manifested relevant intentions. So, the propositional content is not only whatever proposition is factually and referentially coherent, but also the proposition consistent with assumptions that the writer has some relevant communicative intent to manifest.

This accords well with the concept of implicatures developed by Grice (1975). It is indeed only because an apparent uncooperative propositional meaning warrants cooperative implicatures that it is finally accepted as what the writer meant to say. In the same manner, accepting that the speaker has indeed asserted (i.e. meant) "Allan plays the violin well" involves being convinced that such a state of affairs is indeed true and that the speaker believes that this proposition is true. In other words, it is because the reader assumes that the writer meant X that the latter can be taken to have said X.

So, if "no decision can be made about the meaning a word without consideration of the meaning of the entire sentence in which the word appears" (Rumelhart, 1985, p. 734) it would make sense to make the same argument about the relation between propositional content and intentions.

The Role of Literal Meaning in Irony Comprehension

We assume that literal meaning is the propositional content most accessible given assumptions that the sentence serves some relevant purpose.

This means, first that there are other ways in which ironical utterances can be understood than by performing a full compositional analysis. For example, schema theory can help shed some light into the relation between background knowledge and irony comprehension. The sentence "What beautiful weather for a picnic" would indeed activate a "picnic" schema with such variables as "sandwiches", "drinks", "eating on the grass" along with the specification of the chronology of events and the conditions which must be met for the event in question to be called a picnic. "What beautiful weather..." is then directly understood against the assumption that people go for a picnic when the weather is nice or when they expect that the weather will be nice. Furthermore, as the reader can assume that he shares with the writer some common experiential background knowledge about picnics, he can take for granted that the writer has anticipated his expectations and that the relevance of his message is in part based on these expectations. The reader can then eliminate the interpretation that the writer is asserting the proposition (because it would be a false and irrelevant statement) in favour of the view that he is, on the contrary, referring to the violation or frustration of the expectations people usually have when they go out for a picnic. In other words, the writer can be taken to be referring to the reasons why he cannot be taken to mean the proposition.

Furthermore, compositional analysis does not necessarily offer the most economical solution towards the speaker's intentions. Various types of language processing, (schematic interpretation, compositional analysis, knowledge of conventional expressions) would indeed contribute to, and compete in, sentence interpretation. This would explain why the metaphorical interpretation of "Sam is a pig" is more accessible than its literal counterpart (Glucksberg, Gildea and Bookin, 1982). Indeed, what the reader knows of

Sam (that Sam is a human being) will activate a myriad of assumptions about Sam (that he has x attitude, habits, characteristics and personality, among other things). The "habits" and "personality" variables in the reader's schema for human beings can then establish a connection between Sam's behaviour and neatness and that conventionally associated to pigs in the reader's "pig schema". The idea that the writer means to draw a parallel between Sam and pigs and thus to criticize Sam's neatness is then readily accessible and corresponds to the most relevant interpretation in context. On the contrary, a full compositional analysis would involve evoking the most unpalatable state of affairs that, contrary to appearances, Sam is actually a pig. While a literal interpretation would have made little sense in terms of the context immediately brought to bear on sentence comprehension, a "schematic/metaphorical" reading of the same sentence leads to an economical interpretation, consistent with assumptions about the writer's intentions.

Given the processing cost involved in performing a full compositional analysis, we suggest that it seldom if ever constitutes the most relevant and economical solution to recover the writer's intentions. On the contrary, a full compositional analysis should be performed only when no other processing is available, that is, when the linguistic context is so poor that it can offer little indication about the writer's intentions (in decontextualized comprehension tasks, for instance, Bransford, 1985).

Explaining some discrepancy in studies.

The interdependence of propositional contents and intentions can account for the fact that in most "natural" cases, propositional content and speaker's intentions cannot be readily distinguished. What the reader recalls is indeed the most consistent and plausible overall interpretation of the message. This is particularly true in assertions because propositional content is communicated (i.e. said) only when the speaker can be assumed to have asserted (i.e. meant) it. However, children's poor memory for propositional content

in indirect speech (Olson and Hildyard, 1981) indicates that this is not limited to assertions. In fact, it seems that as long as a relevant overall interpretation can be found, most understanders do not seem to make a difference between interpretation and that which has been interpreted.

The interdependence of content and intentions can also explain the prevalence of distortions in comprehension. One crucial aspect in comprehension is indeed the capacity to expand and modify whatever is signalled in the sentence itself, to go beyond the limitations and ambiguity of the linguistic signs. However, this expansion does not have any fool-proof basis. Indeed, an apparently limited, ambiguous and incoherent propositional content can communicate relevant and clear intentions. What the sentence seems to evoke must then be consistent with what the writer is trying to communicate. But what the writer is trying to communicate is based on assumptions about his relevance and about previous text. In other words, there is little either in the sentence or in the context to clearly indicate the directions that sentence development must take.

The difference is then very slim between the necessary negotiation of meaning underlying comprehension, and distortions. Assuming that the speaker has not only tried, but also succeeded in being relevant, the reader may then be led to distort either the sentence or the contextual assumptions to arrive at a satisfactory and coherent interpretation of the message. For example, if what seems to have been said (Allan is playing the violin well) cannot be interpreted as manifesting relevant intentions (because Allan obviously does not play well), the reader may assume that the writer simply *cannot* have meant to communicate it. Given that "in context, just about any noun can be used to refer to just any sort of thing" (Green, 1989, p. 51) the reader can then assume that the same words are meant to communicate another, more relevant propositional content. Alternatively, problems in finding out an interpretation consistent with what is known of the speaker's point of view may lead to reconstructing the speaker's intentions in light of what the sentence suggests (Mosenthal and Nab, 1980).

There is a difference between several aspects of comprehension.

The view we have just expressed seems contradictory with the finding that most readers can distinguish what the sentence says from what the writer meant by that sentence (Beal and Flavell, 1984). It is also contradictory with the fact that one can understand what has been said without understanding what was meant, and vice versa. How can we reconcile this argument with our previous claim that comprehension is a global process?

Part of the problem we have here has to do with the tendency to describe the various components of the comprehension process in such dichotomous terms as "contents" and "intentions". Talking about "contents" and "intentions" as if the two terms were clearly distinguishable is indeed misleading, because the former is nothing else than the speaker's *intentions* to communicate a given propositional meaning (Forguson, 1973). So, there seems to be some support for Gibbs' (1984, 1986) view that "intentions" can be recovered directly because everything in a message - apart from the very words of the message - is based on assumptions about speaker's intentions.

However, the very fact that understanders sometimes tell the difference between several aspects of the message suggests that there is not one, but a series of intentions (propositional "content" being one of them) that need to be retrieved. Speaker's intentions would involve not only his intentions to make manifest a given state of affairs, but also his intentions to assert, question, etc. that propositional content as well as more distant intentions communicated by means of the assertion, questioning, etc., of that propositional content.

Let us look more closely at the different intentions that are communicated by B's answer (adapted from Grice, 1975):

A: "I'm out of petrol".

B: "There is a garage over there".

1. "There is a garage round the corner".
2. "B says that there is a garage round the corner".

3. "B believes that there is a garage around the corner".
4. "There is indeed a garage around the corner".
5. "The garage round the corner is open and sells petrol".

Proposition 1 to 5 are all intentions and are computed in the same manner. However, they differ in the relative contribution of the decoding and the inference processes involved in recovering them. At one extreme (proposition 1), the contribution of contextual features seems much smaller than that of linguistically encoded features. At the other extreme (proposition 5), contextual features play a primary role because the proposition is supplied by A in view of proposition 4, his knowledge of B and the general assumption that B is cooperative. Since proposition 5 is an assumption that A feels justified to make in order to realize the relevance of B's utterance, it does not constitute an interpretation of the sentence, but the interpretation of another interpretation (proposition 4).

It is thus possible to make a distinction among the intentions communicated by the sentence, not in exclusive terms (decoding vs. inference), but in relative terms (more or less decoding and inference). There would exist interpretations at different levels of abstractions, from contextual interpretations of words to contextual interpretations of these interpretations at increasing levels of abstraction. All intentions would not be equally accessible and there would exist a sequence - not between one propositional content and the intentions it makes manifest - but between several potential propositional contents and a set of potential intentions.

Compositional analysis plays a role: Which literal meaning?

Propositional meaning is clearly based on the reader's assumptions about speaker's intentions. As such, literal meaning is an interpretation and comprehension is what the reader understands. The most productive processing system is then the one the reader finds most accessible (Stanovich, 1980). If 'comprehension is more appropriately re-

garded as a state, the opposite of confusion" (Smith, 1986, p. 15), then "no one else can decide for us whether we are in a state of comprehension and confusion" (ibid., p. 16).

However, comprehension cannot unilaterally defined as what the reader finds relevant. Although comprehension is necessarily an interpretation, not every interpretation is necessarily a sign of comprehension. This is clearly established when one looks at the various distortions that readers make of a given input (Barlett, 1932; Steffensen and Joag-Dev, 1984). Despite the fact that these subjects were not confused by the text (they indeed "understood" the text) we can still claim that they failed to understand its author. What seems to be missing in Smith's position is the realization that "there is a need to differentiate the problem of the correctness or veridicality of comprehension from the problem of the feeling of understanding" (Bransford and Nitsch, 1985, p. 105). We thus assume that comprehension involves "the alignment and adjustment of each interlocutor's schemata so that they are brought into sufficient correspondence for the interlocutors to feel satisfied that they have reached an understanding" (Widdowson, 1983, p. 40).

The question now is not to dispute that readers can understand what was not meant (or understand the text, but fail to understand the author) but rather to determine the conditions under which the reader has understood *both* the text and its author. With Anderson (1985), we suggest that two conditions must be met for any interpretation to be "defensible": It must be consistent with the context and completely processed.

Misunderstanding could then originate in the reader's tendency to distort the input in terms of previous expectations and would be based on an incomplete processing of the input. Misunderstanding may also be due to the reader's failure to process the sentence in the same terms (or context) as the writer's. The reader's interpretation would then be inconsistent with the context intended by the writer.

Implications Regarding the Role of Literal Meaning

Toward a new definition of literal meaning.

There is enough evidence to think that a difference exists between the intentions expressed by the propositional content of the sentence (computed through compositional, schematic or conventional analysis) and the additional intentions that this propositional content makes manifest. In other words, although we reject Searle's definition of literal meaning as compositional, we accept the view that there exists a level of interpretation on which further levels of interpretation are based. In that sense, we concur with Gibbs (1984) in saying that intentions can be recovered "more or less directly". The "more" directly refers to the fact that comprehension involves an uninterrupted flow of assumptions about speaker's intentions in which there is neither any clear-cut level of "contents" nor any necessary compositional analysis. At the same time, comprehension is "less" direct in that it involves the identification of the propositional content that the writer is trying to communicate.

The difference between literal and ironical utterances.

This renewed view of literal meaning begs the question of the difference between literal, indirect language and irony. Indeed, if understanding all utterances requires drawing inference in terms of the speaker's literal meaning, then the difference between direct and indirect forms of communication must be seriously questioned. To account for the difference between ironical and literal utterances, top-down perspectives have taken a radical pragmatic position in focusing on the circumstances under which these utterances are read. "Literality" would exist not because some utterances give direct access to speaker's intentions, but because the context and assumptions in terms of which they are

understood are so widely shared and so obvious that they do not seem to exist at all. In that perspective,

the classification of an utterance as to whether it involves literal or metaphoric meanings is analogous to our judgment as to whether a bit of language is formal or informal. It is a judgment that can be readily made, but not one which signals fundamentally different comprehension processes. (Rumelhart, 1979, p.79)

To explain the difference between ironical and literal utterances, bottom-up views (Grice 1975, 1978; Searle, 1979) have assumed that only the former involved applying a conventional inference rule to the sentence's literal meaning.

In the following pages, we question both the radically pragmatic and the inferential perspective. In doing so, we discuss the unsolved problems associated with the definitions of context, monitoring and ironical meaning.

The Role of Context in Irony Comprehension

Any discussion of the role of context in irony comprehension must reconcile two contradictory needs. To be manageable, context must be restricted and yet it must also go beyond what both participants knew previous to communication. What is needed, then, is a revision of the concept of context so that it becomes more flexible.

In the same manner as we argued that propositional content and speaker's intentions are recovered jointly, we assume that context is determined and inference drawn in interaction. That is, the context is properly determined when, and if, the inferences drawn in that context are speaker's implicatures (that is, if they seem relevant). In the same manner, the writer's implicatures can only be drawn in terms of the specific context he intended his reader to select. So, the choice of a context would be settled only when the implicature it makes possible is relevant. In the same manner, the likelihood that a given assumption has

been intended as an implicature is reinforced by the fact that the context from which that implicature is drawn is easily accessible.

This view leads to a revision of the "common ground" along the lines set by Sperber and Wilson (1982). These authors argued that the context of interpretation of irony is not some predefined set of assumptions shared and known to be shared by the writer and his audience. Their premise is rather that "a crucial step in the processing of new information ... is to combine it with an adequately selected set of background assumptions - which then constitutes the context" (Sperber and Wilson, 1986, p. 138). Context is thus a set of background assumptions selected in light of the sentence and with which the sentence can be understood. Comprehension would "involve a search for the context which will make this interpretation possible. In other words, determination of the context is not a prerequisite to the comprehension process, but a part of it" (Sperber and Wilson, 1986, p. 76).

Context and going beyond one's knowledge.

This new characterization of context as "relevant assumptions" makes it possible to explain how novel expressions can be understood. This view is, in fact, an extension of Grice's (1975) definition of implicatures. We recall that implicatures are drawn because utterances come with the assumption that the writer has been cooperative. More specifically, Grice (1975) claimed that the speaker, by saying p

may be said to have conversationally implicated that q, PROVIDED THAT (1) he is to be presumed to be observing the conversational maxims ...; (2) the supposition that he is aware that, or thinks that, q is required in order to make his saying or making as if to say p ... consistent with this presumption; and (3) the speaker thinks (and would expect the hearer to think that the speaker thinks) that it is within the competence of the hearer to work out ... that the supposition mentioned in (2) IS required. (pp.49-50)

So, neither the writer nor the reader needs to know what the common ground will be. All the writer needs to assume is that the utterance is relevant against some contextual assumptions available to the reader. What these assumptions are may be unknown to him. Indeed, "when the speaker could not have expected his utterance to be relevant to the hearer without intending him to derive some specific contextual implication from it, then, and only then, that implication is also an implicature" (Sperber and Wilson, 1981a, p. 284). For example, in the following dialogue,

A. "Did you like the book you were reading?"

B. "I don't much like science fiction",

if A didn't know what type of book B was reading, he can infer that "B reads a science fiction book" because B's answer would be irrelevant without it.

Furthermore, a writer can produce utterances whose processing involves knowledge that he expects the reader does not have. In the following dialogue (from Sperber and Wilson, 1982)

A. Do you ever talk to Charles?

B. I never talk to plagiarists.

B's covert answer "I never talk to Charles" is neither expressed in, nor deducible from, his sentence. It can be inferred only if A assumes what he did not previously know (i.e. "Charles is a plagiarist"). In working out the relevance of B's reply, A has then learned what B must have wanted him to learn without saying it explicitly. In other words, "the fact that missing premises will be supplied in this way by the hearer can be exploited by the speaker with rhetorical intent" (Sperber and Wilson, 1982, p. 80).

Some Implications Regarding the Role of Context

We suggest that there is a direct relation between indirection and expressive power. Indeed, the more indirect the ironical utterance, the more the reader would need to provide

the contextual assumptions without which no relevance can be established. The more indirect the expression, the richer the assumptions that the reader may feel authorized to provide.

The expressive power of the most indirect ironies would then lie in the demands they make on the reader. Indeed, understanding irony involves the reader's capacity to access or re-create the perspective in light of which the sentence can appear as ironical, i.e. the ironist's perspective. But that perspective is not necessarily known to the reader previous to the act of comprehension. That is, in order to understand the ironist's comment, the reader must "at least in imagination, take the point of view of the other person in a fairly active way" (Micham, 1984, p. 93), make assumptions and take a perspective he may never have taken otherwise. Understanding irony would then require the reader to vicariously see the world through the writer's eyes, and, in the process, to learn that a new perspective exists. Furthermore, irony comprehension involves letting the reader provide the perspective and the assumptions that the sentence implicitly requires to be seen as ironical. Now, these assumptions may very well represent a point of view that the reader would have discarded had it been presented directly by the writer, that is, as an argument to be rejected, discussed or accepted. In irony, however, the ironist's point of view is not presented as an argument but as the background of comprehension. The very fact that irony requires the reader himself to contribute to evoking what he would have refused to consider otherwise could facilitate his shift towards the new point of view. Under these circumstances, irony may be an ideal way to bring the reader closer to the ironist's viewpoint. These remarks could then explain why many authors have claimed that an ironical message may be a persuasive one.

Monitoring Irony Comprehension: From Literal to Ironical Meaning

If irony is not a figure of speech, and if ironical meaning cannot possibly be inferred in terms of the sentence's literal meaning, how can one understand irony? This question raises the problem of defining the relation between literal meaning, propositional content and speaker's intentions. Our suggestion is that conventional models (Searle, 1979; Grice, 1975, 1978) have failed to provide any satisfactory solution to that problem because they have adhered to two basic ideas: (a) that speaker's intentions are necessarily manifested *by means of* his sentence, and (b) that there is only one speaker for each speech act.

Two key ideas in conventional views of irony.

A first key assumption underlying conventional views of irony is that irony can be treated along the same lines as any other type of expressions: i.e., that intentions are necessarily communicated by means of the sentence propositional content. The ironist is indeed assumed to be cooperative and to mean what he says despite superficial indications to the contrary. Irony comprehension should then be achieved when the reader has succeeded in seeing how the ironist's apparently irrelevant literal meaning is in fact an integral part of the ironist's relevant intentions. Given that the ironist is assumed to mean what he says (although what he says appears, at first, false...) the problem is then to find the inference rule necessary to confirm the assumption that the ironist has been cooperative. This does not only lead to problems mentioned earlier about Grice's inference scheme, but also to the idea that in irony only the implicature (and not the combination of implicature and literal meaning) represents the ironist's intentions.

The second idea - closely related to the first - is that the person who says something (literally or ironically) must also be the one who is meaning to communicate some intentions by means of the sentence (Ducros, 1984, p. 171). However, that position cannot

tions by means of the sentence (Ducros, 1984, p. 171). However, that position cannot explain the contradictory nature of irony. On the one hand, the speaker is obviously not meaning what he says. On the other hand, however, if what the ironist says is not a necessary part of what he means, there is no reason why he should not have said it explicitly in the first place and little way in which one can find his hidden intentions. In other words, "d'une part, la position absurde est directement exprimée (et non pas rapportée) dans l'énonciation ironique, et en même temps elle n'est pas mise à la charge de L [le locuteur]" (Ducrot, 1984, p. 211).

A solution to the problems faced by conventional views of irony involves questioning these two ideas and assuming that irony comprehension should be explained in terms of a specific relation between what is said and what is meant.

Some suggestions.

Irony comprehension involves realizing that the ironist does not assume responsibility for the words he produces. On the contrary, the writer is displaying what would be the serious utterance of a sentence in such a context as to make it appear that his intentions are precisely to ridicule that utterance, along with the person, or type of people which would utter it.

Ironical discourse: A reflexive use of language

This means, first, that the writer wants to communicate something about, and not by means of, the sentence (Récanati, 1981; Berrendonner, 1981; Ducrot, 1984; Sperber and Wilson, 1986; Maingueneau, 1990). The proposition he utters is not his and is not part of his ironical intentions. On the contrary, the ironist expects his audience to realize that the relevance of this message lies in the very words of the message. Far from being transpar-

ent, the propositional content has then some intrinsic property that is worth processing as and for itself.

It has already been shown that an ironical utterance does not rely on the capacity to use language to refer or manifest some state of affairs in the world to let it be known that it is false, because the only way the reader can indeed recover these implicit intentions is if he knows in advance that the state of affairs is false. On the contrary, an ironical utterance refers *reflexively* to its own production, that is, to the fact that such a proposition (whose truth value is irrelevant) could be uttered under such circumstances. In doing so, the ironist can manifest his intentions to ridicule that proposition along with its author(s), real or imaginary. Ironical intentions can then be described as a derogatory comment that the ironist makes about the utterance of the proposition and not about the proposition itself or on what it refers to. As it involves using language to refer to its own use, irony comprehension must be characterized as metalinguistic.

The distinction between “locuteur” and “énonciateur”

Parler de façon ironique, cela revient, pour un *locuteur* L, à présenter l'énonciation comme exprimant la position d'un *énonciateur* E, position dont on sait par ailleurs que le locuteur L n'en prend pas la responsabilité et, bien plus, qu'il la tient pour absurde. (Ducrot, 1984, p. 211, emphasis ours)

There would be two embedded speech acts in irony, and two corresponding speakers. On the one hand, the ironist is the “locuteur” of the speech act because he is uttering the very words of the message. However, communication does not only involve producing a grammatical sentence with definite sense and reference: It crucially rests on the conveyance of intentions. In ordinary communication, the person who utters the sentence also seeks to make manifest some intentions by means of that sentence: The “locuteur” is also the “énonciateur”.

In irony, however, the ironist only reports the propositional content, he does not endorse it; He is not the “énonciateur” of the speech act. The “énonciateur” is the person who would utter and mean the ludicrous sentence. However, in displaying such a speech act, the ironist takes on the role of “énonciateur” at a second level, in that he manifests his intentions to ridicule what he is only mentioning.

The difficulty with irony is then that the ironist is playing two different roles; that of the “locuteur” and that of the “énonciateur” but at different levels and for two different speech acts. So, the problem is to determine who says, and who means, what. In other words, “l’ironie apparaît comme la combinaison paradoxale dans la même énonciation d’une prise en charge et d’un rejet” (Maingueneau, 1990, p. 80-81) .

Implications Regarding the Role of Monitoring

Conventional views of irony comprehension rest on the assumption that all intentions are communicated by means of the sentence propositional content. We rather suggested that irony comprehension involves a reflexive and metalinguistic use of language, because the ironical utterance itself is not as much the means as the object of communication (Récanati, 1981; Berrendonner, 1981; Ducrot, 1984; Sperber and Wilson, 1986; Maingueneau, 1990). So, although we do not deny that irony has essential *pragmatic* characteristics (since irony can only be understood in context), we suggest it also has an essential *semantic* property, because it rests on the capacity to use language to refer not only to the world around us but also to itself (Lyons, 1977, p. 5).

Irony Meaning

Discussion of the meaning(s) that an ironical message communicates must tackle the issue of the motivation for being ironical. Indeed, conventional definitions of ironical

meaning begs the question of the reason why a speaker would say something and implicate the opposite when he could have communicated the same content directly without running the risk of being misunderstood. In choosing to be ironical, the ironist must have expected to achieve some additional effects not obtainable from a direct utterance and which would offset the additional effort needed to process the ironical utterance.

Our suggestions.

What does an ironical message communicate? At a first level, we can assume that the ironist communicates some derogatory judgment about the very words of the message. However, quite apart from that, it does not seem possible to be more specific about precisely what irony communicates.

Indeed, if ironical discourse rests on the simultaneous utterance of two speech acts by two speakers (the ironist and his victim), then ironical discourse can have different layers of meaning. That is, if irony is indeed a manner of making a comment on someone else's sentence, the comment may very well be an invitation to take a given attitude, to *look* at things in a given perspective. This attitude may involve a whole world view and may then not be clearly specifiable in propositional terms.

Second, the fact that the echo has been left implicit suggests that only someone who shares the same attitude as the writer's can retrieve his ironical intentions. The more information the writer leaves implicit the greater the degree of mutual understanding he assumes exists between himself and his audience. By leaving much unsaid, the author anticipates a reader who would not need to be explicitly said what he wants to communicate. By doing so, the writer lets it know that he expects to share with his audience the same attitude and perspective. Irony can then be used as a device to build up solidarity between the ironist and his audience, at the expense of those who would fail to understand it. Irony is thus "one of the resources a speaker has which enable him or her to do things in speaking.

If functions both individually, as a communicative strategy, and socially as an expression of ... group solidarity" (Myers-Roy, 1981, p. 414). If that is so, then one important aspect of ironical meaning should be that it is a *meta-message* in that it conveys information about the relations between communicators (Bateson, 1972). Given the importance of shared assumptions in irony comprehension, one can imagine that this meta-message should be of the sort "we are of the same sort".

Third, we can expect that "the meaning of an ironic message from one person to another depends on such parameters as their degree of familiarity, their liking or disliking of one another, any authority relationship that exists between them, or any number of other things" (Micham, 1984, p.101). Indeed, the impact of the ironical comment, what it *means* to the reader is largely a question of what knowledge and assumptions the reader brings to irony understanding. For example, a reader can understand that an opinion is being ridiculed without accepting that the idea itself is ludicrous. This should happen, for instance, when the reader holds the same opinion himself. There may then be a relation between the meaning that one derives from an ironical sentence and one's ideas about the view or person that the sentence criticizes.

Furthermore, the concept of the accessibility of the information with which the utterance will be maximally relevant has important implications for one's understanding irony. As relevance is a function of the amount of processing and hence of the accessibility of the context, the same utterance may have different levels of relevance for different readers. In the same manner as one's world view or assumptions may block ironical understanding, other readers may interpret a genuinely naïve utterance as ironical or read much more into the ironist's comment than what the ironist himself had anticipated.

Implications Regarding Irony Meaning

Ironical meaning may not be specifiable apart from the general view that the opinion communicated about the sentence is negative and derogatory. The specific impact that the ironical message has would vary with the reader and the opinion that is being ridiculed. Some aspects of ironical meaning would then be strongly suggested by the writer, while other aspects would be more indeterminate because they would rest on whatever assumption the reader is able and willing to provide. An ironical utterance can then serve several simultaneous functions. It could enable the ironist to let his opponent express his views while standing aloof from them. The ironist can simultaneously elevate his own position at the expense of his opponent as well as to ridicule him. Lastly, the ironist can strengthen the link between himself and his audience.

This somewhat elusive nature of ironical meaning can shed light into the motivation for being ironical. Far from being a deviant conveyance of intentions which could have been manifested directly, irony offers an economical way to communicate complex ideas. It is indeed much more economical for the writer to leave implicit everything the reader can be expected to supply with less effort than would be required to process an explicit prompt. A literal discourse would require a more lengthy process of making all these propositions explicit and the even more unpalatable task of translating an attitude, a whole world view into a propositional form.

Some Suggestions about Children's Problems with Irony

We suggest that irony comprehension involves figuring out the literal meaning of the utterance, but more specifically, the literal meaning of the utterance as interpreted in light of the pragmatic information shared by speakers and hearers [the interpretation lies] in the difficulty of determining which literal meaning the speaker is referring to. (Gibbs, 1986, p.14)

Understanding irony would then involve keeping a balance between the need to use context, (without which decoding cannot be useful) and keeping a constant check on what is being interpreted in terms of these contextual expectations (to avoid finding in new input only what was expected).

The Role of Literal Meaning

One possible general explanation for children's problems with irony would be that they are literalists. But the concept of "literalist" cannot really apply to children. This concept indeed assumes that one has some understanding of the arbitrariness of the words and can focus on the very words of the message. Young children, however, tend to assume that communication is a unitary phenomena in which sentences themselves play only a minor role (Wallach and Miller, 1988; Gombert, 1990). Indeed,

bien plus que le contenu sémantique du message qui lui est adressé, c'est l'intention du locuteur qui semble perçue... Dès lors, il confère une signification à ce discours, de la même manière qu'il donne signification à de multiples événements Le discours est alors signifiant, ce qui n'implique en aucune manière qu'il soit lui-même un signifiant, c'est l'acte de parole qui a une signification et non le langage lui-même. (Gombert, 1990, p. 89)

If children are indeed literalists, it is in the sense that they assume that intentions are always directly available and because they have no clear realization that there can be a difference between sentence and context. They are literalists because they expect messages to be transparent in context. But if there is no autonomy of linguistic signs, there is no possible choice between a literal and non-literal interpretation and therefore no preference for literal interpretation. This position is supported by the fact that children often make "indirect" readings of an utterance even when the latter is meant literally (Shatz, 1978; Ackerman, 1983). This leads Ackerman (1983) to conclude that "developmental differences in interpreting figurative uses of utterances cannot be explained by difference in bias or preference for literal interpretations that inhibit evaluation of literal form" (p. 497). However, discussing the young child's capacity to adapt his speech to different situations and interpret others' messages in terms of their context of production, Gombert (1990) warns that

loin d'attester une maîtrise précoce des aspects pragmatiques du langage, ces habiletés témoignent plutôt d'une incapacité du jeune enfant de dissocier le langage de son contexte d'émission. *C'est un ensemble non analysé qui est traité, en aucun cas il n'y a identification consciente des liens existant entre le langagier et l'extralangagier car à aucun moment il n'y a distinction entre les deux.* (p. 156)

One hypothesis is then that children have problems with irony not because of a literal preference but precisely because they have problems recovering the sentence's literal meaning. A first aspect of the problem is that young readers may simply have difficulty restricting their interpretation to the very words of the ironical message but rather a tendency to over-rely on top-down processing. Contradictory as it may seem, children's tendency to make "literal" (or rather, non-ironical) interpretations of irony may be then due to their inability to take a literal perspective.

Second, children may have difficulties adapting their comprehension strategies to a new medium. Indeed, written discourse is usually decontextualized (Chafe, 1985; Tannen,

1982; Olson and Hildyard, 1983) and "requires a special procedure for establishing a common ground of discourse; and that procedure ... is largely through the semantic structure of the sentence" (Olson and Hildyard, 1983, p. 61). In learning to read, children must then learn to use the text in order to create its own context of interpretation. But we know that the shift from oral/contextualized to literate/decontextualized strategies is a gradual process (Gombert, 1990; Wallach and Miller, 1988).

Third, the adaptation to new strategies should make new demands on the child's processing capacities. Children's problems may then be due to a lack of bottom-up (decoding) skills. A lack of decoding skills could mean that they take so much time decoding the sentence that, by the time they finish, whatever is left in working memory of previous context is forgotten. In that sense, each new utterance would be read as if nothing had been read before. This would most certainly lead to the literal interpretation of ironically-intended utterances. This hypothesis is supported by Mosenthal's findings (1979) that, contrary to older children, 8-9 year olds tend to distort previous information to make it compatible to new input.

Monitoring Irony Comprehension

Irony comprehension requires the reader to adapt his reading strategies to the specific utterance. However, the need to adapt one's strategies does not force itself on the reader. The child's failure to access the same assumptions against which the sentence was produced may well result in the failure to retrieve the literal meaning and intentions intended by the writer-and this, independently of the reader's reading skills. In other words, misunderstanding can be due to "good strategies missing the mark a choice between two substantially different interpretations can result from a relatively small decision in the comprehension process" (Bruce and Rubin, 1984, p. 98).

Following Ackerman (1983), we assume that part of the problems children may face with irony is not due to their poor monitoring capacities (Markman, 1979) but rather to their failure to infer non-literal meaning. Young readers would then " 'fall back' on a literal interpretation in lieu of not interpreting the utterance at all" (Ackerman, 1983, p. 490). Children's failure to realize that language is used interpretively, for example, could then trigger a "fall back" strategy - however unsatisfactory that may be in context.

This leads to another dimension of children's "literal bias". We suggest that children are literalists in that they assume that intentions are communicated by means of the sentence, and that they fail to realize that intentions can also be made manifest about the sentence. In other words, their inability to realize that the sentence is used interpretively and not descriptively would lead to a failure to distinguish irony from indirect speech and all those cases in which the speaker is meaning more than what he says. There are some indications that at year 4, children do not differentiate the words that they report and the rest of their speech (Gombert, 1990). It is only at 7, and even more clearly at 10, that children differentiate distinct sources of opinions. Children may then have problems realizing that the speaker may simply utter someone's else words without meaning them. More generally, it would be interesting to study the comprehension of irony in a developmental perspective, to better document its relation to the development of metalinguistic capacities.

The Role of Context

Different ironical expressions may have different levels of complexity which are not necessarily related to the child's reading skills. Sperber and Wilson (1986) and Clark and Gerrig (1984) argued that an utterance can be detected as ironical only against a specific set of assumptions, i.e. the assumptions used by the writer in producing his ironical utterance. Even if the reader indeed retrieves the literal meaning intended by the writer, the

realization that there is some contextual incongruity in the literal interpretation depends on the assumptions that the reader provides. This would suggest that the contradiction that the literal interpretation should trigger is not an inherent and inescapable aspect of the ironical text. The literal interpretation is not necessarily *false* given the preceding context: It may be *inappropriate* given social or cultural standards that the child does not know (for example, in "American allies..."). So, if children cannot be expected to have a schema for situations, actions or phenomenon they have never experienced, they may simply be unable to access the context necessary to understand some ironies.

It is also most likely that even if the child has indeed a schema about the specific event to which the text refers, this schema will be less developed, will have less variables and poorer specifications of the relations between these variables than the corresponding schema in the adult. For example, a 6 year old may have some rudimentary schema for "driving a car", but not sufficiently developed to be able to understand the irony in "I love people who signal!".

Furthermore, if context is not given but constructed from the set of assumptions available to the specific reader, we can expect that some types of interpretation are more accessible to some readers than others. That is, some readers may simply select the most relevant interpretation for them and may account for its under-exploitation on the part of the writer by consideration of conciseness, politeness, etc. The concept of "accessibility" of contextual information would thus play a crucial role in irony comprehension. It would explain why it is easier to detect incongruity when contradiction is between new input and background knowledge than when it is between new input and textual information (Gombert, 1990, chap. 6). While background knowledge and information of personal relevance is familiar and thus easily accessible, textual information "ne pourrait être récupérée en mémoire de travail, alors qu'une autre information nouvelle qui la contredit vient d'y accéder, qu'à la suite d'un effort volontaire de la part du sujet." (Gombert, 1990, pp. 168-9). It would then be interesting to document the possible relation between one's compre-

hension of irony and one's personal position about the view mentioned in the ironical utterance. For example, racists may have problems detecting a parody of racist behaviour for what it is, or may perceive as ironical perfectly naïve remarks about colored people.

Conclusion

The purpose of this chapter was to present our suggestions regarding the processes of irony comprehension. We first attributed the theoretical difficulties described in Chapter IV to the limitations of the *sequential* models of comprehension. We then outlined a tentative interactive model of irony understanding in which the ironist's intentions to say and his intentions to mean are recovered in parallel.

We discussed the implications of this new perspective for the definitions of the basic concepts in irony (literal meaning, context, monitoring and irony meaning). We suggested that the current definitions of these concepts could be revised in our interactive perspective.

Finally, we evaluated the implications of our model for empirical research on irony comprehension and we made some suggestions about children's difficulties with irony.

CONCLUSION

This thesis seeks to provide the ground for future research into children's comprehension of written irony.

In a first chapter, we established that reading comprehension research has identified three general variables affecting the reading process, namely, the reader, the text and the context. We then noticed that one of the sources for children's comprehension problems (understanding the text but misunderstanding the author) had been little investigated. Our suggestion was that the general distinction between content and intention, which is best seen in irony, could account for reader's difficulty in finding the author's intended message. The fact that this dimension of the reading process had been little researched led to our assumption that the study of irony could provide interesting and relevant insights into children's comprehension (and miscomprehension) processes.

In Chapter II we thus reviewed several models of irony (Searle, 1979; Grice, 1975, 1978; Clark and Gerrig, 1984; Sperber and Wilson, 1981a, 1986) and we identified the key concepts on which these models diverge, namely, literal meaning, context, ironical meaning and the distinction between detection and interpretation.

In a similar manner, models of the reading process were analyzed in Chapter III (Gough, 1976 ; Goodman, 1968, 1976; Just and Carpenter, 1980 ; Stanovich, 1980; Rumelhart, 1985; Laberge and Samuels, 1974; Kintsch and vanDijk, 1978). This analysis led to identifying three issues in reading comprehension research: literal meaning, context and the concept of inference in comprehension.

Chapter IV then tried to specify some of the theoretical and methodological problems that future research into children's comprehension of written irony should tackle. We suggested that models of the reading process and of irony could be brought together into a superordinate theoretical framework. However, further analysis of that framework showed that current models do not provide the best theoretical basis for future investigation

of children's comprehension processes. We then sketched a tentative interactive model of written irony comprehension and we discussed its implications for the role of literal meaning, context, monitoring and inference. After making some suggestions about children's problems with written irony, we then concluded Chapter IV by outlining some of the methodological problems that future research will have to face.

We are now in a better position to evaluate the possible contribution of study into irony comprehension for the field of written comprehension research.

Assessing the Relevance of Irony for Reading Comprehension Research

Theories of irony try to determine the processes underlying irony comprehension. Since irony is a genuine form of communication, our capacity to understand it must be part and parcel of the general knowledge of language that any native speaker has. The problem is then to establish which processes are specific to irony and which processes are part of the basic competence brought to bear on any form of comprehension. In trying to determine how irony is understood, we then have been led to discuss more fundamental views as to how language in general is understood.

We suggest that the relevance of study on irony for reading comprehension research lies precisely in the new perspective irony provides on ordinary communication. More specifically, study on irony leads to challenging and clarifying commonsense assumptions about ordinary language comprehension, namely that ordinary language is literal, transparent, context independent and fully specifiable.

Some Questions about Ordinary Language

One characteristic of irony is that the very words of the message seem to reflect the speaker's intentions only indirectly. What needs to be explained is not only how intentions

are inferred from the words of the message but also how words communicate that basic meaning from which intentions can be recovered. In trying to provide such an explanation, we must then ask fundamental questions about the relations between words, their meaning and the intentions they can manifest in all forms of communication.

We have gradually come to the conclusion that the speaker's intentions to say as much as his intentions to mean something can be recovered only when the words are interpreted in context and when inferences are drawn. Instead of a strict distinction between the explicit and implicit components of a message there would exist a continuum from more explicit to more implicit assumptions. The central role of literal meaning, its very existence, is questioned. Furthermore, if literal meaning can no longer be unambiguously identified, the distinction between literal/direct and figurative/indirect forms of communication is challenged. Once again, there would be a continuum of expressions from which intentions are retrieved after a more or less extended inferential activity. In trying to determine what the writer has meant,

the same problems arise for literal language as for figurative language. In both cases, what is conveyed is not easily determined from the meanings of the individual lexical items of the utterance; and in both cases, the interpretation seems to depend on knowledge well beyond definitions of the terms involved.

(Rumelhart, 1979, p. 83)

Extensive inferencing would be required, among other things, when the linguistic context fails to provide adequate contextual information, when reader cannot provide the necessary background against which intentions can be recovered, when the reader lacks monitoring skills. The context available or brought to bear on understanding a sentence and the reader's capacity to efficiently use both the context and the sentence are then central in comprehension.

Some Suggestions

Applied to the field of reading comprehension research this suggests several areas of further investigation. We could indeed direct our attention to the forms and functions of the written language of schooling, to the manner in which meaning is negotiated in the classroom, to the demands the language of school makes on the apprentice reader and to the capacities that reading necessitates and develops in the child. In the latter area, specific attention could be given to the situation of allophones learning to read and studying in a second language.

Forms and functions in the language of schooling.

We can first wonder what exactly *is* the language of schooling. There may indeed be several types or genres of written language, from expository to narrative texts and including cartoons, notes... What type of written language do children have to use to learn to read, what do they read when they have to study for class? How do these different genres of written discourse communicate the writer's intentions, how accessible are these intentions? There are already some indications that the language of schooling is more detached, decontextualized and explicit than the child's mother tongue (Olson and Nickerson, 1978; Tannen, 1982, 1985; Olson, 1977; Davies and Widdowson, 1974). What are the consequences of these characteristics on the child's learning to read? Do they facilitate the development of reading skills or rather do they contribute to making expository texts far more foreign and exotic to children than irony?

Learning to read.

A second avenue worth exploring is the capacities required to switch from the oral language of the home to the written language of school. It is possible that becoming a competent reader involves learning that language can perform new functions: that sentences can be evaluated for their truth value, to *create* new knowledge rather than for their social impact as a means of affecting the situation and influencing the other participant. But for language to be used that way, the reader must come to realize that language exists in itself, that one can analyze the linguistic aspects of communication, distinguish it from the additional information available from context or from the interaction between the sentence and its context. We should then not be surprised that learning to read is intimately related to the development of metalinguistic skills (Gombert, 1990; Wallach and Miller, 1988; Bonitatibus, 1988). An interesting direction of further investigation is then the conditions under which the child can become a reader. At the same time, we could investigate the consequences of becoming literate on one's oral competence. For instance, becoming literate could help solidify one's comprehension of the metalinguistic aspects of irony.

Context, comprehension and interpretation.

The writer's ironical intentions are accessible only to those who share his perspective. But the fact that comprehension is always relative to a context should sensitize us to the role of the intrapersonal context in comprehension. It should also alert us to need to take a more cautious look at children's comprehension problems. Far from being necessarily ascribed to poor reading skills, comprehension problems may indeed originate in the child's lack of background knowledge or to the misapplication of perfectly productive strategies (Bruce and Rubin, 1984). Furthermore, as learning to read is related to the

context we should better document the various contexts in which children learn to read.

There are already some indications that

the occurrences of reading outside of official reading events is important in order to see children being more advanced in reading development than we would assume based on the curricula, the materials, and the tests usually given to first graders.

(Griffin, 1977, p. 380)

A change of definition of what constitutes the appropriate context of comprehension can turn the same sentence into an ironical or a literal utterance. So, different perspectives will trigger different interpretations of the intentions that the writer has tried to communicate by a sentence. We should then try to document the manner in which the definition of context, of what constitutes appropriate reading and comprehension is defined and negotiated between the students and the teacher.

Lastly, the more fundamental contribution of study on irony to research on comprehension is that it brings us to a more relative view of comprehension. In setting, in very clear terms, the problem of the manner in which implicit intentions can be manifested and recovered, irony has helped to shed light into the necessary cooperation between writers and readers. Common ground in particular was assumed to constitute the prerequisite for *comprehension*, that is for the "recovery only of a set of propositions that the speaker specifically intended to convey" (Sperber and Wilson, 1981b, p. 283). But in assuming that common ground can ever be established we have set too stringent a condition for communication to take place. We may then have to move towards a more relative and less secure view of communication as an *interpretive* process "in which responsibility for a particular conclusion sometimes falls wholly on the speaker, sometimes falls wholly on the hearer, and in many cases is shared in some proportion by both" (Sperber and Wilson, 1981b, p. 283). In clearly establishing the link between one's personal context and one's comprehension, irony helps support the view that text meaning is always the reader's meaning. Ultimately, the study of irony may have helped to shed doubts on the view that

communication rests on a process comprehension and has contributed to the position that it rather involves a process of interpretation.

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