LEXICAL AND STRUCTURAL AMBIGUITY
IN HUMOROUS HEADLINES

by

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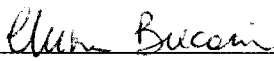
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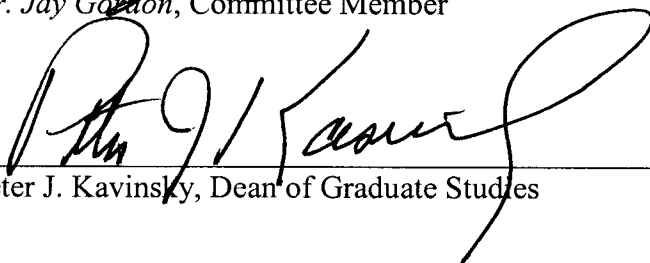
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ABSTRACT

The paper analyzes some forms of linguistic ambiguity in English in a specific register, i.e. newspaper headlines. In particular, the focus of the research is on examples of lexical and syntactic ambiguity that result in sources of voluntary or involuntary humor. The study is based on a corpus of 135 verbally ambiguous headlines found on web sites presenting humorous bits of information. The linguistic phenomena that contribute to create this kind of semantic confusion in headlines will be analyzed and divided into the three main categories of lexical, syntactic, and phonological ambiguity, and examples from the corpus will be discussed for each category. The main results of the study were that, firstly, contrary to the findings of previous research on jokes, syntactically ambiguous headlines were found in good percentage in the corpus and that this might point to differences in genre. Secondly, two new configurations for the processing of the disjunctor/connector order were found. In the first of these configurations the disjunctor appears before the connector, instead of being placed after or coinciding with the ambiguous element, while in the second, two ambiguous elements are present, each of which functions both as a connector and a disjunctor.

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TABLE OF CONTENTS

Chapter 1 – Introduction

The issue of ambiguity (from the Latin adjective *ambiguus*, i.e. uncertain) in language has attracted the interest of many researchers in fields such as that of psycholinguistics, cognitive linguistics, and cognitive psychology. However, the presence of ambiguity in language is easily perceived not only by academic researchers who scientifically test its processes and implications, but also by ordinary people, who come to terms with its effects in everyday situations. This is evident, for instance, when we happen to misinterpret our interlocutors' utterances, or vice versa, when we are misunderstood, because of some lack of clarity in the way the sentence is formed or, in other cases, because what we hear or say has more than one possible pragmatic or referential interpretation. Take for example the pronoun *him* in the following exchange:

> A: "I saw him the other day."
> B: "But I thought Jim wasn't in town."
> A: "No, I'm talking about John."

It is evident that ambiguity is here created by the ambiguous antecedent of the object pronoun, whose referent remains obscure. The ambiguity does not derive from the lack of context, but from the possibility that the pronoun could be attached to more than one antecedent in context.

Ambiguity is inherent in language, and its pervasiveness is evident in many words and constructions that at first do not appear to be problematic, both in written and oral language. Take, for example, the phrase "large chairs and tables" (Oaks, 1998: 727). The individual words do not seem to present problems related to ambiguity, yet two different

meanings can be attributed to the phrase. The first can be paraphrased as "large chairs and large tables," while the second one implies that the adjective *large* modifies only "chairs."

While it could be argued that ambiguity in oral language does not cause irreparable damage to communication since the opportunity exists to clarify possible sources of ambiguity, written language might present distinctive problems, because no chance is given to the reader to interact immediately with the author. For this reason, ambiguity is often considered an obstacle to communication, especially in the written medium. As a consequence, in the context of writing, especially for academic purposes, ambiguity is approached as something that has to be avoided, to the point that it is not unusual for style manuals to include suggestions on how to circumvent ambiguous expressions. For instance, Stageberg states that "ambiguity is an ever-present peril to clearness of expression" (1998: 501).

However, as chapter 2 will help clarify, recent research has contributed to illustrate how ambiguity, by exploiting all the morphological and syntactic features of a language, can actually be employed as a useful strategy in specific fields such as humor and advertising (Oaks, 1994).

The present study examines linguistic ambiguity of one specific type, where it is a source of humor, and in one specific register, newspaper headlines. In particular, the focus of the research is on examples of lexical and structural ambiguity that result in seemingly involuntary humor. It should be noted that examples of this kind of humor have recently become popular; for example, comedians like Jay Leno use funny headlines as part of their shows. Leno has even collected some of these in different volumes (Leno,

1990, 1992). However, this is usually done for the sake of entertainment alone and no attempt is made to analyze the linguistic characteristics that make these headlines funny. More over, not all them are funny because of formal linguistic reasons; in fact, most of them sound ridiculous because of other characteristics (see section 3.1 below for examples). By contrast, the headlines collected in the corpus analyzed here were selected precisely because the sources of ambiguity that produced the humorous effect were of a linguistic nature, in an attempt to propose a systematic analysis of humorous texts that have rarely been considered in the literature.

Before proceeding with a description of the analysis carried out in this study, chapter 2 will offer a survey of the literature on ambiguity as a psycholinguistic and cognitive phenomenon, and studies will be reviewed that make hypotheses on the functioning of the ambiguity resolution mechanisms that come into play in sentence processing. Chapter 3 will then present the corpus of ambiguous headlines and the results of the classification. In short, the analysis of examples from the corpus highlighted two main points of interest that will be discussed in the chapter: 1) the number of headlines based on syntactic ambiguity is lower than that of lexically ambiguous headlines but much higher than that found by previous research regarding jokes; 2) an analysis in terms of the disjunctor/connector[1] model (Attardo, 1994: 99, 104-105) reveals the presence in the corpus of two new processing configurations never considered in the literature, to the best of my knowledge: a disjunctor preceding the connector, and an element functioning both as a connector and a disjunctor.

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[1] The connector is the ambiguous element, which can be interpreted in more than one way (i.e., is compatible with more than one sense), the disjunctor is the element of the text that forces the passage from the first sense (S_1) to the second one (S_2). For discussion and references, see Attardo (1994: 92-101).

Point 1) above refers to the fact that the breakdown of the headlines into different categories shows lexical ambiguity to be the most common type in 52.59 percent of the total, while syntactic ambiguity is present in 46.66 percent of the headlines, and phonological ambiguity in only one example (0.74 percent). This result shows considerable variation from the results of Attardo et al. (1994), who found that verbal jokes relying on lexical ambiguity constitute the vast majority of their corpus of 2000 jokes, while that syntactically ambiguous jokes were present in only very small quantity. Since in the corpus considered here almost half of the headlines present syntactic ambiguity, I conclude that differences exist between the humorous mechanisms of the register of jokes and that of headlines. The position of connector and disjunctor in the new processing configurations identified in point 2) contradicts Attardo's (1994: 99) claim that the disjunctor is always placed after or coincided with the connector. Since the present corpus analyzes headlines and not jokes, the possibility must be considered that additions to the taxonomy of distinct and non-distinct disjunctor configurations might be derived from humorous genres other than jokes, and that other configurations might still be possible. Finally, chapter 4 offers an insight into the possible applications of the results of this study and suggestions for further research.

Chapter 2 – Survey of the Literature

The issue of ambiguity and ambiguity resolution, both in their lexical and structural forms, has attracted the interest of many researchers, especially in the field of psycholinguistics, computational linguistics, cognitive psychology, and other disciplines concerned with aspects of sentence processing (e.g., Hirst, 1987; Clifton et al., 1994; Franz, 1996; van Gompel, et al. 2000; Ravin & Leacock, 2000; Gorfein, 2001). Yet, the focus of such research is not so much on the phenomena generating ambiguity but rather on the ambiguity resolution mechanisms and processes. Most studies differentiate between lexical and structural ambiguity, with the former referring to ambiguity conveyed through polysemous words/homophonous strings and the latter to phenomena of ambiguous word order, referential ambiguity, prepositional phrase attachment (e.g. Hirst, 1987: 131-162; Gibson & Pearlmutter, 1994), etc.

The first studies on linguistic ambiguity in both its lexical and structural forms originated when the first speculations were made about the cognitive nature of ambiguous sentences (Fodor et al., 1968). The hypothesis was made that, by their own nature, ambiguous sentences are cognitively more difficult to process than unambiguous sentences, and that, consequently, sentences containing ambiguity are processed with the help of different mechanisms of resolution. Further studies based on this original hypothesis speculated on the possibility that a further distinction could be made in terms of sentence processing mechanisms for lexical, rather than syntactic ambiguity resolution. Most studies postulate that a fundamental difference exists between the resolution mechanisms adopted for lexical and for structural ambiguity, but recently the hypothesis

has been formulated that these two kinds of ambiguity are approached by the processor in fundamentally similar ways (MacDonald et al., 1994). In both cases, one of the instruments that is used most frequently by researchers is evidence from eye movement experiments, where a parallel is hypothesized between the subjects' reactions in terms of fixations and their length and the processing difficulties that they encounter in reading sentences containing ambiguity.

In this chapter, I will briefly summarize some of the most important studies and theories on linguistic ambiguity and its resolution, starting with lexical ambiguity and then proceeding to explore evidence from studies on structural ambiguity. In a separate section, I will focus on the applications of linguistic ambiguity in the context of humor research, despite the relative scarceness of studies in this field. In this chapter, attention will be also devoted to the clarification of the connector/disjunctor model, and to the language of newspaper headlines, which are both relevant for the present research.

2.1 Studies on lexical ambiguity

When referring to lexical ambiguity, I adopt Oaks' definition of this phenomenon, which states that lexical ambiguity is conveyed by "a word with more than one possible meaning in a context" (378). Much literature on the subject is in fact concerned with the interaction and influence on ambiguity resolution of aspects such as salience, word frequency, familiarity, and prototypicality (for a detailed review see Giora, 2003). According to Giora and other supporters of the graded salience hypothesis, *salient* information has been somehow consolidated and that it has undergone some sort of codification and as a result becomes stored in the mental lexicon. In terms of semantic

processing, salience implies that the meanings of a word that have already been stored in the lexicon will be readily available for decoding and, as a consequence, they will be accessed more easily and faster than meanings that have not been stored, such as new meanings or meanings only derived from contextual information. It is interesting to note that, according to this view, salience is a concept allowing for a number of intermediate degrees, thus implying that the mental lexicon is actually stratified and that the meanings of a word are ordered depending on how they have been coded by an individual or by a specific culture.

Frequency refers to the probability that a certain word has to occur. This concept allows for individual differences, since in some people's lives and everyday routine some meanings of the same word may be more frequent than others. Studies have shown that "the more frequent the meaning the quicker it is to retrieve" (Giora, 2003: 17). *Familiarity* refers to the fact that some meanings of a word can be more readily available (or familiar in this case) to people who operate in a particular field than to those who do not. *Prototypicality* implies that the meaning of a word that is more prototypical is accessed more easily than the less prototypical meanings. The classic example of the robin being a more prototypical exemplar of a bird than a penguin, for example, well illustrates this theory. All of these aspects play a role in the different theories on how the resolution of lexically ambiguous sentences is processed in the brain and will be discussed below.

The numerous theories on how lexical ambiguity resolution works are all concerned with the notion of lexical access or, in other words, with "the rapid activation of word meanings operating when a linguistic stimulus is encountered in and out of

context" (Giora, 2003: 44). However, the way these lexical meanings are activated and the time at which they are accessed during sentence processing are subjects of debate and have engendered a series of opposing or sometimes partially overlapping theories.

For example, one of the first distinctions to be made when approaching the models of lexical ambiguity resolution elaborated so far in the literature is the one between the so-called *exhaustive access model*, according to which all the meanings of a word are accessed simultaneously and independently of salience and contextual information, and the *selective access model*, according to which only the contextually appropriate meaning of a word is activated at an early stage. One of the first theories based on the exhaustive access model was the modular view elaborated by Fodor (1983). Its main assumption is that lexical access is independent of higher nonlexical aspects such as contextual information and world knowledge. As a consequence, in terms of sentence processing all the meanings of a word are activated at the beginning of the comprehension stage, and contextual information comes into play only later by discarding the contextually inappropriate meanings. This hypothesis was studied empirically by means of semantic priming effects, which as Giora puts it, "are related to the facilitated processing found for a word and its associates following prior processing of that word. The repeated processing of that word or its associates is shorter than that of an unrelated word" (45). Experiments using these semantic effects provided evidence that if a word with multiple meanings was heard in a context biasing it toward the first meaning, the other meaning was equally facilitated. However, later in the sentence only the contextually appropriate meaning was available. This is interpreted as evidence that contextual information contributes to suppress the inappropriate meanings only later on

in the comprehension process. Despite its denying of the role of context in early meaning selection, the modular view allows for more significant contextual influence when associative primes are involved. In other words, to use Giora's example, if the word *table* is encountered in a previous context, it will later prime the word *chair* toward only one of its meanings, i.e. that of 'piece of furniture.' Experimental evidence using associative primes seems then to make a concession to the role of contextual information within the modular view, suggesting that although context does not restrict lexical access at an early stage, it can facilitate the selection of one of the word's meanings and predict priming effects.

In order to contrast the hypotheses and findings of the modular view, the *selective access model* was subsequently proposed. This model includes theories that, unlike the modular view, advocate the interaction and influence of contextual information on meaning selection very early on in the processing of a sentence containing an ambiguous word. More precisely, this theory, also known as the *direct access model*, hypothesizes that context plays a very significant role in sentence processing and that it restricts lexical access at a very early stage, exclusively relying on the contextual compatibility of the word's meanings. However, as Giora points out, the findings of the selective access model can be explained in terms of suppression of the incompatible meanings, or in other words, "the mechanism [...] responsible for decreasing the activation of an inappropriate interpretation *after* that meaning has been activated" (Giora, 2003: 48). In the experiment conducted by Schvaneveldt et al. (1976) two three-word strings were presented, where in the first one 'river-bank-money' the word *bank* was biased toward the "river edge" meaning, while in the second string 'save-bank-money' the context contributed to the

preselection of the "financial institution" meaning. The results of the experiment showed that the different strings presented required different processing times, with the one biased toward "financial institution" requiring the less time. This can be interpreted as a counter argument to the direct access model, since if the results were compatible with the hypothesis, processing times would be equal, considering that the two strings were equally biased toward one meaning or the other. Supporters of the graded salience hypothesis (see below) point out how this discrepancy can be attributed to the different salience of the two meanings of the word *bank*. Longer processing times for the string "river-bank-money" seem to indicate, on the one hand, that the "river edge" meaning is less salient than the "financial institution" one, and, on the other, that when first reading the sentence, the more salient meaning of bank is also accessed only to be further suppressed when the contextually appropriate meaning is selected. Longer processing times could then be accounted for by the more complicated semantic mechanisms involved. A theory taking into account the importance of salience in sentence processing was elaborated by Giora et al. (1997) and will be discussed below.

The *ordered access view* hypothesizes that lexical access is exhaustive but, at the same time, that salience plays a role in the order of selection of the word's meanings. More precisely, the ordered access view purports that the more salient meanings of a word are accessed first and faster than the less salient meanings, without taking into consideration contextual bias. It is worth noting how the results of some eye tracking experiments (Garrod & Terras, 2000) provide evidence that even in the presence of contextual information highly biasing the interpretation toward the less salient meaning of a word, the more salient meaning is also activated. Whether the more salient meaning

is accessed first and then subsequently rejected as contextually inappropriate or whether context increases the chances of activation of the less salient meaning but is not strong enough to override the more salient meaning is still a subject of debate.

The *reordered access view* stresses the importance of both context and salience in the selection of meaning in the case of ambiguous words. The findings of experiments based on this hypothesis show that salient meanings are the ones that are most affected by contextual information when they are actually compatible with the specific context, while the less salient meanings are selected only when contextually compatible. However, the less salient meanings do no reach the level of activation of the more salient ones.

The *graded salience hypothesis*, first introduced by Giora et al. (1997), postulates that the more salient meanings of a word (where salience is based on familiarity, frequency, conventionality, and prototypicality) are accessed faster than the less salient meanings, and that the former also reach "sufficient levels of activation before less salient ones" (Giora, 2003: 11). Another claim of this theory is that contextual information may bias lexical access, sometimes even highly constraining lexical access very early on. However, no matter how strong contextual bias is, it can never prevent more salient meanings from being accessed. Just as the modular view presupposes the existence of different mechanisms that come into play in the comprehension process, the graded salience hypothesis, too, purports the interaction of both bottom-up and top-down mechanisms, that pertain only linguistic information and linguistic and extra-linguistic knowledge respectively. However, the graded salience hypothesis is significantly different from the modular view in its claim that lexical access follows a specific order;
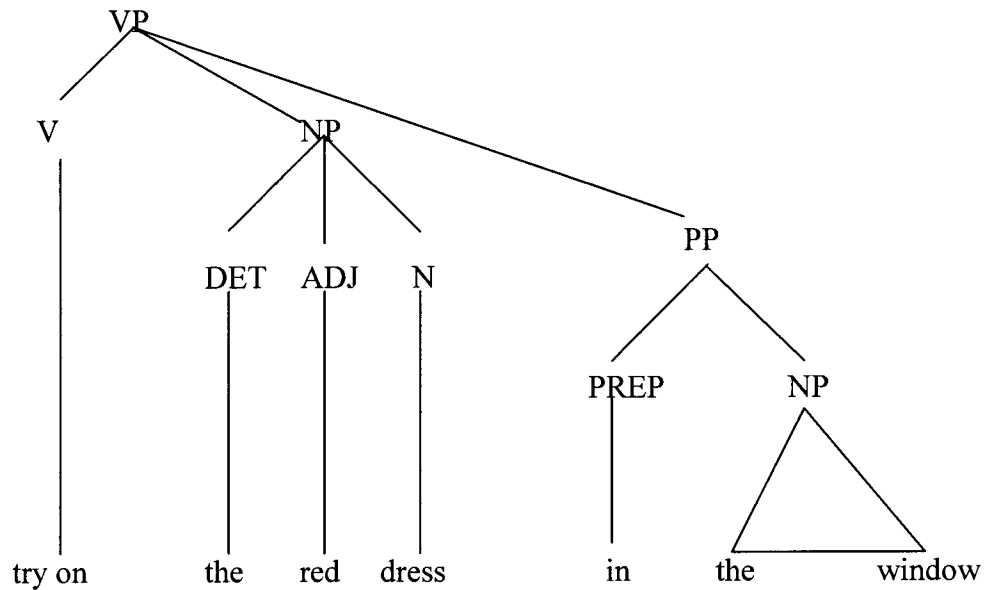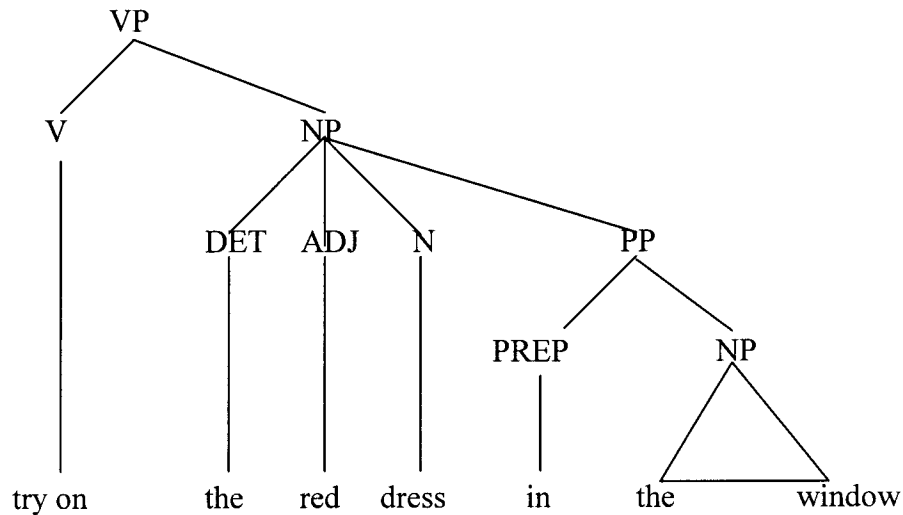
that is, the more salient meanings first organization that has been outlined above, instead of the non-restricted lexical access hypothesized by the exhaustive access model.

2.2 Studies on structural ambiguity

Structural ambiguity includes ambiguities caused by syntactic structures that lend themselves to more than one interpretation, such as phenomena of ambiguous word order, referential ambiguity, and prepositional phrase attachment. Hirst (1987) summarizes the different types of ambiguity in English, grouping them into the two main categories of *attachment problems* and *analytical ambiguities*. Attachment ambiguities include those caused by the multiple possibilities of attachment in a sentence. The most common kind of attachment problem results from the attachment of prepositional phrases that modify, depending on the different interpretations, an immediately preceding noun phrase or a verb. These problems are mainly related to the placement of the modifier. Consider the two possible interpretations of "Can I try on the red dress in the window?" If, on the one hand, the PP "in the window" is interpreted as attached to the NP "the red dress," then the sentence is a perfectly normal request by a customer who wants to try on the dress that she saw in the window. If, on the other hand, we interpret the PP as attached to the verb, then the woman is asking to try on the dress while standing in the store's window. This sentence well exemplifies the possible applications of structural ambiguity for humorous purposes (see section 2.3 below). Fig. 1 below illustrates the two alternative parses for the segment "try the red dress in the window."

Fig. 1: Alternative parses for "try the red dress in the window."


```
                    VP
           V                 NP
                    DET  ADJ   N        PP
                                   PREP      NP
           try on  the  red  dress  in   the      window
```



```
                  VP
         V                NP
                   DET  ADJ   N                 PP
                                          PREP       NP
         try on   the  red  dress        in    the      window
```

Two other examples will further clarify this kind of attachment ambiguity.

(1)   The girl watched the man with the blue binoculars.

(2)   The girl watched the man with the blue umbrella.

In the first example the preposition *with* in the PP "with the binoculars" signals that the binoculars are the instrument with which the girl watches the man and, in this case, the PP is more logically attached to the verb *watch*. In the second example, on the other hand, the preposition *with* more logically indicates an attribute of the man that the girl is watching, and the PP "with the blue umbrella" should then be attached to the immediately preceding NP "the man." It is clear from a comparison of these two examples that the different interpretations are brought about not by the different syntactic structures but merely by lexical constraints on the logic on interpretation. The interaction between lexical and structural ambiguity will be further discussed later on in this section.

Hirst identifies seven other types of attachment ambiguities, which are exemplified below.

(3)   The door near the stairs with the "Members Only" sign had tempted Nadia from the moment she first entered the club.

(4)   The door near the stairs that had the "Members Only" sign had tempted Nadia from the moment she first entered the club.

(5)   He seemed nice to her.

(6)   Ross said that Nadia had taken the cleaning out yesterday.

(7)   Happily, Nadia cleaned up the mess Ross had left.

(8)   Considering his situation likely to go from bad to worse, he decided to offer his resignation.

(9)   Considering the deficiencies of his education, his career had been extraordinary.

(10)   The friends you praise sometimes deserve it.

Sentence (3) illustrates how attachment problems may be caused by the presence of more than one NP to which the PP may be attached (depending on the different interpretations, the sign may be placed on the door or near the stairs). Similarly, in sentences like (4) relative clauses can be attached to more than one NP. Example (5) shows how adjective phrases can also be joints of attachment for PPs. In this case ambiguity is caused by the possibility to attach the PP "to her" either to the verb "seemed" or to the adjective "nice." (6) exemplifies sentences containing subsentences (in this case "that Nadia had taken the cleaning out"), in which places for attachment of PPs or adverbs are provided both by the main sentence and the subsentence. In the category exemplified by sentence (7) the adverbial "happily" can be interpreted as modifying the whole sentence or just the verb. (8) and (9) show how "certain participles may be attached to either the surface subject of the sentence or to the sentence node itself" (1987: 134). In the last example, the adverb *sometimes* is positioned between two clauses and can be interpreted as referred to the verb in the first clause, *praise*, or to the one in the second clause, *deserve*.

The second category of attachment problems identified by Hirst is the one involving gap-finding ambiguities, which includes sentences where more than one attachment node is available for constituents that are returned to their original position after being moved. The following example well illustrates this category:

(11) Those are the boys that the police debated about fighting.

In the relative clause "that the police debated about fighting" two gaps are evident that the relative pronoun might fill. The first occurs after *debated*, while the second one occurs after *fighting*.

The third category introduced by Hirst is the one including analytical ambiguities, or, in other words, ambiguities regarding the nature of a particular constituent in a given sentence. In sentences where more than one ambiguous constituent is present the interpretation of one constituent necessarily influences the interpretation of the second one. This is well illustrated by one of the headlines from the corpus that will be analyzed in chapter 3 (see also BRITISH LEFT WAFFLES ON FAULKLAND ISLANDS).

(12)   TEACHER STRIKES IDLE KIDS

In (12) above, one interpretation implies that the teachers' strike will make or is making kids idle, where *strikes* is the plural noun and *idle* the verb in the third person plural. The second, humorous interpretation has *strikes* and *idle* change from noun to verb and from verb to adjective respectively, with the result that the headline seems to be about a particularly strict teacher who hits lazy students. It is to be noted how one interpretation of the word *strikes* selects only one interpretation of the word *idle*.

As Hirst notices, the English language offers many opportunities for this kind of ambiguity, which implies a shift between word classes. Thirteen subcategories are identified within analytical ambiguity and they include, among the simplest ones, ambiguity between present participle and adjective (cf. NIGERIAN REVOLTING OFFICERS EXECUTED in our corpus), and ambiguity between present participle and noun ("We discussed running" (1987: 140)). The most complex types of analytical ambiguity include

doubts on the exact point where a NP ends, uncertainties on whether the constituent in question is a prepositional phrase or an adjectival phrase (e.g. "I want the music box <u>on the table</u>"), or whether what we are processing is a reduced relative clause or a VP.

Hirst's taxonomy is an expansion if compared with an earlier attempt to categorize syntactic ambiguities in English, the one proposed by Taha (1983). Taha identifies twelve types of syntactic ambiguity:

TYPE 1: Noun (Verb) + Verb (Noun)

TYPE 2: Noun (Modifier) + Noun

TYPE 3: Verb +Ad-Prep + Noun Object

TYPE 4: Noun + Noun + Modifier

TYPE 5: Verb + Verb + Adverbial Modifier

TYPE 6: Verb + Noun + Modifier

TYPE 7: Verb + Adverb + Verb

TYPE 8: Noun + Adverb +Verb

TYPE 9: Noun + Noun + Personal Pronoun

TYPE 10: Modifier + Noun +Conjunction + Noun

TYPE 11: Noun Head + Relative Clause

TYPE 12: Statement + Question Word

In comparing the two taxonomies we can see how Hirst's appears much more detailed and oriented toward a constituent analysis, while Taha's categories describe the relationships among the items within an ambiguous constituent. This might have something to do with the time span between the two taxonomies, and with the more recent findings of psycholinguistics in terms of sentence processing.

As we saw for lexical ambiguity, awareness of structural ambiguities has brought about different theories attempting to account for how these types of ambiguity are

processed by the reader/listener. Current theories in psycholinguistics can be grouped into two main classes: two-stage theories and constraint-based theories. Two-stage theories, also generally referred to as restricted models, were influenced by the modular hypothesis originally proposed by Fodor, which also greatly affected theories on lexical ambiguity resolution (see 2.1 above). The assumption on which these theories are based is that the processor works in two stages. During the first stage, as van Gompel et al. (2000) put it, "potentially useful sources of information are initially ignored in sentence processing" (622). However, these sources of information are used in the second stage of sentence processing. On the other hand, constraint-based theories, or unrestricted accounts (see Pickering et al), similarly to the exhaustive access model mentioned when in the above review of lexical access models, postulate that only one stage is involved in the processing of syntactic structures and that all sources of information are available immediately during this stage. Constraint-based theories also imply that competition occurs among multiple possible analyses of the same ambiguous structure, which the different sources of information activate simultaneously. The following example (quoted in Pickering et al., following Trueswell et al., 1994, and Ferreira & Clifton, 1986) illustrates the difference between these two approaches to the functioning of sentence processing:

(13)   The evidence examined by the lawyer turned out to be unreliable.

The segment "the evidence examined" in (13) above allows for two different follow ups. One possible continuation implies that the verb "examined" is interpreted in the active sense as the past tense of the verb "to examine," while the second compatible solution is

that the verb is a past participle which is part of a reduced relative clause, thus forcing the processor to make a choice between the two plausible interpretations. Upon encountering this sentence, in an unrestricted model the processor has access to information concerning both syntactic features and semantic plausibility. More concretely, the reader/listener would probably note that the interpretation that has "examined" as the main verb is more common than the reduced relative clause solution. However, an analysis of the semantic features of the verb would alert the processor against interpreting "the evidence" as the subject of "examined," since this would imply that "the evidence" is an animate, sentient subject. It is clear how these two constraints, in the form of two different sources of information available to the processor, direct it toward opposite conclusions, thus creating competition among the different possibilities for disambiguation.

On the other hand, if a restricted model were to be assumed in the interpretation of the same sentence, the processor would select and use only one source of information, i.e. the syntactically simplest analysis that has "examined" as the verb in the main clause. This model employs the *minimal attachment* rule, which Frazier (1979) defines as "attach[ing] incoming material into the phrase marker being constructed using the fewest nodes consistent with the well-formedness rules of the language." This is also one of the tenets of the garden path theory, where the processor initially takes into consideration only syntactic information and not semantic plausibility, as a result of which the simplest syntactic solution (minimal attachment) is preferred. As Pickering et al. (2000: 10) note, other restricted models (e.g. Ford et al., 1982) allow for this choice to be made by the processor on the basis of other factors as well, such as frequency of occurrence.

A more detailed analysis of this preliminary distinction between two-stage and constraint-based theories brings about a further classification between parallel and serial models. Similarly to unrestricted models, in parallel models all the possible interpretations of an ambiguous sentence are considered by the processor all at once, in a parallel way which causes competition among the various parsing analyses. When more than one analysis is initially available for disambiguation (e.g. the one having "examined" as the main verb and the one where the verb is part of a relative clause in example 13) but subsequently only one of them results compatible with the continuation of the sentence, then a new analysis is selected based on the information acquired later in the sentence, and the alternative analysis is rejected. However, this view is challenged by the garden path effect caused by sentences such as (13). Two alternative models are then possible, the serial account and the ranked-parallel account.

Similarly to restricted models, in serial accounts only one parsing analysis is initially selected by the processor and if this becomes incompatible with the information acquired later in the sentence then the interpretation is rejected and a new, compatible one is selected through backtracking. On the other hand, ranked-parallel models assume that there is one analysis that is foregrounded on the basis of frequency, plausibility, context-related constraints, or salience, in Giora's view, while all the other possible analyses are in the background, ranked according to criteria similar to the ones just mentioned. If the selected analysis results are incompatible, then the processor changes the ranking order of the possible remaining interpretations. Hence, as Pickering et al. note, "as the sentence progresses, different analyses may become more or less activated on the basis of new information" (2000: 11).

An example of parallel model, where competition occurs among the multiple interpretations that are simultaneously activated, is MacDonald et al.'s (1994) model of parsing mechanism. While most studies stress the distinct nature of lexical and syntactic ambiguity and the completely different nature of the resolution mechanisms applied by the listener/reader in the two cases, MacDonald et al. posit a close interaction between the resolution of lexical and syntactic ambiguity, based on the assumption that syntactic ambiguity resolution can be interpreted as a form of lexical ambiguity resolution. In particular, the authors postulate that "both lexical and syntactic ambiguity are governed by the same types of knowledge as processing mechanisms" (130). Challenging the standard psycholinguistic view of the lexicon as a mental dictionary including for each word information on its semantics, phonology, and orthography, MacDonald et al. hypothesize that lexical representations include not only these three kinds of information but other types as well. Specifically, the lexical representations proposed by the authors also involve information about the word's grammatical features, morphology, argument structure, and syntactic structure. This idea - that the lexical representations of words include syntactic information as well - would thus account for similarities found in the literature across both lexical and syntactic domains, such as the importance of frequency, context constraints, and the modular vs. interactive nature of the processing system.

Once established what the parsing possibilities are for the processor, namely a restricted or unrestricted approach, it remains to be seen how the processor concretely chooses among the various parsing alternatives and what specific mechanisms are involved. When discussing serial approaches to sentence processing, for example, the main premise is that all these models assume that initial parsing is based only on

syntactic information and that information of a semantic nature is temporarily ignored. However, some of these serial models draw different conclusions on how exactly these mechanisms work.

The more recent serial theories on sentence processing have been influenced by what is probably the best known approach among what Pickering et al. (2000) define as strategy-based accounts, the garden path model (Frazier 1979), since it assumes that the parser uses specific strategies in the processing of ambiguity. This theory postulates that two apparently conflicting principles are at work during the first parsing stage of ambiguous sentences, minimal attachment and late closure. As already discussed above, Frazier states that according to the minimal attachment principle the parser attaches new information to the simplest node that is compatible with the "well-formedness" of the language. The late closure principle, on the other hand, states that "when possible, [we] attach incoming material into the clause or phrase currently being parsed." When these two principles are in conflict the minimal attachment principle is preferred. Examples (1) and (2) will illustrate these principles.

    (1)   The girl watched the man with the blue binoculars.

    (2)   The girl watched the man with the blue umbrella.

In (1) above, the minimal attachment principle would predict that the PP "with the binoculars" be attached to a higher degree to the VP "watched" because this involves one fewer node than low attachment to the NP "the man." In (1) this interpretation is plausible, therefore this is the preferred solution. However, in (2), high attachment of the PP to the VP is implausible, so low attachment is preferred following the late closure

principle. It will be clear that the only difference between the two sentences is semantic, since "binoculars" can function as an observation instrument while the word "umbrella" cannot satisfy this semantic feature of the verb. Therefore, as Hirst (1987: 132) notices, "it is only semantic constraints that prevent each sentence from being parsed like the other."

Research based on the assumption that these two principles are at the basis of the parsing of ambiguous sentences (e.g. Rayner, 1983; Clifton et al., 1991; Rayner et al., 1992) seems to agree that sentences like (2) are more complex to process than sentences like (1) after the disambiguating PP was encountered. However, other experimental evidence shows that attachment preferences vary, thus challenging Frazier's conclusions. Van Gompel et al. (2000), for example, suggest that the numerous relative clause attachment experiments, many of which employ eye-tracking techniques, provide evidence against constraint-based theories and the garden path model.

In reviewing studies on relative clause attachment, van Gompel et al. (2000) set out to investigate a seemingly neglected issue in the literature on ambiguity processing, i.e., whether processing difficulty in syntactic ambiguity resolution is caused by competition, supported by constraint-based models, or by reanalysis, hypothesized by two-stage theories. Claiming that previous studies do not allow us to draw significant conclusions about which mechanism is responsible for the perceived processing difficulty, van Gompel et al. review previous research taking into consideration cases in which the two frameworks, reanalysis and competition, make different predictions. This chance is offered by globally ambiguous sentences, i.e. sentences where two or more syntactic interpretations are possible and are activated and kept activated from the

beginning to the end of the parsing process instead of being disambiguated later in the sentence. For an example, compare sentences (1) and (2) used above. In (1), the two syntactic interpretations are simultaneously activated and ambiguity is maintained throughout the sentence. In other words, the reader/listener is unable to tell whether the girl or the man is holding the blue binoculars. This qualifies as an example of global ambiguity. On the other hand, in (2), the local ambiguity activated in the first part of the sentence is subsequently disambiguated in the second part of the sentence by the semantic plausibility constraint. According to competition models, globally ambiguous sentences such as the ones described above should be more difficult to process, since more than one syntactic structure remains activated, thus creating competition. Reanalysis theories, on the other hand, deny that increased difficulty should occur in processing globally ambiguous as opposed to disambiguated sentences, since reanalysis should not happen for the former kind of sentences.

The experiments carried out by these researchers found that total reading times for the critical word (i.e. the word carrying the ambiguity) "were shorter in the ambiguous conditions than both disambiguated conditions" (van Gompel et al., 2000: 633). According to van Gompel et al., the results of Traxler et al.'s (1998) experiments employing both globally ambiguous and disambiguated sentences provide evidence against both competition and reanalysis theories. In fact, while competition would predict that ambiguous sentences would be more difficult to read than the disambiguated conditions, results showed the exact opposite trend. With respect to evidence against the garden-path model, the authors suggest that these conditions are connected to the reading patterns of sentences containing NP1 and NP2 attachments. Based on the late closure

principle, garden-path theories predict that the NP1 attachment conditions would be more difficult to read than the ambiguous and NP2 attachment conditions. However, the results showed that the NP2 attachment condition required longer reading times than the ambiguous condition. This seems to indicate that an initial NP1 attachment might have been adopted and that this was later reinterpreted as an NP2 attachment.

Based on these results and on other evidence that substantiates criticism toward both constraint-based and two-stage models, van Gompel et al. propose a new hybrid model of syntactic ambiguity resolution, the unrestricted race model, which incorporates characteristics of the previous approaches but at the same time differs from them significantly. In the authors' words:

> As in constraint-based theories, there is no restriction on the sources of information that can provide support for the different analyses of an ambiguous structure; hence it is *unrestricted*. In the model, the alternative structures of a syntactic ambiguity are engaged in a race, with the structure that is constructed fastest being adopted. The more sources of information support a syntactic analysis and the stronger this support is, the more likely this analysis will be constructed first.
>
> (2000: 623)

Based on these premises, this model claims that the parsing mechanism for syntactic ambiguity resolution is incremental, i.e., when new information is provided in the form of more lexical items the mechanism checks the consistency of the structure built so far. In the case when this appears to be implausible, reanalysis occurs, and, as a consequence, processing difficulty is added. In other words, "the more often reanalysis is required, the greater processing difficulty for a particular structure should be" (2000: 633). In general, a survey of the literature on syntactic ambiguity resolution mechanisms suggests that, although some evidence exists supporting the minimal attachment hypothesis, the debate

does not seem to be resolved, and alternative resolution models like the one proposed by van Gompel et al.[2] keep gaining credibility.

As discussed above, all restricted accounts theorize that in the first stage of sentence processing syntactic information takes precedence over any other source of information, particularly context-related, semantic information. On the other hand, another theory, known as Referential Theory (Altmann & Steedman, 1988), assumes that contextual information plays an important role in sentence parsing very early in the process. Specifically, Referential Theory claims that immediate disambiguation is provided when the parser chooses one of the many previously constructed parallel analyses on the basis of discourse context instead of information related to the syntactic structure of the sentence. Altmann and Steedman's experiment measuring reading times for the two contextually disambiguated sentences below provide evidence supporting this theory.

(14) a. The burglar blew open the safe with the dynamite and made off with the loot.

b. The burglar blew open the safe with the new lock and made off with the loot.

Discourse context was provided for both sentences, mentioning either one or two safes. If just one safe was mentioned then (14)b took longer to read, since the PP "with the new lock" became redundant and, consequently, more difficult to process. On the other hand, if two safes were mentioned in the disambiguating context, then (14)a took longer to read, since the PP "with the dynamite" failed to distinguish which one of the two safes it refers to. Although some evidence supporting Referential Theory exists from other

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[2] For alternative theories, see also Abney, 1989; Crocker, 1996; Gibson, 1991; Pritchett, 1988, 1992.

sources as well (e.g. Britt, 1994; Britt et al., 1992; Spivey-Knowlton et al., 1993), other experiments (Clifton & Ferreira, 1989; Ferreira & Clifton, 1986; Mitchell et al., 1992; Rayner et al., 1992) failed to replicate the same results as Altmann and Steedman. Whether these discrepancies are to be attributed to weaker discourse context provided in the latter experiments or to mistaken conclusions drawn by the former is still object of debate.

The theories on sentence processing reviewed here so far, and the studies and experiments that seemingly support or negate them, focus on data from just one language, English. A legitimate question, already raised elsewhere in the literature, is then whether the ambiguity resolution mechanisms and sentence processing mechanisms, discussed here can be considered peculiar to the English language. At first, it would seem logical to hypothesize that different languages are indeed processed differently when ambiguous sentences are involved. If one considers the morphological characteristics of the English language that allow for ambiguity - such as lack of inflectional morphemes other than for the third person singular, and sometimes of specific morphemes signaling the difference between a noun and a verb (see "talks" in BASEBALL TALKS IN 9TH INNING from the corpus), between the past form of a verb and its past participle, or between masculine and feminine adjectives - one cannot help noticing that other languages, such as Romance languages, do not allow for such ambiguities. Generally speaking, for example, a phrase like "the good friend," which is gender neutral in English and might thus lend itself to all sorts of referential ambiguities in a given text, would necessarily have to be disambiguated either as "la buona amica" or "il buon amico" in Italian, thus making

ambiguity more difficult to sustain. By the same token, intuitively, these signals might trigger different processing mechanisms within a sentence[3].

Despite the relative paucity of studies on this subject, some results are indeed available, especially for Italian and French, regarding NP attachment preferences. As Pickering et al. (2000) note, most published studies on cross-linguistic processing differences focus on an analysis of complex noun phrase constructions, since these are present in more than one language. In particular, evidence from studies on relative clause (RC) attachment preferences seems to prove that a preference exists in Spanish and other languages "to interpret a RC as modifying the first noun in "NP of NP" [high attachment] constructions" (20). However, opposite evidence is provided by Frenck-Mestre & Pynte's (2000a) eye-tracking experiments on attachment preferences for N1-of-N2-Relative clause constructions in French. The focus of two of the three experiments reported by these authors were short relative clauses of the kind present in (15) below, where the relative pronoun is followed by an intransitive verb.

(15) "Il connait la(les) frere(s) de la (des) fille(s) qui entre(nt)." (He knows the brother(s) of the girl(s) who is (are) entering).

The results of the eye-tracking experiments showed a clear preference for low attachment.

For other languages, such as English or Italian (Carreiras & Clifton, 1993; De Vincenzi & Job, 1995), however, studies do not seem to provide clear evidence for a definite preference for either high or low attachment. In particular, a recent study by Frenck-Mestre and Pynte (2000b) provides evidence against previous research (De

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[3] For implications in terms anaphor resolution in Italian see Cacciari et al., 1997.

Vincenzi & Job, 1995) showing that Italians display a systematic preference for low RC attachment. Although the materials and the procedure were exactly the same as those used in the De Vincenzi and Job's test, the results of this eye-tracking experiment were significantly different, showing no clear N2 attachment preference for sentences such as (16) and (17) below.

(16)   Gianni osserva / il ragioniere de Caterina / che sembra più / pensieroso(a) / del normale.

(17)   Patrizia conosceva / la segretaria del direttore / che era / svenuto(a) / alla festa.

As the authors note in commenting on the discrepancies of the results:

> No single, syntactic strategy is apparently able to account for the entirety of data already accumulated for this particular structure, [...]. This does not detract from the hypothesis that linguistically universal processes may be at play. Simply, [...] they need not be syntactic in the present case.
>
> (2000b: 563)

As the contradicting results discussed above make clear, for the time being only speculations appear to be possible in the field of cross-linguistic syntactic processing theories, especially with regard to ambiguous sentences. However, this particular aspect has just started to be investigated and further research might shed light on cross-linguistic similarities or differences in the processing of ambiguity (cf. chapter 4).

2.3 Ambiguity in humor studies

As discussed above, specific research on ambiguity in the field of humor studies is much less abundant than in the context of other disciplines, such as psycholinguistics and cognitive linguistics. The lack of studies on ambiguity related to humor might be

seen as a side effect of the fact that in the past attention has been paid almost exclusively to an analysis of the cognitive mechanisms that pertain to ambiguity resolution, and it was not until a few years ago that researchers have started to focus on the mechanisms that actually originate ambiguity. This recent shift is evident when reading Kess and Hoppe's 1981 *Ambiguity In Psycholinguistics*, where the chapter entitled "Production of Ambiguity" is literally only ten lines long. In this paragraph the authors underline the fact that virtually no research was being carried out at the time on the mechanisms underlying the production of ambiguity. Incidentally, humor is not even mentioned as one of the possible purposes of the use of ambiguity mechanisms, while advertising and ethnographic studies are instead taken into consideration as possible applications.

Attention to the applications of ambiguity in the field of humor studies was in part brought about by increased interest in ambiguity related phenomena on the part of linguists. Some of these studies have been reviewed above, but it is worth reminding the reader of the most important ones, in order to illustrate their clear connection with other disciplines and, at the same time, their independent nature. Among the first attempts at offering a complete taxonomy of the types of syntactic ambiguity in English are the works of Stageberg (e.g. Stageberg, 1970, 1971, and references therein). Stageberg distinguishes between lexical ambiguity, syntactic ambiguity (i.e., attachment ambiguity), class ambiguity (defined below), and script ambiguity (i.e., ambiguities that are resolved by intonation, and hence exist only in writing). Taha (1983) follows Stageberg and claims that "structural or syntactic ambiguity results from using carelessly constructed sentences which lack formal signals to clarify their sentence structure" (251), and proposes a twelve-category classification that attempts to account for types of syntactic ambiguity in

both written and oral contexts. However, the taxonomy does not attempt to be comprehensive and Taha signals the existence of types of ambiguity that cannot be explained by the twelve categories.

Although the connection between ambiguity and humor is widely recognized in the literature, specific studies that examine the linguistic mechanisms of ambiguity as a source of humor are less numerous. One of the first approaches in this direction is due to Pepicello and Green's (1984) study on the language of riddles, in which linguistic ambiguity and the grammatical strategies used to create it are looked at, with the support of numerous riddles and jokes from different traditions, as one of the peculiarities of this genre. By the authors' own admission a blend of folklore and linguistic theory, the volume offers new perspectives on both the functions carried out by riddles and the linguistic and grammatical structures that enable their creation. Perhaps the portion of the book most relevant here is the chapter dedicated to the grammatical structures enabling the creation of riddles, where the authors "explore the exploitation of morphology and syntax in producing wit in riddles" (1984: 37). The authors take into consideration two different types of linguistic manipulation that underlie the creation of riddles, morphological and syntactic, even though it appears that they consider morphological manipulation as the most important and frequent of the two. The first type of morphological manipulation is achieved by means of "a play with the homophony of two morphologically different constructions" (1984: 37). Examples like (18) and (19) below are included in this category:

(18)   What's black and white and red all over? *Newspaper.*

(19)   Why is coffee like the soil? *It is ground.*

In the first riddle, the homophony concerns the word *red* (/rɛd/), which can be interpreted by the listener either as the color red or as the past participle of the verb "to read." It is clear then how the phonological ambiguity concerns a play with morphological forms, i.e., an adjective for the first interpretation and a past participle for the second one. Similarly, in example (19) the homophony is exploited between the noun ground and the past participle of the verb "to grind," which happen to be pronounced the same way (/grawnd/).

Other riddles categorized as morphologically ambiguous present an "arbitrary division of words into their morphemes and the use of these morphemes as independent lexical items" (1984: 40). The following example will illustrate this point:

(20)   What kind of bow can you never tie? *A rainbow*.

As can be seen in (20) the two component morphemes of the word *rainbow* are treated as free lexical items, so that *–bow* is considered a word in itself. For both cases of morphological ambiguity the authors note that the riddles, and, as a consequence, the ambiguity that they contain, depend for their success on oral transmission, since their efficacy would be considerably reduced in the written medium.

The second category of grammatical manipulation analyzed by Pepicello and Green is the one involving syntactically ambiguous riddles. These are in turn presented according to three different categories: those presenting phrase structure ambiguity, those in which transformational ambiguity comes into play, and, finally, riddles in which a syntactic construction is homophonous with a morphological construction. The first category of riddles includes examples such as (21) below.

(21) Why is a goose like an icicle? *Both grow down.*

The phrase "grow down" is obviously ambiguous since it offers two possible interpretations that have different underlying structures. The first implies that the word "down" is an adverb, while the second one implies that it is a noun. The second category of syntactically ambiguous riddles, the one characterized by transformational ambiguity, involves examples where to the same surface structure correspond different underlying structures as a result of transformational processes. These, in turn, include deletion transformations and rearrangement transformations (caused by transformations such as passivization, question formation, etc.). An example is given for each one below:

(22) What do you call a man that marries another man? *Minister.*

(23) What it is you will break if you even name it? *Silence.*

It is to be noted how in (23) ambiguity is created by a movement transformation involving an idiom. With a process similar to the one seen for morphological ambiguity, each element of the idiom is treated as a free item that can be moved around in the sentence. This strategy creates ambiguity that confuses the riddlee.

The last type of syntactically ambiguous riddles identified by Pepicello and Green is illustrated in (24).

(24) What flowers does a person always carry? *Tulips (two lips).*

In the riddle above, the morphological construction noun (*tulip*) + plural morpheme (/-s/) is homophonous with the construction determiner + noun (*two lips*). In these cases as well, the authors note, phonological factors, such as stress and juncture, play an important role.

Aside from offering a systematic classification of the morphological and syntactic strategies exploited by riddles to create ambiguity, Pepicello and Green's book has the additional merit of providing the reader with some evidence from languages other than English. For example, in a postscript to the volume, the authors attempt to compare their data from English with a corpus of approximately three hundred Spanish riddles, with the aim of finding differences or similarities between the patterns observed in English. The results suggest that Spanish riddles use a variety of grammatical strategies and that they closely parallel those employed in their English counterparts. Even though this part of the study takes into consideration only riddles in Spanish, and therefore cannot be considered generalized to strategies used for ambiguity in jokes, it may still be considered an important contribution to the cross-linguistic study of ambiguity related phenomena.

A thorough survey of the linguistic theories of humor from the Greeks to recent research is offered by Attardo (1994). Although the volume's focus is not on ambiguity *per se* but, more generally, on the literature relative to humor studies, the survey offered by Attardo cannot avoid mentioning ambiguity, since, together with the disambiguation process, it is a central notion in the discussion of humor and humor theories. Especially relevant to the subject here is the discussion of puns and the linguistic mechanisms that are involved in their disambiguation, since, as the author notes, "ambiguity *per se* should be seen as an enabling, or necessary, feature rather than a sufficient condition for puns"

(1994: 133). More specifically, in part following previous literature on the topic (cf. Pepicello & Green, already reviewed in this chapter, and Nash 1985 for an alternative classification of puns), Attardo notes that "puns involve arbitrarily large segments of utterances, and not just 'words'" (1994: 132). The observation is referred to puns employing the strategy of homophony for ambiguity.

Attardo identifies some of the main difficulties that underlie the analysis of puns. One of the most interesting and crucial ones involves the fundamental difference between simply ambiguous words (any word can be vague or ambiguous if found out of context) and puns. As the author states "the first element of explanation between ambiguity and puns is that the two senses involved in a pun cannot be random, but have to be 'opposed' (i.e., semantically incompatible in context)" (1994: 133). This observation was first formalized in another theory of humor, the Semantic Script Theory of Humor (SSTH), which was first proposed by Raskin (1979) and whose assumptions were then developed by Attardo (1994) in the General Theory of Verbal Humor (GTHV). Raskin's SSTH purports that two conditions have to be satisfied in order for a text to "be characterized as a single-joke-carrying text" (Raskin, 1985: 99). The first condition implies that the text is compatible, fully or in part, with two different scripts and the second one that these scripts are opposite, where *script* is defined as "an organized chunk of information about something" (Attardo, 1994: 198). It is hypothesized that many jokes contain an element that triggers the switch from one script to the opposite one. The notion of ambiguity is also particularly significant in this theory since Raskin theorizes that this semantic script-switch can be triggered by either ambiguity or contradiction. The types of ambiguity that Raskin analyzes are regular ambiguity, figurative ambiguity, syntactic ambiguity,

situational ambiguity, and, finally, quasi ambiguity, which is based on "purely phonetic

and not semantical relationships between words" (1985: 116). The following are some of

the jokes exemplifying each category:

    (25)   "Who was that gentleman I saw you with last night?" "That was no gentleman. That was a senator." (Esar, 1952: 177)

    (26)   The Archdeacon has got back from London, and confides to his friend the doctor, "Like Saint Peter, I toiled all night. Let us hope that like Saint Peter I caught nothing." (Lengman, 1975: 308)

    (27)   Common aspirin cures my headaches if I follow the directions on the bottle - Keep Away from Children.
               (Kaufman & Blakeley, 1980: 51)

    (28)   "My wife used to play the violin a lot but after we had kids she has not had much time for that." "Children are a comfort, aren't they?"
               (Pocheptzov, 1974: 90, quoted in Raskin, 1985)

    (29)   "He used such nautical terms." "Yes, sailors always talk dirty."
               (Esar, 1952: 25)

      Another relevant section of Attardo's book concerns the linear organization of the

joke, and, specifically the part dedicated to the explication of the Isotopy –Disjunction

Model. The model was derived from Greimas' (1966) original intuition about humor,

hypothesizing that 1) "jokes are composed of two "parts" and 2) jokes contain an

opposition or a variation of an isotopy [sense], and at the same time, a "camouflage" of

the opposition, performed by the connecting term" (Greimas, 1966: 70). A first sense (S_1)

is activated and is retained until it no longer makes sense because of the presence of an

element that creates disruption. At this point, which is defined as the 'disjunctor,'

reinterpretation of S_1 occurs, which usually results in the opposite sense S_2. A more

detailed analysis of the assumptions of this model and the subsequent expansions which it originated would take us too far afield[4]. However, the model will be briefly reviewed in chapter 3, when the connection with the present study will have become clearer.

From an equally theoretical perspective, Giora (2003) reviews the psycholinguistic literature on the processing of jokes, irony, and numerous related phenomena. After briefly reviewing the literature on the various theories on the processing of jokes (Attardo, 1994, 1996, 2000, 2001; Coulson & Kutas, 1998, 2001; Curcó, 1995, 1998; De Palma & Weiner, 1990) Giora demonstrates the application of the salience hypothesis to jokes, claiming the paramount importance that salience plays in the processing of humorous texts. In particular, she hypothesizes that most jokes lead us to process the most salient meaning of a word first in order to then take us by surprise when we find out that that meaning is contextually incompatible and it is really the less salient meaning to be the compatible one. Thus the need is felt for a revisitation of the first activated meaning.

Giora's theory seems to be supported by evidence from Coulson and Kutas, where a comparison of reading times for jokes were longer than for nonjokes, since, it is hypothesized, jokes require a reinterpretation process that is not needed for nonjoke texts. The activation of the second, initially neglected meaning at the disjunctor position also has another implication, i.e., that the first meaning is suppressed when reinterpretation occurs. This is a crucial process that is believed to be essential for the joke to be comprehended. This theory is known as the suppression hypothesis. This hypothesis is compatible with the retention hypothesis put forward by Giora, according to which meanings are retained as long as they help comprehension, only to be subsequently

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[4] See Attardo (1994) and references therein.

discarded if they preclude comprehension. Moreover, if the predictions of the graded salience hypothesis are to be followed, we should expect that the more salient a meaning, the more difficult it is to suppress. This prediction seems to be confirmed by Coulson and Kutas's study, in which, reading times for a number of low-constraint sentences (or, in Giora's terminology, sentences containing a less salient meaning), exemplified in (30), and high-constraint (i.e. sentences containing a more salient meaning) sentences, exemplified in (31) below, were compared.

> (30)   Statistics indicate that Americans spend eighty million a year on games of chance, mostly (weddings/dice/gambling).

> (31)   I decided to start saving for rainy day so I went to a savings and loan and deposited my (umbrella/paycheck/money).

The results of this study showed longer reading times for high-constraint sentences, thus suggesting that suppression occurred and is a time-consuming procedure. It should be noted, however, that the authors of the study conclude that the results are due to frame-shifting, and, hence, consistent with the hypothesis that joke comprehension involves a change in the mapping of "elements of a given message-level representation [...] onto a new frame" (Giora, 2003: 8). Another interesting implication of the suppression hypothesis is that this process is what differentiates texts like jokes from texts presenting phenomena like irony[5] and metaphors, which Giora analyzed in previous chapters. As the author notes,

> while understanding irony and methaphor involves retention of salient, though contextually incompatible meanings [...], joke interpretation does not. Unlike

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[5] On the subject of irony, most literature on humor treats irony extensively as part of the phenomena related to ambiguity in the broadest sense. However, this particular aspect of humor appears to be outside the scope of this thesis and the author therefore chose to direct the reader to the more detailed treating of the subject offered, for example, in Giora 2003, Attardo 2000, and references therein.

irony and metaphor, which often utilize these salient meanings in the processes of their interpretation, such meanings are not instrumental in the comprehension of many jokes and may even get in the way.

(2003: 9)

A new, more concrete approach to the study of ambiguity in jokes, and, specifically, an analysis of their structural ambiguity is offered by Oaks (1994), who approaches ambiguity not in terms of ways to avoid it, but, rather, as an important device in fields such as humor and advertising. As we discussed above, the same perspective was in part adopted by Pepicello and Green, who dissected the linguistic strategies that underlie the efficacy of riddles. However, Oaks's study elaborates on this view and applies it to jokes in general, thus completely reversing the perspective offered by previous research. After clearly stating that the aim of the article is that of analyzing the mechanisms of ambiguity not for the purpose of avoiding it but for that of creating it in fields such as advertising and humor, Oaks restricts the scope of the article to the particular type of syntactic ambiguity defined by Stageberg as "class ambiguities," i.e., those caused by confusion between parts of speech. The word *bite*,[6] which may be a verb or a noun, is illustrative of this kind of ambiguity. First, Oaks identifies a few obstacles in the creation of class ambiguity that are built into the language, such as the agreement rules among the different parts of speech, grammatical redundancies, articles, etc., which constitute the protecting mechanisms of the language against ambiguity but, that, however, from the point of view of someone whose specific aim is to create ambiguity, are only impediments. Second, using examples from jokes, riddles and popular humor, the author goes on to identify a series of ambiguity enablers involving the use of articles,

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[6] See the headline SQUAD HELPS DOG BITE VICTIM in the Appendix.

verbs, conjunctions, and other expressions that contribute to the creation of humor based on class ambiguity. Oaks first takes into consideration enablers affecting articles. In commenting on the effects related to plural and non-count nouns, attention is drawn to the fact that in English the lack of indefinite articles in front of plural nouns facilitates confusion between classes of speech. In the famous example "British Left Waffles On Faulkland Islands" (Lederer, 1987: 92) *waffles* can be either a plural noun or a verb in the third person singular. Depending on which interpretation is selected by the reader, the word *left* will be interpreted either as a verb or a noun. Another effect of the lack of articles is confusion about the location of constituent boundaries, as in (32) quoted in Stageberg (1971: 360):

(32)   Only a few high schools have carefully developed programs.

It is evident how the absence of an article in front of *developed* makes it unclear whether the word should be interpreted as an adjective or a past participle, thus creating confusion on where exactly VP and NP end.

Coordinating conjunctions, particularly *and* and *or*, are another type of ambiguity enabler. They can join together either noun phrases ("dogs and cats") or verb phrases ("sang and danced") and they "may optionally omit a grammatical item in a constituent following the coordinating conjunction if that item is found in a constituent preceding the coordinating conjunction" (1994: 384). This allows them to create ambiguity in sentences like (33), where the humorous interpretation of the punch line plays on the confusion in the coordinating strategy adopted.

(33)   How was the blind carpenter able to see?
         He picked up his hammer and saw.
         (Rosenbloom, 1976: 61)

Oaks also notes that ambiguity maybe be present when the phrase *a little* is used, like in (34), since the phrase can be followed by either a noun or an adjective. In the first case the NP "a little horse" in (34) appears as a DET + MOD + NOUN sequence, while in the second case the same NP is perceived as presenting the structure ADV + ADJ. It is to be noted how another factor playing a role in the joke is the homophony between the noun *horse* and the adjective *hoarse*.

(34)   Question: Why couldn't the pony talk?
         Answer: He was a little horse.

As far as enablers affecting verb forms are concerned, Oaks notes how these include phenomena involving causative and perception verbs (such as *make* and *see*), modals, tense shifting, and avoidance of subject position. Examples are offered below for each of these category.

(35)   Why did the window pane blush?
         It saw the weather-strip.
         (Rosenbloom, 1976: 23)

(36)   Flying planes can be dangerous.
         (Chomsky, 1965: 21)

(37)   Biting insects in our yard caused diseases. What did we do wrong?
         You shouldn't have bitten them.
         (Modified from Esar, 1946: 165)

(38)   Did you hear about the movie star who was obsessed with admiring fans?
         His psychiatrist told him to stop admiring them.

It is interesting to notice that Oaks considers the ambiguity in (36) to be enabled by the grammatical features of the modal (*can* in this case), in which the absence of an inflectional ending allows the double interpretation. In other words, the ultimate source of ambiguity in the joke is not seen in the two identical forms of the present participle of the verb *to fly* and the adjective *flying* but later on in the sentence, when the verb *can* is processed.

Attardo et al. (1994) also analyzed the strategies used to create ambiguity-based humor in their study of a corpus of 2000 jokes. The results of the study stressed the predominance of referential jokes over other types of jokes (mainly verbal and alliterative). Among verbal jokes, only 5.2 percent were found to be based on syntactic ambiguity, while lexical ambiguity was found in 92.5 percent of the cases. The interest of this datum for the present study has already been anticipated and will be stressed again in chapter 3 together with a more detailed review of the results.

This section would not be complete without mention of the main linguistic characteristics present in newspaper headline writing, since these appear to be in some cases responsible for the creation of ambiguity in the corpus analyzed. Therefore, before proceeding with the classification of headlines to be found in chapter 3, the following section offers a brief, but not exhaustive, review of the literature on this particular subject.

2.4 Studies on newspaper headline writing

Despite the existence of numerous studies on the language of newspaper headlines (e.g., Bell, 1991; Fowler, 1991; Reah, 1998; Dor, 2003), humor in this particular register has not been the focus of much research. In order to understand the way ambiguity, and possibly humor, is created in headlines, it will be appropriate to look at some of the linguistic characteristics of headline writing. As Bell (1991) and Reah (1998) both notice, the language of headlines makes use of linguistic and stylistic devices that are specific of this genre and that are imposed by the constraints and functions of newspaper writing in general. In particular, the main causes for the linguistic characteristics of headlines are the need to attract the readers' attention and the space constraints of a newspaper. A predominant feature of headline writing is the use of loaded words or expressions, which carry particularly strong connotations, and hence attract attention. As a consequence, headlines are very "rich" on a lexical level, including, for example, slang or colloquial terms instead of their unmarked equivalents. The headlines' space constraints cause syntax to be reduced and contracted, with lexical words conveying the meaning and most grammatical words, such as determiners, conjunctions, and verbs (especially copulas, auxiliaries, and other modals) omitted. Indeed, ellipsis is one of the most common phenomena in headline writing (Jenkins, 1987; Bell, 1991; Reah, 1998). This characteristic in turn leads to the massive use of "stacked nouns" (Jenkins, 1987: 349), such as "train sex man fined," and of left modification. It is easy to see how these phenomena, and especially the lack of what Stageberg calls "grammatical signals" and Taha's "formal signals" (1983: 251), such as determiners that would disambiguate the meaning, can cause confusion between

grammatical classes, or, in other words, can result in structural ambiguity. It is worth noting that structural ambiguity in English is also facilitated by the morphological characteristics of the language, where a noun often has the same form of a verb, or vice versa, or the past tense and the past participle of a verb often coincide (cf. Oaks, 1994). Examples of this kind of ambiguity in the corpus will be given in the section dedicated to structural ambiguity.

Finally, a specific study on the use of humor in newspaper headlines is offered by Alexander (1997) as a chapter in his book dedicated to aspects of verbal humor in English. The chapter takes into consideration the well known practice of punning in newspaper headlines, not only as a way of engaging the readers and attracting their attention, but also as a well-established tradition in British and other newspapers, which could be seen as an attempt to establish an intellectual connection with the most well-read readers. The kind of humor present in the headlines that Alexander analyzes is therefore completely intentional. Also, Alexander notes that though particularly enjoyable for the native speaker of English, many of these headlines may present significant difficulties even for advanced students of the language. The author analyzed headlines from four issues of the British newspaper *The Economist* and identified three types of "foregrounding devices": puns, allusions, and metaphors, with the addition of phonological devices such as alliteration, rhyme, and assonance. The first category includes puns originating in homonymy, near homophony, phonological similarity or allusion, polysemy, and semantic allusion to idioms and metaphors. An example is provided below for each of these subcategories (1997: 97-98).

(39)   The West Midlands show their metal
          (an article on positive responses to decline of industry)
          (Cf. *showing one's mettle*)

(40)   Pouring Goldwater on the MX
          (referring to the views of the US senator)
          (Cf. *pour cold water* on a proposal)

(41)   Ready for sell off
          (British Airways proposed privatization)

(42)   Monkey business
          (on animal experimenting in laboratories)

(43)   Up and down on the farm
          (blending of *down on the farm* and *up and down*)

As far as allusions are concerned, Alexander identifies allusions to sayings (44), quotations (45), and titles of books (46):

(44)   All split up and nowhere to go
          (said of Palestinians)

(45)   Capitol Hill goes to Harvard

(46)   Who's afraid of the big bad receiver?
          (the National Union of Mineworkers)

One of the most interesting use of metaphors and idioms identified by the author in the corpus is their conscious 'literalization,' i.e. the free use of the individual lexical and morphological items that compose the idiom (see also Pepicello & Green, 1984: 40-41). An example is to be found in (47).

(47)   Tough cookies don't crumble
          (return to work of miners)

Following a mainly pedagogical orientation, the author concludes that focusing on the analysis of punning based on the above characteristics in newspaper headlines might help advanced students of the English language to become aware of some of the main strategies involved, and, as consequence, to be more effective readers.

The aim of this chapter has been to provide the reader with enough background information on the existing literature on ambiguity and with the different approaches to this matter offered by different disciplines, such as psycholinguistics, cognitive psychology, and linguistics. After reviewing the main theories on the processing of ambiguous information in sentences, both in terms of lexical and syntactic ambiguity, I examined several specific studies on ambiguity in humor. Although not numerous, these analyses, some presenting a more theoretical, cognitive orientation than others, help to shed light on the issues that come into play when approaching the subject of ambiguity in the field of humor studies. The following chapter presents the results of a case study on ambiguity in newspaper headlines as a source of humor. The analysis, although based on theoretical assumptions, falls into the category of the more practical studies on ambiguity in humor and is aimed, on the one hand, at offering a new contribution to the study of ambiguity as a source of involuntary humor, and, on the other hand, at applying the findings of previous research to a genre, that of newspaper headlines, which is not often considered as conducive to ambiguity and humor.

Chapter 3 – Discussion

3.1 The corpus

Newspaper headlines are an interesting phenomenon to research, given the linguistic features that can be observed in this register. Indeed, some of the ambiguities that will be studied originate in the peculiarities of the register of headlines, especially its elliptical nature. Features of the newspaper headline register can range from the deliberate use of rhetoric devices, such as alliteration and rhyme, to the creation of sensational phrases to attract the readers' attention (Reah, 1998). Headlines may feature specific strategies used to create humor, such as the use of puns and intertextuality both by means of quotations and culture-specific references. However, within the area of humorous headlines, this paper will focus on the more restricted number of headlines, which readers perceive as funny because of the possibility to interpret them in more than one way. Although it is virtually impossible to distinguish between headlines presenting voluntary and involuntary humor, it is worth noticing that most headlines here appear as involuntarily ambiguous, with one meaning originally intended by the authors and the other humorous meaning added by an unfortunate phrasing of that particular piece of information. No theoretical significance is attached to the original intention (or lack thereof) to produce an ambiguous headline; in other words, whether the writer intended the headline to be funny or it just happened to be that way is irrelevant to the linguistic analysis (on the significance of intentionality for humor, see Attardo, 2003).

The linguistic phenomena that contribute to create this kind of semantic confusion will be analyzed and divided, as is customary, into the three main categories of ambiguity:

- Lexical

- Syntactic

- Phonological

The first category includes headlines that become ambiguous because of the double meaning of a lexical item present in the headline, which will be further divided into noun, verb, and preposition ambiguity. The category of syntactic ambiguity, which will be further subdivided into class ambiguity and other types of ambiguity, considers the semantic shifts created by confusion between grammatical categories on the one hand, and, for example, phrasal attachment and elliptic phenomena on the other. Within the category of syntactic ambiguity, attention will be also dedicated to the fewer examples of referential ambiguity. The only example of phonological ambiguity will be dealt with separately in the last section.

The corpus of headlines consists of 135 newspaper headlines found on Internet web sites containing jokes and other humorous bits of information. These web pages identify the headlines as "real" or "genuine," but few of them give actual sources. The web sites were found through Internet searches in a search engine for "funny headlines" or "humorous headlines." The search results produced a very broad selection of headlines that are considered funny for a number of different reasons, without distinguishing between humor derived from linguistic ambiguity and humor linked to the content of the

headlines. Among the latter, for example, are to be found headlines that strike the reader for their lack of newsworthiness (e.g. "Alcohol ads promote drinking"), their poor wording (e.g. "Economist uses theory to explain economy"), or even the editing inaccuracies they contain (e.g. "Governor's penis busy" instead of "Governor's pen is busy"). Therefore, I distinguished between headlines containing linguistic ambiguity and those that simply report funny or incredible stories. This corresponds to the verbal vs. referential humor distinction, common in humor research (see Attardo 1994). No further headlines were excluded on other criteria from the corpus. An interesting issue (Oaks, personal communication), is whether a corpus of headlines collected under controlled circumstances (i.e., from sources that provide verifiable references) would yield the same results. The present paper cannot address this issue, which is left for further research.

The analysis of headlines collected on web sites is complicated by the absence of the context in which the headlines originally appeared, which could have provided useful information for their semantic disambiguation. When necessary, native speakers of English were used to ascertain the presence of ambiguity in the headlines and to provide the necessary linguistic information to make sense of otherwise obscure headlines. The headlines in the corpus were then divided into the categories already mentioned and will be examined in detail below. The sources and web sites used for the research are listed in reference section.

3.2 Classification of headlines

As already mentioned, the headlines were subdivided into two main categories on the basis of Attardo's and Oaks's classifications: lexical and syntactic ambiguity.[7] The latter was further divided into class ambiguity and a miscellaneous class of ambiguities, including attachment ambiguity, referential ambiguity, and ellipsis ambiguity (see below, the section on syntactic ambiguity). On a total of 135 headlines, the majority was found to be ambiguous on a lexical level (52.59 percent), while the rest (46.66 percent) presented some sort of syntactic ambiguity, of which 25.18 percent caused by class ambiguity and 21.48 percent by other types of syntactic ambiguity.

Table 1. *Classification of headlines*

Lexical ambiguity	Syntactic ambiguity		Phonological ambiguity
	Structural	Other types	
71 52.59%	34 25.18%	30 21.48 %	1 0.7%

These results appear significant if compared with a previous study by Attardo et al. (1994) focusing on an analysis of types of ambiguity in a corpus of 2000 jokes. The study focused on a corpus of written jokes from four different collections, which were categorized as presenting some kind of referential or verbal ambiguity. Verbally ambiguous jokes were then subdivided according to the three different categories of lexical, syntactic, and alliterative jokes. The study found a preponderance of lexical jokes

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[7] It should be noted, in passing, that Stageberg (1970) noted that the classification is not "watertight." This issue is addressed below.

(92.5 percent) over syntactic (5.2 percent) and alliterative jokes (2.2 percent). The considerable difference between the syntactic ambiguity found in the corpus of jokes and in the present study on headlines will immediately be clear from Table 2, which compares only the categories of lexical and syntactic ambiguity (since the third category of alliterative jokes does not apply to this corpus).

Table 2. *Types of ambiguity in Attardo et al.'s corpus of jokes and in the present corpus of headlines*

GENRE	LEXICAL	SYNTACTIC
Jokes	96%	5%
Headlines	56%	44%

The difference between the two results regarding syntactic ambiguity could be attributed to differences in the genre between jokes and newspaper headlines. Attardo et al.'s observation that syntactic ambiguity is rarer because it seems to be more difficult to process appears then to be applicable primarily to voluntary humor, that is, those genres of humor that are specifically designed to be funny, such as jokes.[8] Since presumably most headlines in this corpus are examples of involuntary humor, the frequency of syntactic ambiguity seems to be higher in this latter case that in voluntary humor.

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[8] The argument in the text obviously applies only to the production of humor based on syntactic ambiguity, which, if indeed involuntary, would require no processing whatsoever; be that as it may, the recognition side of structural ambiguities remains harder than the recognition of other types of ambiguity. Needless to say, it is assumed that these examples are really involuntary humorous headlines. If this assumption is not granted, then the argument in the text loses all its force.

The following sections explains the classification of the headlines in further detail, providing examples from the corpus that illustrate the findings.

3.2.1 Lexical ambiguity

Oaks defines lexical ambiguity as conveyed by "a word with more than one possible meaning in a context" (1994: 378). In particular, the lexical ambiguity that Oaks illustrates is a same-class ambiguity in which, unlike in structural ambiguity, the lexical item does not change part of speech.[9] For the purposes of this paper, although lexical ambiguity obviously plays a part in syntactic ambiguity as well, "lexical ambiguity" should be taken to mean same-class lexical ambiguity.

The lexical ambiguity category includes 71 headlines, which is more than half of the examples in the corpus. Same-class lexical ambiguity in the corpus was found in different parts of speech, namely nouns, verbs, and prepositions. Each of the three subcategories will be discussed below.

Nouns

Lexical ambiguity relying on nouns can be found in 38 headlines in the corpus; in most of them humor is created by homonymy.

(1) MEN RECOMMEND MORE CLUBS FOR WIVES

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[9] Cf. the following example, quoted by Oaks (1994):

> Why was Cinderella thrown off the baseball team?
> Because she ran away from the ball. (Rosenbloom, 1976: 191)

where ambiguity is created by the homonymy of the word *ball*. However, the two interpretations of *ball* belong to the same class of parts of speech, that of nouns, and thus do not involve a restructuring of the syntax of the sentence.

In (1), for example, the noun can be interpreted in more than one way. The polysemy of the noun *club*, meaning both "an association of persons for some common object" (Merriam-Webster OnLine), and "a heavy staff especially of wood [...] wielded with the hand as a striking weapon" (Merriam-Webster OnLine), triggers the humorous response to a male recommendation that wives should be beaten (for another joke based on the ambiguity of the noun "club," cf. Attardo, 1994: 97).

In (2) below we can see an example of the contextual ambiguity of the word "suit," where the piece of information reporting a trial, possibly involving controversies over a horse, can be interpreted as a piece of news about a doctor unusually dressed as a horse.

(2) DOCTOR TESTIFIES IN HORSE SUIT

Note how the lack of contextual signals, dictated by the elliptical nature of the register, enables the ambiguity. Had the headline been phrased differently (e.g., "suit concerning a horse") no ambiguity would occur.

The importance of context in underlying the amusing content of some of the headlines is exemplified in (3) and (4) below, where the humorous interpretations of the nouns *sentence* and *fan* are primed by the presence of the words *actor* (actors usually pronounce sentences, i.e., their lines) and *air conditioning*, which belongs to the same semantic field as *fan*, or "an instrument for producing a current of air" (Merriam-Webster OnLine).

(3) ACTOR SENT TO JAIL FOR NOT FINISHING SENTENCE

(4) STADIUM AIR CONDITIONING FAILS – FANS PROTEST

(5) IRAQI HEAD SEEKS ARMS

(6) MAN STRUCK BY LIGHTNING FACES BATTERY CHARGE

In (5) and (6), both nouns change meaning depending on their different interpretation. In (5) the presence of two nouns both having a body part as one of their meanings triggers the humorous effect. In (6) the two nouns *battery* and *charge* are both homonyms, and their humorous meaning is selected in this case by the presence of the word *lightning* in the first part of the sentence. As a result, in the funny version of the headline, the man struck by the lightning is not accused of having physically attacked someone, but he is to undergo some kind of electrical charge.

The corpus also includes headlines in which the funny meaning is brought about by the presence of ambiguous proper nouns and nouns that alternate between a proper and common meaning.

(7) QUEEN MARY HAVING BOTTOM SCRAPED

(8) CLINTON PLACES DICKEY IN GORE'S HANDS

In (7), the news about a ship called Queen Mary whose bottom half has to undergo some kind of repair can be interpreted as the image of a monarch preparing to have her rear end scraped. Humor is here created by the referential ambiguity of the proper name "Queen Mary." In (8), on the other hand, what is intended as the proper name of a former White House intern can be interpreted as the English common noun indicating (depending on the different dictionaries and on the difference between the American and British English) any of various articles of clothing, a fake shirt, a small bird, or a small donkey. The headline then assumes the meaning of former president Bill Clinton physically

handing any of the above-mentioned concrete objects to Al Gore, instead of conveying the figurative meaning of the president recommending Dickey to Gore present in the expression "to put somebody in somebody's hands" (see also the idioms "to be in somebody's hands," and "to be in good hands"). It is also possible that the word "dickey," in this case, carries a sexual connotation, as a childlike version of the word "dick." Although this diminutive meaning is not listed in the dictionaries for "dickey," a sexual innuendo might be perceived by the readers, especially given the former president's notorious involvement in sexual scandals. Despite its ambiguity, though, it is to be noticed that (8) would be easily disambiguated by the use of smaller case, where, as a consequence, the word "Dickey" would clearly stand out as a proper name. This is another example in which the lack of "signals" typical of the headline register enables the ambiguity. Note that Stageberg (1970: 510) includes capitalization as a potential strategy to avoid ambiguity.

Verbs

Among the twenty-five headlines in which the ambiguous element is a verb, in some cases the ambiguity of the verb results in the sentence being "reversed" in meaning, or, in other cases, as having a meaning that conflicts with the readers' expectations and knowledge of the world. This can be clearly seen in examples (9 and 10) below:

(9) 20-YEAR FRIENDSHIP <u>ENDS</u> AT ALTAR

(10) NEVER <u>WITHHOLD</u> HERPES FROM LOVED ONE

Headline (9) is made ambiguous by the two opposite meanings of the verb "to end": a) "to have its natural conclusion in," and b) "to cease completely." If the first meaning is applied, the headline is interpreted as news about a couple that decided to get married after having been friends for twenty years. However, if the second meaning is introduced, the text sounds like an example of a good friendship being ruined by a wedding.

Headline (10) contradicts common expectations because the advice to fill in your partner on the sexual disease in order to avoid its transmission could be interpreted in the humorous meaning as "do whatever you can to pass herpes on to the person you love," that is, as a message that contradicts common sense. The ambiguity is here of course due to the double meaning of the verb "to withhold," which can signify either "to keep information from someone" (serious meaning) or "to hold something back" (humorous meaning). Therefore, given the features of headline writing, one could then hypothesize that the intended meaning of (10) is actually a reduced form of "never withhold [the fact that you have] herpes from your loved one," and that the ellipsis of words (see section 3 above) is ultimately responsible for the ambiguity.

Sometimes phrasal verbs, too, can be responsible for the humorous meaning of a headline, such as in (11) below.

(11) RED TAPE HOLDS UP BRIDGE

Example (11) illustrates the polysemy of the phrasal verb "to hold up." In particular, ambiguity is created between the two meanings of the phrasal verb "to hold up" are "to detain" for the serious meaning and "to prop up" for the humorous one, where, like in other headlines, the funny interpretation is triggered by the presence of another

ambiguous word or expression, in this case *red tape*. Depending on the interpretation of

red tape in the literal sense or in the metaphorical one, the headline signifies either "a red

tape is preventing the bridge from falling down," or "bureaucracy is slowing down the

construction of the bridge," where, presumably, only the latter was intended by the

author/s.

Prepositions

Although these examples of lexical ambiguity are less numerous than the ones involving

nouns and verbs, prepositions can be found in a few cases (five, in this corpus) as sources

of humor. An example of this phenomenon is (12) below.

(12) WOMAN OFF TO JAIL <u>FOR</u> SEX WITH BOYS

In (12) humor is created by confusion between two of the main meanings of the

preposition "for," the causal and the final ones. The serious version of the headline is

about a woman being sentenced to spend time in prison because she had sexual

relationships with minors, thus exploiting the causal meaning of the preposition. On the

other hand, the humorous interpretation relies on the final meaning of "for," according to

which the woman was sent to prison in order to have sex with young male convicts.

The following are examples presenting an ambiguous use of the preposition "by":

(13) OLD SCHOOL PILLARS ARE REPLACED <u>BY</u> ALUMNI

(14) STOLEN PAINTING FOUND <u>BY</u> TREE

In (13), ambiguity is noticed between the meaning of "by" as expressing the agent of the passive sentence and "by means of," indicating the instrument of the action. In other words, if the sentence is seen as the passive form of the active "Alumni replaced old school pillars," i.e. the intended meaning of the headline, then the preposition expresses agency. On the other hand, if the active sentence is the more improbable "Someone replaced old school pillars by alumni," "by" assumes the contextually humorous meaning of instrument. Example (14), too, presents the agency meaning of "by," which this time is found in the humorous version of the headline, as opposed to the intended spatial meaning. In this case, the agency meaning of the preposition is of course made unlikely by the inanimate nature of the noun "tree," according to which a tree is able to perform the action of finding a stolen painting.

It might also be interesting to notice that in (15) below, the meaning of the preposition "in" also changes, depending on the meaning assigned to that particular noun. If "case" is interpreted in the legal sense, then "in" has the meaning of "during" or "in the context of," while if the noun is seen as indicating the container of a violin, then the preposition assumes the meaning of "within, into." In this case, though, ambiguity is not caused by the preposition itself alone, but its semantic shift is a consequence of the lexical ambiguity of the noun.[10]

(15) DRUNK GETS NINE MONTHS IN VIOLIN CASE

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[10] In general, Stageberg's (1970) warning that these classifications are not watertight should always be kept in mind, witness the following example:

NJ JUDGE TO RULE ON NUDE BEACH

which combines preposition ambiguity (rule while located *on* a nude beach or *about* a nude beach) but also nominal ambiguity: "rule" as in "issue a ruling or as in "govern." This example was arbitrarily classified as prepositional.

3.2.2 Syntactic ambiguity

Under this heading, Il analyze cases in which humor is provided as a consequence of ambiguity in the syntactic structure of the headlines. Of the 63 headlines that present syntactic ambiguity, 34 were found to be ambiguous from a structural point of view, while ten presented an ambiguous PP attachment, and nineteen offered examples of other kinds of syntactic ambiguity. Examples from these different categories are discussed below in separate sections.

Class ambiguity

Structural ambiguity is a kind of syntactic ambiguity that is created by confusion between different classes of parts of speech, so that the two interpretations require a restructuring of the sentence. This kind of ambiguity, analyzed by Oaks (1994: 378), is well represented by the example he gives:

> (16)   Man in Restaurant: I'll have two lamb chops, and make them <u>lean</u>, please.
>   Waiter: To which side, sir?
>   (Clark, 1968: 191)

where "the change in meaning of *lean* [...] actually results in a change in our perception regarding the structure of the sentence, creating a structural ambiguity" (379).

This kind of ambiguity is found in many examples from the corpus, and some of them will be analyzed according to the kind of change that they involve in terms of different parts of speech, a process that is quite common in English, unlike in other languages, given the capacity of the same word to function as a noun, a verb or something else depending on the context.

In most of the headlines carrying structural ambiguity, confusion is created between the class of nouns and that of verbs. In other words, a word works as a noun in the serious meaning of the headline but as a verb in the humorous one, or vice versa. In the examples below the source of humor is the underlined word, namely a noun in the serious interpretation, or a verb in the humorous one:

(17) SQUAD HELPS DOG <u>BITE</u> VICTIM

(18) EYE <u>DROPS</u> OFF SHELF

(19) DEALERS WILL HEAR CAR <u>TALK</u> AT NOON

In (17) news about a police squad helping the victim of a dog bite turns into a report on the police squad assisting a dog in biting a person. In the intended meaning "bite" is the noun modified by another noun (dog), while in the second case it is the bare infinitive following the verb "helps." Note how the lack of grammatical signals enables the ambiguity: had the headline been phrased as "squad helps the victim of a dog bite" the interpretation of "victim" as the object of "bite" would have been excluded. To exclude the ambiguity of "bite" as the verb of the NP "the victim of a dog" one would need to denominalize the clause and write "the victim of biting by a dog" or "the victim was bitten by a dog"; all these options were clearly not available to the headline's writer/s.

In (18) humor is conveyed by the ambiguity between the plural noun "drops" and the third person singular of the verb "to drop." As a consequence, news about the sale of eye drops being discontinued has as an alternative interpretation the bizarre idea on an eyeball dropping off a shelf. Note how the humorous version of the headline is brought about by the ellipsis of a verb, typical of headlines, (for example, "eye drops are off

shelf") which would immediately disambiguate the meaning of the headline. Similarly, in (19), the humorous reading revolves around the possibility of interpreting "talk" as a noun or a verb.

In other headlines structural ambiguity is to be found where what is intended as a noun in the serious meaning actually becomes a verb in the humorous version.

(20) RESEARCH <u>FANS</u> <u>HOPE</u> FOR SPINAL INJURIES

In example (20) humor is created by ambiguity between the morpheme expressing third person singular and the one indicating the pluralization of nouns, which in English happen to be homonyms ("/-s/"). Here structural ambiguity involves not only one but two elements in the headline. In the first interpretation "research" is the subject and "fans" the verb in the third person singular (meaning "to stir up, to increase") followed by its direct object "hope." The humorous interpretation, on the other hand, has "research fans" (meaning "supporters of research") as the subject and "hope" as the verb in the third person plural. In other words, if "hope" is interpreted as the direct object of the verb "to fan," the headline is perceived as news on medical progress in the area of spinal injuries, while if "research" is read as a modifier of the plural noun "fans," then humor arises caused by the incongruous message about research supporters hoping for spinal injuries. The same model of double ambiguity with a noun and a verb can be seen in (21) below, which is present in the corpus and is also quoted by Oaks as an example of structural ambiguity (1994: 382).

(21) BRITISH <u>LEFT</u> <u>WAFFLES</u> ON FAULKLAND ISLANDS

The corpus also presents examples of structural ambiguity between a verb and a past participle.

(22) DRUNKEN DRIVERS PAID $1000 IN '84

As can be seen above, the headline is about drivers who were fined for $1000 for drunk driving. In other words, the word "paid" should be interpreted as the past tense of the verb "to pay" and "drunk drivers" as the agent in the sentence. However, the fact that "paid" is also the form of the past participle of the same verb triggers the humorous meaning of drunken drivers being rewarded with $1000. In this case, humor relies on the assumption that the verb "to be" ("Drunken Drivers [were] paid $1000 in '84") is omitted, which is a perfectly legitimate inference given the reduction phenomena typical of headline writing (see example 27, below).

Some headlines also present ambiguity between verbs and modifiers.

(23) WILLIAM KELLY WAS FED SECRETARY

(24) NIGERIAN REVOLTING OFFICERS EXECUTED

In (23) the abbreviation of the adjective "federal" functions as a modifier of the noun "secretary," with the message being that William Kelly used to work as a secretary for the Federal Government. However, the word "fed" could also be interpreted as the past participle of the verb "to feed," with the headline becoming the passive form of the active sentence "someone fed a secretary to William Kelly." The structural ambiguity is made possible by the fact that the verb "to feed" is a ditransitive verb, i.e. it has two objects. Also, the absence of the indefinite article "a" before the adjective "fed," a phenomenon that is often present in newspaper headlines, contributes to enable the ambiguity.

In (24), the opposite phenomenon occurs, since what was originally intended as a verb can be interpreted as a modifier of the noun "officers." In particular, the present participle of the verb "to revolt" can be perceived as a synonym for "abhorrent," with the result that the Nigerian officers seem to have been executed for their lack of good looks rather than for their involvement in rebellious activities.

Attachment Ambiguities

Among the other types of syntactic ambiguity found in the corpus, examples can be found of prepositional phrase attachment ambiguity (cf. Oaks, 1994: 379; Attardo et al., 1994: 35), which is created by the possibility for a PP (or another type of phrase or clause) to modify one or another component of the sentence/phrase. Headline (25) below, for example, concerns prepositional phrase attachment.

(25) HOW TO COMBAT THE FEELING OF HELPLESSNESS WITH ILLEGAL DRUGS

In (25) the PP "with illegal drugs" is attached, in the serious interpretation, to the NP "the feeling of helplessness," thus conveying the meaning that could be paraphrased as "how to combat the feeling of helplessness caused by illegal drugs." The humorous meaning of the headline is created by interpreting the same PP as attached to the verb "to combat," as a result of which the headline seems to suggest the use of illegal drugs as a remedy to the feeling of helplessness.

In (26) ambiguity is created by the attachment of the reduced relative clause "not yet dead," which in the serious meaning of the headline extends back to "new housing" while in the humorous interpretation is attached to the PP "for elderly."

(26) NEW HOUSING FOR ELDERLY NOT YET DEAD

Therefore, the serious interpretation suggests that a proposal for new housing for elderly

people has not yet been turned down, as opposed to the humorous version of the headline,

in which new housing is suggested for elderly people who are, obviously, not dead yet. In

this last case, the ultimate cause for ambiguity could once again be seen in the ellipsis of

the copula (New housing for elderly [is] not yet dead), the presence of which would have

disambiguated the headline (see below). It is to be noted how the humorous interpretation

is made possible by the polysemy of the verb "to die," which, especially in newspaper

register, is also used with the meaning of "to stop" (as in another example: "FARMER BILL

DIES IN HOUSE").

Other types of syntactic ambiguity

Some of the examples in the corpus derive their ambiguous and humorous meaning from

phenomena of syntactic reduction or contraction typical of newspaper headline writing.

For example, in example (27), (28), and, (29) below, ambiguity is created by the absence

of elements that would normally have to be added in most registers of written speech.

(27) LAWMEN FROM MEXICO BARBECUE GUESTS

(28) COUNTY OFFICIALS TO TALK RUBBISH

(29) THREATENED BY GUN, EMPLOYEES TESTIFY

Example (27) is another case of ellipsis of the verb "to be" ("Lawmen From Mexico [are]

Barbecue Guests"). The absence of the copula here triggers the interpretation of the word

"barbecue" as a verb instead of a noun, so that the Mexican lawyers appear as cannibals grilling their guests instead of as guests invited to a barbecue party. In (28), the cause of ambiguity is the omission of the preposition "about" ("County officials to talk [about] rubbish"), as a consequence of which the verb "to talk" becomes transitive as a synonym for "to discuss," with the headline approximately meaning "county officials are scheduled to talk about issues concerning garbage disposal." The clear consequence is that the expression "to talk rubbish" is formed, where the noun "rubbish" loses the literal meaning of "litter" and acquires that of "nonsense." In (29), the simple juxtaposition of the two clauses "threatened by gun" and "employees testify" creates the possibility for a double interpretation. In the first, serious one, the employees who have been threatened by a gun, possibly during a holdup, testify about what happened. In the second meaning of the headline, the employees testify while being threatened by a gun. It could then be argued that the difference between the serious and the humorous interpretations relies on ambiguity between the temporal succession of events. While in the first case employees testify after being threatened by a gun, in the second case employees are threatened by a gun while they are testifying. In other words, ambiguity and humor are created by the use of a past participle in the headline, which could be paraphrased either as "employees were threatened," that is with a passive past form, or as "employees are being threatened," that is with a passive progressive one.

Referential ambiguity

Another kind of ambiguity that relies on syntactic phenomena is referential ambiguity (cf. Attardo et al., 2002: 16). In the examples below ambiguity, and, consequently, humor, are caused by confusion between two possible referents in the sentence.

(30) TWO SOVIET SHIPS COLLIDE – ONE DIES

(31) AUTOS KILLING 110 A DAY, LET'S RESOLVE TO DO BETTER

In example (30), the news is given about the death of one person in the collision of two Soviet ships, with the pronoun "one" not having a specific antecedent in the headline, but just a generic referent to a person. However, another interpretation is possible, where "one" refers to a direct antecedent in the headline, that is "Soviet ships," and which presupposes the reader's association in square brackets: "one [of the two Soviet ships] dies." In this case, humor is created by the fact that the verb "to die" is normally associated with animate subjects, and it is not used for objects like ships.

In (31) the pro-verb "do" and the comparative form of the adjective "good" ("better") are the elements triggering referential ambiguity (do what? better than what?). In its presumably intended meaning, the headline is about the intention to further reduce the number of deaths in car crashes, therefore by "doing better" the reader is supposed to understand a number smaller than 110 a day. On the other hand, the headline turns out to be humorous if, contrary to what common sense would suggest, the referent of "doing better" is a number greater than 110 a day.

Phonological ambiguity

As Reah points out (1998: 18), newspaper headlines often rely on "the reader's awareness of sound" – for example through alliteration and rhyme – even though they are not meant to be read aloud. This can be seen in the corpus in just one case, where phonological ambiguity is present, although most likely not originally intended by the authors.

(32)   IS THERE A RING OF DEBRIS AROUND URANUS?

(32) above is a classic case of ambiguity based on the phonological string /iuren's/, which corresponds to the noun "Uranus" or to the phrase "your anus," the scatological denotation of which hardly requires any explanation. Needless to say, this kind of ambiguity can only be appreciated if the headline is read aloud or sounded out.

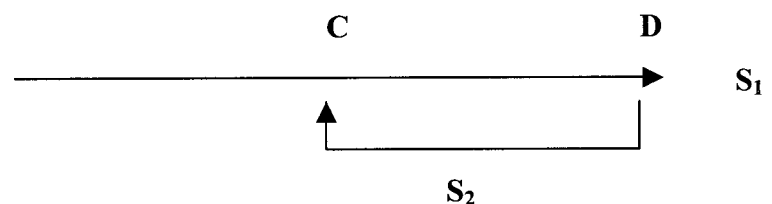## 3.3 Disjunctor/connector models in the corpus

As noted above, ambiguity in many headlines in the corpus lexical is created by the presence of two semantically compatible words, which select one of the possible meanings of the polysemous element as a source of humor. It is interesting to notice that only headlines containing lexical ambiguity can be analyzed on the basis of this mechanism, since the syntactic structure of a sentence is not linear or one-dimensional. Lexical ambiguity, on the other hand, can be explained applying the theory on the linearity of the joke and the Isotopy-Disjunction Model (IDM), first introduced by Greimas (1966) and more recently critiqued by Attardo (1994). The model presupposes two moments in the disambiguation of a joke, where the passage from a first sense (S_1) to

a second sense (S$_2$) opposed to S$_1$ is introduced by the presence and interaction within the joke of a disjunctor and a connector, i.e. "any segment of text that can be given two distinct readings" (Attardo et al., 1994: 28). For a detailed discussion see (Attardo, 1994: 92-97). From the IDM it can also be derived that the position of disjunctor and connector are not random but occur in a specific order in the joke. In particular, the disjunctor occurs "after or on the same linguistic element in which the connector occurs" (Attardo, 1994: 105). In the first case we have a distinct disjunctor (Fig.1), while in the second case a non-distinct one (Fig.2).

However, a close analysis of the corpus of headlines reveals the existence of two other processing schemata, which were not included in Attardo's review. In the first processing schema, which I will here call priming (Fig. 3), the connector, or ambiguous element, actually follows the disjunctor, while in the second one, which could be identified as double ambiguity (Fig. 4), ambiguity is carried not by one but by two elements in the headline. The non-distinct disjunctor schema was by far the most common among the 71 lexically ambiguous headlines, with 47 headlines (66.19 percent), while only 10 examples (14 percent) were found of distinct disjunctor, 5 for priming (7.04 percent), and 9 for double ambiguity (12.6 percent). A few examples from the corpus will help clarify the differences between the four processing schemata.
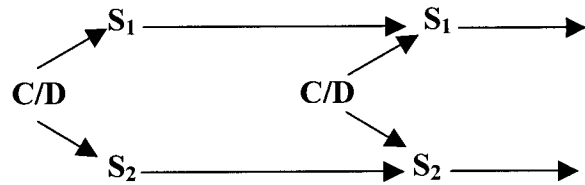
Figure 1: Distinct disjunctor

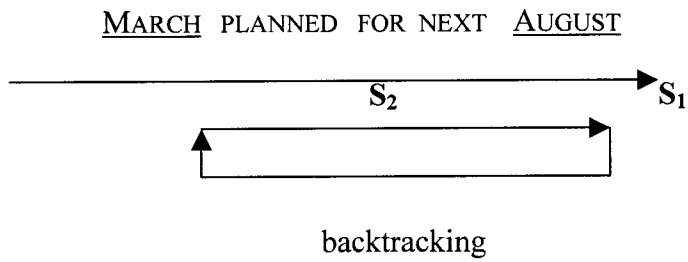**Figure 2: Non-distinct disjunctor**
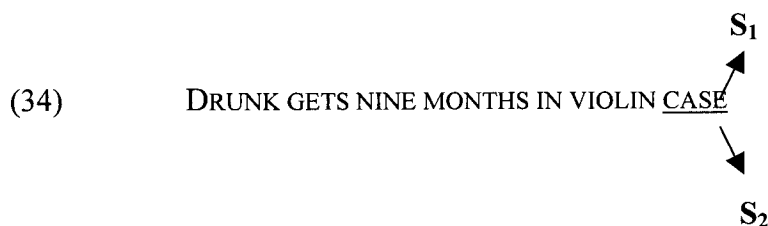

Figure 3: Priming

Figure 4: Double Ambiguity

An example of distinct disjunctor can be seen in (33).

(33)   MARCH PLANNED FOR NEXT AUGUST

backtracking

The disjunctor "August" is in final position and causes a reinterpretation (backtracking) of the ambiguous lexical element (connector) "March" occurring earlier in the headline. As a consequence of this semantic shift, S_1, implying that an "organized procession of demonstrators who are supporting or protesting something" (Merriam-Webster OnLine) was planned for the following August, is transformed into S_2, where the meaning of the noun "march" shifts to that of "the 3rd month of the Gregorian calendar" (Merriam-Webster OnLine).

The non-distinct disjunctor model is also found in the corpus of headlines, with (34) being a typical example.

$$S_1$$

(34)   DRUNK GETS NINE MONTHS IN VIOLIN <u>CASE</u>

$$S_2$$

As can be seen above, the disjunctor "case" is also the connector, since no other ambiguous element appears in the headline and this particular lexical item is the only carrier of ambiguity.

The two schemata discussed so far conform to the hypothesis that the disjunctor always occurs after the connector, which was postulated for the genre of jokes by Attardo et al. (1994). However, the third and fourth processing configurations illustrated in Figure 3 and 4 add other possibilities for the position of the disjunctor. In the third processing schemata the disjunctor occurs before the connector. Examples of this new processing schema can be found in (35)-(37) below.

(35) <u>LINGERIE</u> SHIPMENT HIJACKED – THIEF GIVES POLICE THE <u>SLIP</u>

(36) <u>BLIND</u> WOMAN GETS NEW KIDNEY FROM DAD SHE HASN'T <u>SEEN</u> IN YEARS

(37) NEW STUDY ON <u>OBESITY</u> LOOKS FOR <u>LARGER</u> TEST GROUP

It can be noted that the lexical items "slip," "seen," and "larger" function as ambiguous elements that cause the meaning of the headline to shift from S_1 to S_2. In other words, we have an overlapping of the two senses in which the connector retains its two meanings that were activated by the disjunctor earlier in the headline. It is important to notice that disjunctor and connector are identified on the basis of their ambiguity, or lack thereof; i.e. the disjunctor appearing in the first part of the headline ("lingerie," "blind," and "obesity" in the examples above) is not a carrier of ambiguity, for the purposes of the joke. Rather, the ambiguous element is conveyed by the connector in the second part of the headline.

In (35), for example, the noun "slip" in the idiom "to give someone the slip," meaning "to escape from someone," functions as the ambiguous element because it can be interpreted in the sense of "an item of underwear." This meaning is selected by the presence in the first part of the sentence of the word "lingerie," which functions as the disjunctor. Similarly, in (36) and (37) the verb "to see" and the adjective "large" function as connectors. In other words, in example (36) the adjective "blind" selects the meaning of the verb "to see" that indicates not the action of meeting someone, as was intended in the serious meaning, but that of "to perceive by the eye" (Merriam-Webster OnLine). By the same token, the adjective "large" in (37) is ambiguous in its double meaning of "exceeding most other things of like kind especially in quantity or size" (Merriam-

Webster OnLine). This semantic shift in this case is created by the noun "obesity" in the first part of the headline.

It should be noted that the disjunctor/connector interaction in the third configuration parallels the connector/disjunctor interaction in the IDM. This can be seen by noting that if we substitute the disjunctor in the first part of the sentence with another word, the second meaning of the connector is not activated, so that there is no shift or overlap between S_1 and S_2, and eventually the headline is not perceived as funny. This is exactly the translation test proposed for verbal humor in Attardo (1994).

(33) MARCH PLANNED FOR NEXT AUGUST

The fourth processing schemata, double ambiguity, could be better exemplified by (38) and (39) below.

(38) IRAQI HEAD SEEKS ARMS

(39) FARMER BILL DIES IN HOUSE

As can be seen above, both headlines contain two potentially ambiguous lexical elements. In particular, in (38) the nouns *head* and *arms* take the meaning of, respectively, "leader" and "weapons" in the serious meaning, but they come to signify body parts in the humorous one. Similarly, in (39) the noun *bill* and the verb *dies* both acquire a humorous meaning if they are interpreted, respectively, as a proper noun and in the literal sense of "to cease living." In other words both elements are both the connector and the disjunctor (Fig. 4).

The presence of these new processing schemata in the corpus could have interesting applications in the field of both humor research and psycholinguistics. The discovery of new configurations of disjunctor/connector heretofore unrecorded in a corpus of jokes (Attardo et al., 1994) and in fact explicitly denied, on the one hand, points to the fact that differences in genre exist and that they are worth investigating, and, on the other, calls for a more thorough definition of the concepts of disjunctor and connector and of their order of appearance. In particular, in the field of psycholinguistics, on the other hand, the value of the model here called priming could be seen in a new perspective on the issue of priming and of the processes underlying the activation of meaning (cf. Giora, 2003). For example, in the disjunctor/connector configuration, it appears that contextual pressure fails to disambiguate a clearly parasitical reading, thus leading to interesting issues about priming and the relative strength of activation of contextually primed readings and idiomatic ones. Certainly the disjunctor/connector configuration is strong evidence that the meaning not selected by context is nonetheless available to the speakers and is not discarded (or at least not completely, or not immediately). Furthermore, since backtracking requires more effort, we can predict that humorous texts with a disjunctor/connector configuration should be as difficult to process as overlapping disjunctor/connector configurations, but less so than connector/disjunctor configurations, which do require backtracking.

Chapter 4 - Concluding remarks

The present study has analyzed linguistic ambiguity as a source of humor in a corpus of newspaper headlines made available online. After a survey of the literature in the field of ambiguity and the processes involved in ambiguity resolution offered in chapter 2, in chapter 3 the main categories of lexical, syntactic, and phonological ambiguity were further divided into subcategories, for each of which examples were provided. The headlines presenting syntactic ambiguity were found in greater number than headlines based on lexical or phonological ambiguity. However, the percentage of syntactic jokes was greater than that found by Attardo et al. (1994) in their analysis of a corpus of jokes, thus showing that there exist differences in types of humorous ambiguity in different humorous genres. In the case of lexical ambiguity, humor depends mainly on nouns, verbs, and prepositions, and the main cause of ambiguity was found in the homonymy of the lexical item in question. Syntactic ambiguity was analyzed in terms of class ambiguity and other types of ambiguity relying, for example, on prepositional phrase attachment and ellipsis. Class ambiguity was found to involve mainly shifts between the classes of noun and verbs and vice versa, and examples of referential ambiguity were limited in the corpus. Phonologically ambiguous headlines were the least numerous with only one example in the corpus. This datum is not really surprising given the written nature of the medium.

Finally, an analysis of the headlines in terms of the disjunctor/connector theory revealed the presence in the corpus of two processing configurations, which differ from the distinct and non-distinct schemata already known and, to the best of my knowledge,

had never been discussed in the literature on the processing of jokes. In the first of these cases, the disjunctor appears before the ambiguous element, or connector, so that both meanings of the ambiguous elements are activated and overlap, while in the second case two elements in the headline function both as connector and disjunctor, thus creating a double ambiguity. It was also suggested that the existence of these new processing schemata could have interesting consequences on the study of priming mechanisms and the activation of meaning.

In more general terms, the results of this study may be have a number of implications that, for reasons of space, had to remain outside the scope of this thesis. First of all, the theoretical hypotheses put forward here might be the object of empirical tests involving, as it is common practice in psycholinguistics, experiments on reading times and eye movements. These could be performed by comparing two sets of headlines, one of which presents ambiguities while the other does not include any kind of ambiguity. The results from the respondents might be used to either support or contradict already existing theories on the processing of ambiguous sentences, both in terms of lexical and structural ambiguity. Also, especially for research in the field of humor studies, evidence from a relatively neglected field such as ambiguous newspaper headlines would contribute to expand the field of research beyond that of jokes and intentionally ambiguous humor to include that of seemingly unintentional humorous texts.

In addition to applying the new connector/disjunctor models in psycholinguistics, practical research might also be conducted in cross-linguistic studies. As noted elsewhere in this thesis, the fields of both sentence processing and ambiguity in humor studies lament the lack of cross-linguistic research that takes into consideration evidence not only

from the English language but also from other languages that present different morphological and syntactic structures.

More generally, it would be interesting to see if the types of ambiguities, on the one hand, and the disambiguation mechanisms on the other, which were identified by previous research, are actually universal or if evidence can be provided that cross-linguistic differences exist. For instance, further research might look at the case of ambiguous texts in languages that are structurally very different from English, in order to ascertain whether these ambiguities and ambiguity resolution mechanisms are brought about by the intrinsic structure of the language or if they are to be found in other languages as well, such as, for example, Italian, French, or Spanish. Indeed, as already noted in section 2.2, these languages seem intuitively to allow for fewer ambiguity enablers (Oaks, 1994) than English, because of the presence of inflectional morphemes which make explicit features like gender and number (Cacciari et al., 1997). However, this hypothesis needs to be tested empirically, and one way of doing this might be by gathering parallel corpora of jokes or other humorous texts in both English and Italian, French, or Spanish.[11] Newspaper headlines might also be a valid source for comparing cross-linguistic information. To the best of my knowledge, no such studies exist and the few available collections of funny headlines[12] have only an anecdotal character. A systematic comparison of ambiguous headlines in two different languages would indeed help highlight similarities or differences, or, in general, significant variations regarding the amount of lexical and structural ambiguity found in the corpora.

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[11] As noted in section 2.3 above, Pepicello and Green already attempted a similar cross-linguistic analysis by comparing English and Spanish riddles.

[12] See for example the online sources http://www.fuorissimo.com and http://www.fuoriditesta.it.

A final note should be devoted to the implications regarding another cross-linguistic phenomenon, translation, that might be the object of further research. Most literature mentioning the translation of humor seems to support the idea that jokes and other humorous texts are, by their own nature, extremely culture-specific, thus negating the possibility of translating them from one linguistic and cultural context to another without a significant change in the pragmatic effect carried out by the humorous text in the target culture.[13] It is not my intention to suggest that a different kind of humorous text, such as the newspaper headlines analyzed here, would be easier to translate from one language into another than, for instance, puns. As a matter of fact, a headline like DOCTOR TESTIFIES IN HORSE SUIT appears to be as challenging for the translator as the pun-based joke "Do you believe in clubs for women?" "Only when kindness fails." However, it does not seem completely unlikely that a better awareness of the semantic mechanisms, such as the connector/disjunctor models proposed here, on which ambiguous humorous texts are based, might facilitate the task of the translator who finds him/herself struggling with a particularly difficult pun. This would in fact be a useful tool not only as far as literary translation is concerned, but also in the domain of multimedia translation, i.e. the translation of audiovisual materials such as films, sitcoms, documentaries, etc., where, for instance, Italian translators admit that humor is still one of the aspect presenting the most problems (Benincà, 1999). The employment of ambiguity processing strategies in the field of translation, especially as far as humor is concerned, has rarely been the object of systematic research and it therefore offers ample possibilities that might be explored in the future.

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[13] On the translatability of puns cf. Chiaro 1992, 2000 and references therein.

Appendix

LEXICAL AMBIGUITY

NOUNS

1. ACTOR SENT TO JAIL FOR NOT FINISHING <u>SENTENCE</u>

2. <u>AIR HEAD</u> FIRED

3. ASBESTOS <u>SUIT</u> <u>PRESSED</u>

4. ASTRONAUT TAKES BLAME FOR <u>GAS</u> IN SPACECRAFT

5. BANK DRIVE-IN WINDOW BLOCKED BY <u>BOARD</u>

6. CARIBBEAN ISLANDS DRIFT TO <u>LEFT</u>

7. CHEF THROWS HIS <u>HEART</u> INTO HELPING FEED NEEDY

8. CHILD'S <u>STOOL</u> GREAT FOR USE IN GARDEN

9. CLINTON PLACES <u>DICKEY</u> IN GORE'S HANDS

10. CLINTON'S <u>FIRMNESS</u> GOT RESULTS

11. CLINTON <u>STIFF</u> ON <u>WITHDRAWAL</u>

12. CROUPIERS ON STRIKE – MANAGEMENT: "NO BIG <u>DEAL</u>"

13. DEAF COLLEGE OPENS DOORS TO <u>HEARING</u>

14. DEAF MUTE GETS NEW <u>HEARING</u> IN KILLING

15. DEFENDANTS SPEECH END IN LONG <u>SENTENCE</u>

16. DOCTOR TESTIFIES IN HORSE <u>SUIT</u>

17. DRUNK GETS NINE MONTHS IN VIOLIN <u>CASE</u>

18. FARMER <u>BILL</u> <u>DIES</u> IN HOUSE

19. FLAMING TOILET SEATS CAUSE <u>EVACUATION</u> AT HIGH SCHOOL

20. GATORS TO FACE SEMINOLES WITH <u>PETERS</u> OUT

21. GRANDMOTHER OF EIGHT MAKES <u>HOLE IN ONE</u>

22. IRAQI <u>HEAD</u> SEEKS <u>ARMS</u>

23. JANE FONDA TO TEENS: USE <u>HEAD</u> TO AVOID PREGNANCY

24. MAN STRUCK BY LIGHTNING FACES <u>BATTERY CHARGE</u>

25. <u>MARCH</u> PLANNED FOR NEXT AUGUST

26. MEN RECOMMEND MORE <u>CLUBS</u> FOR WIVES

27. POLICE DISCOVER <u>CRACK</u> IN AUSTRALIA

28. PROSECUTOR RELEASES <u>PROBE</u> INTO UNDERSHERIFF

29. <u>QUEEN MARY</u> HAVING <u>BOTTOM</u> SCRAPED

30. SOME <u>PIECES</u> OF ROCK HUDSON SOLD AT AN AUCTION

31. STEALS CLOCK, FACES <u>TIME</u>

32. STARR AGHAST AT FIRST LADY SEX <u>POSITION</u>

33. TIGER WOODS PLAYS WITH OWN <u>BALLS,</u> NIKE SAYS

34. LINGERIE SHIPMENT HIJACKED – THIEF GIVES POLICE <u>THE SLIP</u>

35. MANY <u>ANTIQUES</u> SEEN AT D.A.R. MEETING

36. MAN MINUS EAR WAIVES <u>HEARING</u>

37. SCIENTISTS TO HAVE FORD'S <u>EAR</u>

38. <u>ORGAN</u> FESTIVAL ENDS IN SMASHING <u>CLIMAX</u>

VERBS

39. 20 – YEAR FRIENDSHIP <u>ENDS</u> AT ALTAR

40. AIR FORCE CONSIDERS <u>DROPPING</u> SOME NEW WEAPONS

41. BONNIE <u>BLOWS CLINTON</u>

42. COLLEGIANS ARE <u>TURNING TO</u> VEGETABLES

43. COUNTY OFFICIALS TO <u>TALK RUBBISH</u>

44. EXPERTS SAY SCHOOL BUS PASSENGERS SHOULD BE <u>BELTED</u>

45. HERE'S HOW YOU CAN <u>LICK</u> DOBERMAN'S LEG SORES

46. <u>INCLUDE</u> YOUR CHILDREN WHEN BAKING COOKIES

47. KIDS <u>MAKE</u> NUTRITIOUS SNACKS

48. LATIN AMERICAN PROSTITUTES <u>SLAM</u> CATHOLICS DURING SUMMIT

49. LOCAL HIGH SCHOOL DROPOUTS <u>CUT</u> IN HALF

50. MILK DRINKERS ARE <u>TURNING TO</u> POWDER

51. NEVER <u>WITHHOLD</u> HERPES FROM LOVED ONE

52. PANDA MATING FAILS – VETERINARIAN <u>TAKES OVER</u>

53. PATIENT AT DEATH'S DOOR – DOCTORS <u>PULL HIM THROUGH</u>

54. POLICE BEGIN CAMPAIGN TO <u>RUN DOWN</u> JAYWALKERS

55. PROSTITUTES <u>APPEAL</u> TO POPE

56. RED TAPE <u>HOLDS UP</u> BRIDGE

57. ROBBER <u>HOLDS UP</u> ALBERT'S HOSIERY

58. SKELETON <u>TIED TO</u> MISSING DIPLOMAT

59. SURVIVOR OF SIAMESE TWIN <u>JOINS</u> PARENTS

60. TWO CONVICTS EVADE NOOSE; JURY <u>HUNG</u>

61. QUARTER OF A MILLION CHINESE <u>LIVE ON</u> WATER

62. INFERTILITY UNLIKELY TO BE <u>PASSED ON</u>

63. BLIND WOMAN GETS NEW KIDNEY FROM DAD SHE HASN'T <u>SEEN</u> IN YEARS

MOD

64. NEW STUDY ON OBESITY LOOKS FOR <u>LARGER</u> TEST GROUP

65. WOMEN'S MOVEMENT CALLED MORE <u>BROAD</u>-BASED

66. <u>STIFF</u> OPPOSITION EXPECTED TO CASKETLESS FUNERAL PLAN

PREPOSITIONS

67. WOMAN OFF TO JAIL FOR SEX WITH BOYS

68. STOLEN PAINTING FOUND BY TREE

69. MAN HELD OVER NEW FOREST FIRE

70. OLD SCHOOL PILLARS ARE REPLACED BY ALUMNI

71. NJ JUDGE TO <u>RULE ON</u> NUDE BEACH

SYNTACTIC AMBIGUITY

CLASS AMBIGUITY

NOUN TO VERB

1. 12 ON THEIR WAY <u>TO CRUISE</u> AMONG DEAD IN PLANE CRASH

2. BASEBALL <u>TALKS</u> IN 9TH INNING

3. BUSH, DUKAKIS <u>BUTT</u> HEADS

4. BLIND BISHOP APPOINTED TO <u>SEE</u>

5. CHOU <u>REMAINS</u> CREMATED

6. DEALERS WILL HEAR CAR <u>TALK</u> AT NOON

7. DEER <u>KILL</u> 17,000

8. EYE <u>DROPS</u> OFF SHELF

9. LARGE CHURCH <u>PLANS</u> COLLAPSE

10. SOVIET VIRGIN <u>LANDS</u> SHORT OF GOAL AGAIN

11. SQUAD HELPS DOG <u>BITE</u> VICTIM

12. STUD <u>TIRES</u> OUT

13. TEACHER <u>STRIKES</u> <u>IDLE</u> KIDS

14. CARTER <u>PLANS</u> <u>SWELL</u> DEFICIT

15. HENSHAW OFFERS RARE OPPORTUNITY TO <u>GOOSE</u> HUNTERS

16. HERSHEY <u>BARS</u> PROTEST

17. TEXTRON INC. MAKES OFFER TO <u>SCREW</u> COMPANY STOCKHOLDERS

18. <u>SHOT OFF</u> WOMAN'S LEG HELPS NICKLAUS TO 66

19. LAWMEN FROM MEXICO <u>BARBECUE</u> GUESTS

20. STADIUM AIR CONDITIONING FAILS – <u>FANS</u> PROTEST

MOD TO NOUN

21. MARIJUANA ISSUE SENT TO A <u>JOINT</u> COMMITTEE

NOUN TO MOD

22. <u>ANTIQUE</u> STRIPPER TO DISPLAY WARES AT STORE

VERB TO NOUN

23. BAN ON SOLICITING <u>DEAD</u> IN TROTWOOD

24. BRITISH LEFT <u>WAFFLES</u> ON FAULKLAND ISLANDS

25. JUDGE <u>ACTS</u> TO REOPEN THEATER

26. LUNG CANCER IN WOMEN <u>MUSHROOMS</u>

27. REAGAN WINS ON BUDGET BUT MORE <u>LIES</u> AHEAD

28. RESEARCH <u>FANS</u> HOPE FOR SPINAL INJURIES

VERB TO VERB

29. DRUNKEN DRIVERS <u>PAID</u> $1000 IN '84

MOD TO VERB

30. JUVENILE COURT TO TRY <u>SHOOTING</u> DEFENDANT

31. <u>KICKING</u> BABY CONSIDERED TO BE HEALTHY

32. WILLIAM KELLY WAS <u>FED</u> SECRETARY

VERB TO MOD

33. NIGERIAN <u>REVOLTING</u> OFFICERS EXECUTED

34. CHINESE APEMAN <u>DATED</u>

PP ATTACHMENT

35. 2 SISTERS UNITED AFTER 18 YEARS AT CHECKOUT COUNTER

36. ARSON SUSPECT HELD IN MASSACHUSETTS FIRE

37. DR RUTH TO TALK ABOUT SEX WITH NEWSPAPER EDITORS

38. ENRAGED COW INJURES FARMER WITH AX

39. HOW TO COMBAT THE FEELING OF HELPLESSNESS WITH ILLEGAL DRUGS

40. YOUTH STEALS FUNDS FOR CHARITY

41. L.A. VOTERS APPROVE URBAN RENEWAL BY LANDSLIDE

42. MAN SHOOTS NEIGHBOR WITH MACHETE

43. WOMAN GIVING BIRTH TO CHILD IN AUTOMOBILE

44. KILLER SENTENCED TO DIE FOR SECOND TIME IN 10 YEARS

OTHER TYPES OF SYNTACTIC AMBIGUITY

45. COMPLAINTS ABOUT NBA REFEREES GROWING UGLY

46. CROWDS RUSH TO SEE POPE TRAMPLE MAN TO DEATH

47. FRENCH OFFER TERRORIST REWARD

48. FUNDS SET UP FOR BEATING VICTIM'S KIN

49. HALF-MILLION ITALIAN WOMEN SEEN ON PILL

50. HILLARY CLINTON ON WELFARE

51. HOSPITAL SUED BY SEVEN FOOT DOCTORS

52. KAMPALA: A HAND GRENADE EXPLODED ON BOARD A PASSENGER TRAIN KILLING A UGANDA ARMY SOLDIER WHO WAS TOYING WITH IT AND TWO CIVILIAN PASSENGERS

53. LAWYERS GIVE POOR FREE LEGAL ADVICE

54. MAN EATING PIRANHA MISTAKENLY SOLD AS PET FISH

55. MINERS REFUSE TO WORK AFTER DEATH

56. NEW HOUSING FOR ELDERLY NOT YET DEAD

57. THREATENED BY GUN, EMPLOYEES TESTIFY

58. THUGS EAT THEN ROB PROPRIETOR

59. VIRGIN HOLDS OFF 10,000 IN PEACHTREE

60. WORKERS ACCUSED OF SELLING STAMPS TO BE BURNED

61. BABIES ARE WHAT THE MOTHER EATS

REFERENTIAL ANBIGUITY

62. TWO SOVIET SHIPS COLLIDE – ONE DIES

63. AUTOS KILLING 110 A DAY, LET'S RESOLVE TO DO BETTER

PHONOLOGICAL AMBIGUITY

64. IS THERE A RING OF DEBRIS AROUND URANUS?

References

Abney, S. (1989). "A Computational Model of Human Parsing." *Journal of Psycholinguistic Research 18*, 129-144.

Alexander, R. J. (1997). *Aspects of Verbal Humour in English*. Tubingen: Gunter Narr.

Altmann, G. T. M., & Steedman, M. (1988). "Interacting with Context During Human Sentence Processing." *Cognition, 30*, 191-238.

Attardo, S. (1994). *Linguistic Theories of Humor*. Berlin, New York: Mouton De Gruyter.

Attardo, S. (1996). "Humor Theory Beyond Jokes: The Treatment of Humorous Texts at Large." In J. Hulstijn, & A. Nijholt, (Eds.), *Automatic Interpretation and Generation of Verbal Humor. IWCH '96. Twente Workshop on Language and Technology 12*. (pp. 87-101). Enschede: University of Twente.

Attardo, S. (2000). "Irony as Relevant Inappropriateness." *Journal of Pragmatics, 32*, 793-826.

Attardo, S. (2001). "On the Pragmatic Nature of Irony and its Rhetorical Aspects." In T. Eniko Németh, (Ed.), *Pragmatics in 2000: Selected papers from the 7th International Pragmatics conference. Vol. 2*. (pp. 52-66). Antwerp: IPrA.

Attardo, S. (2003). "Mif o Neprednamerennom Iumore." In V. I. Karasik, G. G. Slyščkin, (Eds.), *Aksiologičeskaja Lingvistika: Igrovoe i Komičeskoe v Obščenii*. (pp. 4-14). Volgograd: Peremena.

Attardo, S., Hemplemann C., & DiMaio, S. (2002). "Script Oppositions and Logical Mechanisms: Modeling Incongruities and Their Resolutions." *Humor: International Journal of Humor Research, 15(1)*, 3-46.

Attardo, S., Hughes Attardo, D., Baltes, P., & Petray, M. J. (1994). "The Linear Organization of Jokes: Analysis of Two Thousand Texts." *Humor: International Journal of Humor Research 7(1)*, 27-54.

Bell, A. (1991). *The Language of News Media*. Oxford and Cambridge, MA: Blackwell.

Benincà, S. (1999). "Il doppiaggio: uno studio quali-quantitativo". In B. P. Astori, (Ed.), *Quaderni di doppiaggio*. (pp. 53-155). Finale Ligure: Comune di Finale Ligure.

Bever, T. G. (1970). "The Cognitive Basis for Linguistic Structure." In J. R. Hays, (Ed.), *Cognition and the Development of Language*. (pp. 286-341). New York: Wiley.

Britt, M. A. (1994). The Interaction of Referential Ambiguity and Argument Structure in the Parsing of Prepositional Phrases." *Journal of Memory and Language, 33,* 251-283.

Britt, M. A., Perfetti, C. A., Garrod, S. C., & Rayner, K. (1992). "Parsine in Context: Context Effects and Their Limits." *Journal of Memory and Language, 31,* 293-314.

Cacciari, C., Carreiras, M., & Cionini Barbolini, C. (1997). "When Words Have Two Genders: Anaphor Resolution for Italian Functionally Ambiguous Words." *Journal of Memory and Language, 35,* 517-532.

Carreiras, M., & Clifton, C. Jr. (1993). "Relative Clause Interpretation Preferences in Spanish and English." *Language and Speech, 36,* 353-372.

Chiaro, D. (2000). "*Servizio completo?* On the (Un)translatability of Puns on Screen". In R. M. Bollettieri Bosinelli, C. Heiss, M. Soffritti, & S. Bernardini, (Eds.). *La traduzione multimediale: Quale traduzione per quale testo?* (pp. 27-42). Bologna: CLUEB.

Chiaro, D. (1992). *The Language of Jokes: Analysing Verbal Play.* London: Routledge.

Chomsky, N. (1965). *Aspects of the theory of syntax.* Cambridge: M. I. T. Press.

Clark, D. A. (1968). *Jokes, Puns, and Riddles.* Garden City, NY: Doubleday.

Clifton, C. Jr., Frazier, L., & Rayner, K. (Eds.). (1994). *Perspectives on Sentence Processing.* Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Clifton, C., Speer, S., & Abney, S. (1991). "Parsing arguments: phrase structure and argument structure as determinants of initial parsing decisions", *Journal of Memory and Language* 30, 251-271.

Clifton, C. Jr., & Ferreira, F. (1989). "Ambiguity in Context." *Language and Cognitive Processes,* 12, 77-103.

Crocker, M. (1996). *Computational Psycholinguistics.* Dordrecht: Kluwer Academic Publishers.

Crocker, M. W., Pickering, M., & Clifton, C. Jr. (Eds). (2000). *Architectures and mechanisms for language comprehension.* Cambridge, England: Cambridge University Press.

Coulson, S., & Kutas, M. (1998). "Frame-Shifting and Sentential Integration." University of California, San Diego: Cognitive Science Technical Report 98.03.

Coulson, S., & Kutas, M. (2001). "Getting it: Human Event-Related Response to Jokes in Good and Poor Comprehenders." *Neuroscience Letters, 316*, 71-74.

Curcó, C. (1995). "Some Observations on the Pragmatics of Humorous Interpretations: A Relevance Theoretic Approach." *UCL Working papers in Linguistics, 7*, 27-47.

Curcó, C. (1998). "Indirect Echoes and Verbal Humor." In V. Rouchota, & A. H. Jucker, (Eds.), *Current Issues in Relevance Theory*, (pp. 305-325). Amsterdam and Philadelphia: John Benjamins.

De Palma, P., & Weiner E. J. (1990). "When a Riddle is not a riddle?" Paper presented at the International Pragmatics Conference, Barcelona.

De Vincenzi, M., & Job, R. (1995). "An Investigation of Late-Closure: The Role of Syntax, Thematic Structure and Pragmatics in Initial and Final Interpretation." *Journal of Experimental Phychology: Learning, Memory and Cognition, 21*, 1303-1321.

Dor, D. (2003). "On Newspaper Headlines as Relevance Optimizers." *Journal of Pragmatics 35(5)*, 695-721.

Esar, E. (1946). *The Animal Joker: A Treasury of Jokes and Gags Dealing with Different Kinds of Beasts, Birds, Fish, and Insects*. New York: Harvest House.

Esar, E. (1952). *The Humor of Humor*. New York: Horizon.

Ferreira, F., & Clifton, C. Jr. (1986). "The Independence of Syntactic Processing." *Journal of Memory and Language, 30*, 725-745.

Fodor, J. (1983). *The Modularity of Mind*. Cambridge, MA: MIT Press.

Fodor, J. M., Garrett, M., & Bever, T. (1968). "Some Syntactic Determinants of Sentential Complexity, II: Verb Structure." *Perception & Psychophysics, 3*, 453-461.

Ford, M., Bresnan, J., & Kaplan, R. (1982). "A Competence-Based Theory of Syntactic Closure." In J. Bresnan (Ed.), *The Mental Representation of Grammatical Relations*. (pp. 727-851). Cambridge, Mass.: M. I. T. Press.

Fowler, R. (1991). *Language in the News. Discourse and Ideology in the British Press*. London and New York: Routledge.

Franz, A. (1996). *Automatic Ambiguity Resolution in Natural Language Processing. An Empirical Approach*. Berlin: Springer.

Frazier, L. (1979). *On Comprehending Sentences: Syntactic Parsing Strategies.* Bloomington, Indiana: Indiana University Linguistics Club [1978 PhD dissertation, University of Connecticut].

Frenck-Mestre, C., & Pynte, J. (2000a). "Resolving Syntactic Ambiguities: Cross-Linguistic Differences". In M. De Vincenzi, & V. Lombardo, (Eds.), *Cross-Linguistic Perspectives on Language Processing.* (pp. 119-148). Dordrecht: Kluwer.

Frenck-Mestre, C., & Pynte, J. (2000b). "'Romancing' Syntactic Ambiguity: Why the French and the Italians don't See Eye to Eye." In A. Kennedy, R. Radach, D. Heller, & J. Pynte, (Eds.), *Reading as a Perceptual Process.* (pp. 549-564). Amsterdam: ELSEVIER.

Garrod, S., & Terras, M. (2000). "The Contribution of Lexical and Situational Knowledge to Resolving Discourse Roles: Bonding and Resolution." *Journal of Memory and Language, 42,* 526-544.

Gibson, E. (1991). *A Computational Theory of Human Language Processing: Memory Limitations and Processing Breakdown.* PhD thesis, Carnegie Mellon University.

Gibson, E., & Pearlmutter, N. J. (1994). "A Corpus-Based Analysis of Psycholinguistic Constraints on Prepositional-Phrase Attachment." In C. Jr., Clifton, L. Frazier, & K. Rayner, (Eds.), *Perspectives on Sentence Processing.* (pp. 181-198). Hillsdale, NJ: Lawrence Erlbaum Associates.

Giora, R. (2003). *On our Mind. Salience, Context, and Figurative Language.* Oxford: Oxford University Press.

Giora, R., Fein, O., & Schwartz, T. (1997). "On the Time Course of Understanding Metaphor." Tel Aviv University (unpublished ms.).

Van Gompel, R. P. G. , Pickering, M.J., & Traxler, M.J. (2000). "Unrestricted Race: A New Model of Syntactic Ambiguity Resolution." In A. Kennedy, R. Radach, D. Heller, & J. Pynte, (Eds.) *Reading as a perceptual process.* (pp. 621-648). Amsterdam; New York: Elsevier.

Gorfein, D. S. (Ed.). (2001). *On the Consequences of Meaning Selection: Perspectives on Resolving Lexical Ambiguity.* Washington, DC: American Psychological Association.

Greimas, A. J. (1966). *Sémantique Structurale, Recherche de méthode.* Paris : Larousse.

Hirst, G. (1987). *Semantic Interpretation and The Resolution of Ambiguity.* Cambridge: Cambridge University Press.

Jenkins, H. (1987). "Train Sex Man Fined: Headlines and Cataphoric Ellipsis". In M.A.K. Halliday, J. Gibbons, & H. Nicholas, (Eds.) *Learning, Keeping, and Using Language.* (pp. 349-362). Amsterdam and Philadelphia: Benjamins.

Kaufman, G., & Blakeley, M. K. (Eds.). (1980). *Pulling Our Own Strings.* Bloomington, IN: Indiana University Press.

Kess, J. F., & Hoppe, R. A. (1981). *Ambiguity in Psycholinguistics.* (Pragmatics and beyond II: 4). Amsterdam: John Benjamins.

Lederer, R. (1987). *Anguished English.* New York: Dell.

Lengman, G. (1975). *No Laughing Matter: Rationale of the Dirty Joke* (2nd series). New York: Breaking Point.

Leno, J. (1990). *More headlines: Real but Ridiculous Samplings From America's Newspapers.* New York, NY: Warner Books.

Leno, J. (1992). *Jay Leno's headlines. Books I, II, III.* New York: Wings Books.

MacDonald, M.C., Pearlmutter, N. J., & Seidenberg, M.S. (1994). "Lexical Nature of Syntactic Ambiguity Resolution." *Psychological Review, 101*(4), 676-703.

Mitchell, D. C., Corley, M.M.B., & Garnham, A. (1992). "Effects of Context in Human Sentence Parsing: Evidence Against a Discourse-Based Proposal Mechanism." *Journal of Experimental Pshychology: Language, Memory and Cognition, 18,* 69-88.

Nash, W. (1985). *The Language of Humour.* London: Longman.

Oaks, D. D. (1994). "Creating Structural Ambiguities in Humor: Getting English Grammar to Cooperate." *Humor: International Journal of Humor Research 7*(4), 377-401.

Oaks, D. D. (Ed.). (1998). *Linguistics at Work: A Reader of Applications.* Fort Worth: Harcourt Brace College Publishers.

Pepicello, W. J. & Green, T.A. (1984). *The Language of Riddles. New Perspectives.* Columbus: Ohio State University Press.

Pickering, M., Clifton, C., Jr., & Crocker, M. (2000). "Architectures and Mechanisms in Language Comprehension." In M. Crocker, M. Pickering, & C. Jr. Clifton, *Architectures and mechanisms for language comprehension.* (pp. 1-28). Cambridge, UK: Cambridge University Press.

Pritchett, B. L. (1988). "Garden Path Phenomena and the Grammatical Basis of Language Processing." *Language 64*, 539-576.

Pritchett, B. L. (1992). "Parsing With Grammar: Islands, Heads, and Garden Paths." In H. Goodluck, & M. Rochemont, (Eds.) *Island Constraints: Theory, Acquisition, and Processing.* (pp. 321-350). Dordrecht: Kluwer.

Raskin, V. (1979). "Semantic Mechanisms of Humor." In C. Chiarello et al., (Eds.), *Proceedings of the Fifth Annual Meeting of the Berkley Linguistics Society.* (pp. 325-335). Berkley, CA: University of California.

Raskin, V. (1985). *Semantic Mechanisms of Humor.* Dordrecht: D. Reidel Publishing Company.

Ravin, Y., & Leacock, C. (eds.). (2000). *Polysemy. Theoretical and Computational Approaches.* Oxford: Oxford University Press.

Rayner, K., Carlson, M., & Frazier, L. (1983). "The Interaction of Syntax and Semantics During Sentence Processing: Eye Movements in the Analysis of Semantically Ambiguous Sentences." *Journal of Verbal Learning and Verbal Behavior, 22*, 358-374.

Rayner, K., Garrod, S.C., & Perfetti, C.A. (1992). "Discourse Influences During Parsing are Delayed." *Cognition, 45*, 109-139.

Reah, D. (1998). *The Language of Newspapers.* London and New York: Routledge.

Rosenbloom, J. (1976). *Doctor Knock-Knock's Official Knock-Knock Dictionary.* New York: Sterling.

Schvaneveldt, R. W., Meyer, D.E., & Becker, C.A. (1976). "Lexical Ambiguity, Semantic Context, and Visual Word Recognition." *Journal of Experimental Psychology: Human Perception and Performance, 2*, 243-256.

Spivey-Knowlton, M., Trueswell, J., & Tenenhaus, M. K. (1993). "Context and Syntactic Ambiguity Resolution." *Canadian Journal of Experimental Psychology, 47*, 276-309.

Stageberg, N. C. (1970). "Ambiguity in College Writing." In W. L. Anderson, & N. C. Stageberg, (Eds.) *Introductory Readings on Language.* New York, NY: Holt, Rinehart and Winston. Rpt. in D. D. Oaks, (1998). (Ed.), *Linguistics at Work.* (pp. 501-515). Fort Worth, TX: Harcourt Brace.

Stageberg, N. C. (1971). "Structural Ambiguities in English." In L. C. Deighton, (Ed.) *The Encyclopedia of Education, 3*, 356-366.

Taha, A. K. (1983). "Types of Syntactic Ambiguity in English." *International Review of Applied Linguistics in Language Teaching, 21 (4),* 251-266.

Traxler, M.J., Pickering, M.J., & Clifton, C. Jr. (1998). "Adjunct Attachment is not a Form of Lexical Ambiguity Resolution." *Journal of Memory and Language, 39,* 558-592.

Trueswell, J. C., & Tanenhaus, M. K. (1994). "Toward a Lexicalist Framework of Syntactic Ambiguity Resolution." In C. Clifton, L. Frazier, & K. Rayner, (Eds.). *Perspectives on Sentence Processing.* (pp. 15-44). Hillsdale, N.J.: Erlbaum.

Web sites

BAG.
http://graceland.gentle.org/bag2/headl.html

http://funnies.paco.to/Headlines.htm

Fuoriditesta
http://www.fuoriditesta.it/umorismo/barzellette/vostre.php

Fuorissimo
http://www.fuorissimo.com

Funny Headlines.
http://freaespace.virgin.net/mark.fryer/headlines4.html

Funny Headlines.
http://freespace.virgin.net/mark.fryer/headlines3.html

Funny Headlines.
http://freespace.virgin.net/mark.fryer/headlines.html

Funny Headlines.
http://www.rightwords.co.uk/anechdl.html

Funny Headlines.
http://www.geocities.com/Pentagon/Barracks/8889/jokes/news.htm

Funny Headlines.

http://home.capecod.net/~tpanitz/ejoke/j49.html

Headlinehumor.com.

http://www.headlinehumor.com/headlines5.htm?Submit=Next+Page
http://www.headlinehumor.com/headlines7.htm?Submit=Next+Page

Humorous Headlines.
http://www.velocity.net/~acekc/headlines.htm

Language Humor.
http://www.english-usa.net/humor-jokes
http://www.english-usa.net/humor-jokes/page2.html
http://www.english-usa.net/humor-jokes/page5.html
http://www.english-usa.net/humor-jokes/page4.html

Merriam-Webster OnLine – The Language Center.
http://www.m-w.com/home.htm

Omega13a's web page.
http://omega13a.ultimate-results.net/index.php?pg=headlines-crime&
http://omega13a.ultimate-results.net/index.php?pg=headlines-trials&
http://omega13a.ultimate-results.net/index.php?pg=headlines-sports&
http://omega13a.ultimate-results.net/index.php?pg=headlines-goverment&
http://omega13a.ultimate-results.net/index.php?pg=headlines-misc&

http://www.tjohnsonmedia.com/funn.htm

http://ousd.k12.ca.us/~codypren/headlines.html

Sober VSU.

http://www.sobervsu.org.uk/viewContent.php?itemID=23

http://www.thewritecourse.com/Resources/headlines.htm