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EZEQUIEL LUCENA DE FARIAS

STRUCTURAL AMBIGUITY IN SYNTACTIC PHRASES CONSTRUCTION

CAMPINA GRANDE – PB

2023

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This Undergraduate Thesis is a partial fulfillment of the requirements for conclusion of the course Letras – Língua Inglesa (Lic) – D of Centro de Humanidades of Universidade Federal de Campina Grande (UFCG).

Advisor: Professor Doctor Cleystone Chaves dos Santos

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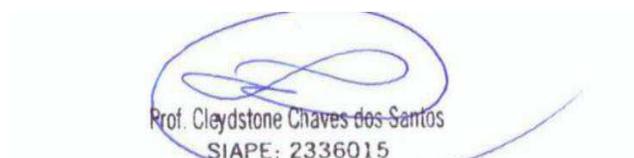
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DEDICATION

Για το

Ἐγώ εἰμι τὸ Α καὶ τὸ Ω ἀρχὴ καὶ τέλος, ... ὁ κύριος ὁ ὢν
καὶ ὁ ἦν καὶ ὁ ἐρχόμενος ὁ παντοκράτωρ.¹

For the

I am, the Alpha and the Omega, the beginning and the ending ... The
Lord, which is, and which was, and which is to come, the Almighty.²
(Rev 1:8 KJV)

For my mother, without whose love, faith, support and
prayers this undergraduate thesis may never have come
into being.

¹ *Textus Receptus. In:* BLUE LETTER BIBLE. **Revelation 1 (KJV) - The Revelation of Jesus Christ.** Available at: < https://www.blueletterbible.org/kjv/rev/1/1/ss0/r10/s_1168001 >. Accessed on 13 Jun, 2023.

² BLUE LETTER BIBLE. **Revelation 1 (KJV) - The Revelation of Jesus Christ.** Available at: < https://www.blueletterbible.org/kjv/rev/1/1/ss0/r10/s_1168001 >. Accessed on 13 Jun, 2023.

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I thank before You, living and eternal King. LORD of hosts, the God of the armies of Israel, my strength and my redeemer.

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³ Adapted from:

MACHIR, Moshe ben. **Modeh Ani**. In: Seder haYom. Venice, 1599.

BLUE LETTER BIBLE. **1 Samuel 17 (KJV) - Now the Philistines gathered together**. Available at: < https://www.blueletterbible.org/kjv/1sa/17/1/ss0/r10/t_conc_253045 >. Accessed on 13 Jun, 2023.

BLUE LETTER BIBLE. **Psalm 19 (KJV) - [[To the chief Musician, A**. Available at: < https://www.blueletterbible.org/kjv/psa/19/1/ss0/r10/t_conc_497014 >. Accessed on 13 Jun, 2023.

learning something completely new, it felt to me as looking through stained glass, until the light shone through, revealing all the syntagmatic and paradigmatic meanings refracted by the prism of knowledge.

My path up to this point was quite sinuous, it started from Mathematics, Physics, Electrical Engineering and last but not least English Language. Already in Mathematics I felt the pull that Logics exerted on me. The dream of Bertrand Russel to reduce the whole of Mathematics to logic, was also my dream, until it got shattered by Cantor's diagonal argument that lead to Gödel's incompleteness theorems. The latter one proved that no system can be simultaneously complete and consistent. This fact itself, was like an Achilles' heel not only for Mathematics, but for language in general. These idiosyncrasies had mostly to do with paradoxes involving the infinite, that had still been haunting me, since my childhood. Other logic paradoxes bothered me a lot, for instance, the Liar Paradox, which I discussed with the Professors Adeildo Pereira da Silva Júnior and Aloísio de Medeiros Dantas at ADUFCG, many thanks to both for their inspiration. Professor Adeildo shed some light on the solution of the Liar Paradox, based on Speech Theory, this fact alone fostered my interest in language outside Mathematics, his classes about conceptions of language and Greek contributions on grammar were quite intriguing to me, since I was immersed in Greek mathematics, two faces of the language coin. During these classes I learned about Chomsky, what inspired me a lot, so I decided to do the same leap from exact sciences to language.

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בְּדַבַּר יְהוָה שָׂמִים נַעֲשׂוּ וּבְרוּחַ פִּי כָל־עַבְדָּאִם:

(Tehillim 33:6)⁴

⁴ BLUE LETTER BIBLE. **Psalm 33 (KJV) – Rejoice in the LORD, O.** Available at: < https://www.blueletterbible.org/kjv/psa/33/1/t_conc_511006 >. Accessed on 3 Jun, 2023.

Resumo

Num mundo onde informação e comunicação confiável são cruciais, uma mensagem clara e não ambígua é de extrema importância. Sintagmas e orações são essenciais para comunicação escrita e falada. A sintaxe da Língua Inglesa pertencente à micro linguística no campo da linguística, estuda a estrutura de sintagmas e orações (BURTON-ROBERTS, 2016). Neste cenário, este estudo aborda a questão da *Ambiguidade Estrutural na Construção Sintática de Sintagmas*, considerando que “*Ambiguidade estrutural, ocorre quando o significado das palavras componentes pode ser combinado em mais de uma forma (O’Grady et al. 1997)*”⁵ (SIMATUPANG, 2007, p. 100). Duas abordagens são consideradas ao lidar com ambiguidade estrutural (AE), a saber: Simatupang (2007) e Taghiyev (2018), a fim de entender: 1 – Quais estruturas sintáticas, além de sintagmas preposicionais, tendem a serem mais susceptíveis à ambiguidade estrutural nos contextos de Inglês escrito e falado? e 2 – Como a constituinte sintagmática pode auxiliar a prever a ambiguidade estrutural no Inglês escrito e falado? Para responder a essas questões, foi seguida a abordagem de Burton-Roberts (2016) em relação à estrutura dos sintagmas; um contraste entre características do Inglês falado versus escrito foi feito de acordo com Simatupang (2007) e Taghiyev (2018), seguido pelas conceitualizações de ambiguidade estrutural dadas pelos autores; árvores sintáticas foram utilizadas como ferramenta para contrastar as possíveis soluções de AE. A análise dos resultados confirma a susceptibilidade de sintagmas preposicionais, verbais e nominais, em ordem decrescente de ocorrência, à AE em contextos de Inglês escrito e falado. A constituinte sintagmática teve um papel fundamental na identificação de AE em orações coordenadas e afirmativas. Isto também permitiu desambiguar a oração, no modo escrito. O uso de dispositivos suprasegmentais tais como contraste de pronúncia, pausa e nível de entonação foi essencial para desambiguar orações na modalidade do Inglês falado. Por último, mas não menos importante, decidir à qual constituinte um sintagma pertence foi decisivo na desambiguação de uma sentença. A importância dos resultados foi destacada em cenários de comunicação; em contextos de Inglês como Língua Estrangeira (ILE) para professores em formação quanto ao entendimento e solução de ambiguidade estrutural, também na aplicação deste conhecimento em campo.

Palavras-chave: ambiguidade estrutural; constituinte sintática; sintaxe.

⁵ Tradução minha.

Abstract

In a world where information and reliable communications are crucial, a clear unambiguous message is of utmost importance. Phrases and sentences are essential for written and spoken communication. English syntax as part of microlinguistics as a branch of linguistics, studies phrases and sentence structure (BURTON-ROBERTS, 2016). In this scenario, this study takes on the issue of *Structural Ambiguity in Syntactical Phrases Construction*, considering that “*Structural ambiguity, occurs when the meaning of the component words can be combined in more than one way (O’Grady et al. 1997)*” (SIMATUPANG, 2007, p. 100). Two approaches in dealing with structural ambiguity (SA) are considered, namely: Simatupang (2007) and Taghiyev (2018), in order to understand: 1 – Which syntactic structures, aside from prepositional phrases, tend to be susceptible to structural ambiguity in written and spoken English contexts?; and 2 – How can constituency help to predict structural ambiguity in written and spoken English? To answer these questions it was followed the approach by Burton-Roberts (2016) in relation to structure of phrases; a contrast of written versus spoken English features, according to Simatupang (2007) and Taghiyev (2018) was made, followed by their conceptualization of structural ambiguity; syntactical trees were used as support for contrasting the possible solutions of SA. The analysis of the results confirms that prepositional phrases are highly susceptible to SA in written and spoken English contexts, and aside from that, nominal phrases and verb phrases, in a decreasing order of occurrence. Constituency played a key role in identifying multiple subjacent structures in a sentence, what characterize SA. It also allowed to disambiguate the sentence, either by the movement of the constituents, or by addition of new phrases in the sentence for the written mode. The use of supra-segmental devices such as contrastive stress, pause, and tone level was essential to disambiguate sentences in the spoken English mode. Last but not least, deciding which constituent a syntagma belongs to was decisive in disambiguating a sentence. The importance of the results was highlighted in communication scenarios; in EFL contexts for teachers-to-be, in understanding and solving structural ambiguity, also in applying this knowledge in the field.

Keywords: structural ambiguity; syntactic constituency; syntax.

List of Figures

Figure 1 – Prepositional Phrase Structure	21
Figure 2 - Syntactic Tree of Sentence [I] – First Interpretation	25
Figure 3- Syntactic Tree of Sentence [I]– Second Interpretation	25
Figure 4 – V node sub-categorizations for Sentence [52a]	26
Figure 5 – Syntactic Tree of Sentence [52a I]	27
Figure 6 – Syntactic Tree of Sentence [52a II]	27
Figure 7 – Example of a syntactic tree	30
Figure 8 – Syntactic Tree of Sentence [A.1]	37
Figure 9 – Syntactic Tree of Sentence [A.2]	37
Figure 10 - Phrasal Co-Ordination of PPs	41
Figure 11 – Syntactic Tree of sentence [B.1]	42
Figure 12 – Syntactic Tree of sentence [B.2]	42
Figure 13 – Syntactic Tree of sentence [C.1]	47
Figure 14 – Syntactic Tree of sentence [C.2]	47
Figure 15 – Syntactic Tree of sentence [D.1]	53
Figure 16 – Syntactic Tree of sentence [D.2]	53
Figure 17 – Syntactic Tree of sentence [D.3]	54
Figure 18 – Syntactic Tree of sentence [D.4]	54
Figure 19 – Syntactic Tree of sentence [E.1]	62
Figure 20 – Syntactic Tree of sentence [E.2]	62
Figure 21 – Constituent Phrases Distribution	66

List of Tables

Table I – Contrast between the syntactic trees for sentence [I]	25
Table II – Contrast between the syntactic trees for sentences [52a I] and [52a II]	27
Table III – Types of structural ambiguities	29
Table IV – Contrast between the syntactic trees for sentences [A.1] and [A.2]	37
Table V – Contrast between the syntactic trees for sentences [B.1] and [B.2]	42
Table VI – Contrast between the syntactic trees for sentences [C.1] and [C.2]	47
Table VII – Contrast between the syntactic trees for sentences [D.1] and [D.2]	53
Table VIII – Contrast between the syntactic trees for sentences [D.3] and [D.4]	54
Table IX – Contrast between the syntactic trees for sentences [E.1] and [E.2]	62
Table X – Samples types of structural ambiguity	66

List of Abbreviations

Adj. – Adjective

AdvP – Adverb Phrase

AP – Adjective Phrase

Aux – Auxiliary Verb

BAD – British Accents and Dialects

BNC – British National Corpus

c – Complement

Conj – Conjunction

CP – Complementizer Clause

Det - Determiner

ditrans – Ditransitive

E – Ellipted term

EFL – English as Foreign Language

m – Modifier

MOD – Modal Verb

NG – Nominal Group

NP – Noun Phrase

PP – Prepositional Phrase

prep – Preposition

pron - Pronoun

S – Sentence

SA – Structural Ambiguity

VP – Verb Phrase

Contents

I.	<u>INTRODUCTION</u>	17
II.	<u>THEORETICAL BACKGROUND</u>	19
	II.1 <u>THE STRUCTURE OF PHRASES</u>	19
	II.2 <u>WRITTEN VS SPOKEN ENGLISH FEATURES</u>	22
	II.3 <u>STRUCTURAL AMBIGUITY</u>	23
	II.4 <u>SYNTACTIC TREES</u>	30
III.	<u>METHODOLOGY</u>	31
	III.1 <u>RESEARCH TYPOLOGY</u>	31
	III.2 <u>RESEARCH TOOLS</u>	31
	III.2.1 <u>BNC- British National Corpus</u>	31
	III.2.2 <u>Online Phrase Tree Maker</u>	32
	III.3 <u>DATA COLLECTION</u>	32
	III.3.1 <u>Procedures</u>	32
	III.3.2 <u>Data Collection, Construction and Analysis Criteria</u>	32
	III.4 <u>CORPUS</u>	32
	III.4.1 <u>Corpus-based Instances (from BNC and BAD)</u>	33
	III.4.2 <u>Analysis Procedures</u>	34
	III.4.2.1 <u>Categorization of the Samples</u>	34
	III.4.2.1.1 <u>Written English Utterances</u>	34
	III.4.2.1.2 <u>Spoken English Utterances</u>	34
	III.4.2.2 <u>Identification and Description of Structural Ambiguity in the Utterances</u> <u>Collected</u>	34
	III.4.2.3 <u>The Contrast Between the Interpretations of each Ambiguous Utterance</u>	35
	III.4.2.4 <u>Suggestions for Structural Disambiguation of the Ambiguous Utterances</u>	35
IV.	<u>RESULTS AND DISCUSSION</u>	35
	IV.1 <u>SAMPLE [A] ANALYSIS</u>	35
	IV.2 <u>SAMPLE [B] ANALYSIS</u>	40

IV.3	SAMPLE [C] ANALYSIS	46
IV.4	SAMPLE [D] ANALYSIS	50
IV.5	SAMPLE [E] ANALYSIS	61
V.	APPLICATIONS	67
VI.	CONCLUSION	67
VII.	REFERENCES	69

I INTRODUCTION

English syntax studies as belonging to microlinguistics as a branch of linguistics, embody a great range of issues from phrase to sentence structuring (BURTON-ROBERTS, 2016). In the context of phrase or sentence structuring, structural ambiguity according to (SIMATUPANG, 2007) is an issue which needs attention *since it depends on linguistic knowledge and on the level of proficiency of the students in identifying it* (SIMATUPANG, 2007, p. 99, 103). Thus, this study is relevant in general, since ambiguity in language studies should be avoided in several critical contexts that go from the most technological applications to human activities, such as: satellite communications, communications between tower and a flight, communications between physicians during a surgery procedure, law enforcement communications, rescue situations or on a trial, etc. In the context of English as Foreign Language (EFL) teaching, for teachers-to-be, this study may serve as a set of strategies sample on the approach of structural ambiguity issues, while tailoring activities for students. Also, this study highlights the importance of avoiding ambiguity to grasp the intended meaning of a sentence in an unambiguous way.

Considering that, the present work focuses on the issue of structural ambiguity in syntactic phrases construction. Regarding the English Syntax Literature (BURTON-ROBERTS, 2016), in the context of written English, structural ambiguity commonly occurs with prepositional phrases (PPs), although it can also occur in adverb phrases (AdvPs), noun phrases (NPs), etc.

This commonness may be attributed to what Downing (2015) refers as:

A notable feature of the English language is the extremely wide use it makes of prepositions; and where there is a preposition there is a PP, since prepositions cannot normally stand alone, although they can be separated from their complement by 'stranding' (DOWNING, 2015, p. 467)

For instance, as Downing (2015, p. 468) exemplifies, we can have as PPs: “*right **into** the policeman’s arms*”; “*completely **out of** control*”; “*straight **along** this road*”; Also, Burton-Roberts (2016) gives us the following examples of other categories of phrases: “*Two rather dubious **jokes***” (NP) (BURTON-ROBERTS, 2016, p. 48); “*more **obviously***” (AdvP) (BURTON-ROBERTS,

2016, p. 54); etc. We highlighted the head of the phrases, respectively: preposition for PP's, noun for NP and adverb for AdvP.

In this scenario, this research seeks to answer two questions, namely: 1- Which syntactic structures, aside from prepositional phrases, tend to be susceptible to structural ambiguity in written and spoken English contexts? 2- How can constituency help to predict structural ambiguity in written and spoken English?

In order to answer these questions, our general objective is to investigate syntactic constructions more susceptible to generating structural ambiguity. We narrow it down to two specific objectives: 1- To identify and describe syntactic constructions more susceptible to structural ambiguity. 2- To contrast syntactic constructions constituency whether they are susceptible or not to structural ambiguity.

To support our objectives, this study will revise some main aspects of English syntax structure concerning phrase construction and their contexts, which favor structural ambiguity. Firstly, a literature review will cover the structure of phrases in their multiple contexts and usage; then a contrast between written vs spoken English features will be established followed by a structural ambiguity description and how it is dealt by different scholars; last but not least, an examination of the syntactic trees⁶ generated by the different interpretations of ambiguous sentences will be carried out in order to contrast how sentence ambiguities can be solved. We proceed to establishing the nature of this research and the research tools used in it; followed by a data sample of written and spoken English collection for analysis. Results will be supported by the use of syntactical trees to highlight structural ambiguities in order to identify which structures are more susceptible to generate such ambiguities. A discussion of the findings will take place while presenting results. Last but not least, some suggestions for applications are listed, followed by our conclusions.

⁶ All syntactic trees of this study are generated with our inputs using IronCreek Software jsSyntax Tree generator at: < <http://ironcreek.net/phpsyntaxtree.legacy/?> >

II THEORETICAL BACKGROUND

The theoretical background of this study comprises the following subsections: 1) The Structure of Phrases; 2) Written vs spoken English features; 3) Structural ambiguity; and, 4) Syntactical trees.

Firstly, to delve into this research, we need to comprehend the structure of phrases, for this, we will follow the approach by Burton-Roberts (2016). Followed by the contrast of written versus spoken language features, according to Simatupang (2007) and Taghiyev (2018). Then, the conceptualization and approach on dealing with Structural Ambiguity (SA) by Simatupang (2007) and Taghiyev (2018). Finally, we will use syntactical trees as support for contrasting possible solutions of structural ambiguity.

II.1 THE STRUCTURE OF PHRASES

For Burton-Roberts (2016), *structure is central to the study of syntax*. The author affirms that *the concept of structure applies to any complex thing*. Thus, *complex* according to the author is something that is:

(a) ... divisible into parts (its CONSTITUENTS), (b) there are different kinds of parts (different CATEGORIES of constituents). (c) the constituents are ARRANGED in a certain way, (d) and each constituent has a specifiable FUNCTION in the structure of the thing as a whole. (BURTON-ROBERTS, 2016, p.6).

This structure, according to the author, is *hierarchical*, in other words, each part (constituent) can be formed of other parts.

The parts fundamental for the syntactic study are words, the grouping of these words is called phrases. *“It is these phrases (or further phrases made up of these phrases) that function as immediate constituents of the sentence.”* (BURTON-ROBERTS, 2016, p.10).

Burton-Roberts (2016) defines *sentence* as being formed by “*two constituents, the first of which is traditionally said to function as SUBJECT, and the second as PREDICATE.*” (BURTON-ROBERTS, 2016, p.25). In terms of functions “*...the subject as being used to mention something ... and the predicate as used to say something about the subject ...*” (BURTON-ROBERTS, 2016, p.25).

Depending on the position and function of a phrase within a sentence, they can have different categories, thus, called Phrasal Categories. Such categories are: Noun Phrases, Verb Phrases, Adjective Phrases, Adverb Phrases, Prepositional Phrases, etc. “*It is the category of the HEAD word that determines the category of the phrase as a whole.*” (BURTON-ROBERTS, 2016, p.48). So, Burton-Roberts (2016, p.48) defines: *Noun Phrase is a phrase that contains, and is centred on, a noun.* And following the same reasoning: “*Adjective Phrases (AP) are centred on adjectives (A).*” (BURTON-ROBERTS, 2016, p.53); Adverb Phrase (AdvP) on adverbs; Prepositional Phrase (PP) on prepositions and so on.

The phrasal categories will perform an important role in the present study, since they will determine how phrases can be disambiguated properly, no matter if they take place in spoken or written English contexts. For a better understanding, Section II.2. deals with those contexts.

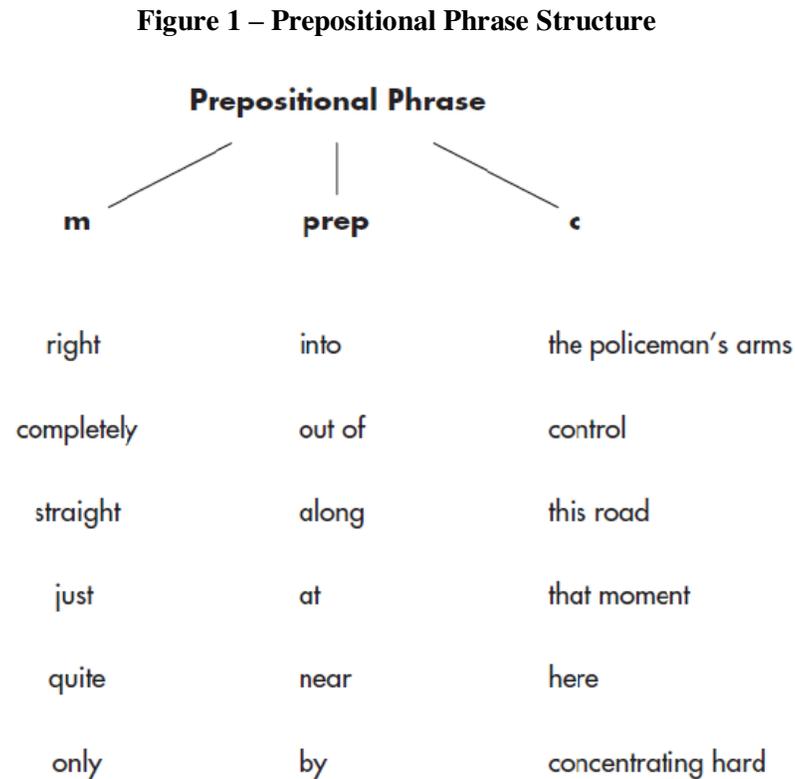
As stated in the introduction, Burton-Roberts (2016) and Downing (2015) point out the commonness of Prepositional Phrases (PPs) in the English language. Let’s take a look into the structure of PPs.

Downing (2015, p.467) lists some of the main features related to prepositions and PPs: “*Prepositions have a relating function: they establish relations between nominal units, mainly nouns and nominal groups, and other units in the surrounding discourse.*” (DOWNING, 2015, p. 467).

In terms of structure, what differ prepositional phrases from other categories of phrases that are centered on the head that defines those categories, according to Downing (2015) is: “*... a preposition cannot normally occur without a nominal unit, and a nominal unit is not part of a PP if there is no preposition. Both are equally necessary to form the phrase.*” (DOWNING, 2015, p. 468).

More precisely: “*The internal structure of a PP consists of a preposition and its complement, both of which are obligatory, and an optional modifier.*” (DOWNING, 2015, p. 468).

This structure can be seen in the following examples on the following figure 1:



Source: (DOWNING, 2015, p. 468)

Downing (2015, p. 469) highlights some important features of prepositions and PPs with some examples, such as: prepositions can be free ‘lexical’: “*in this country, all over our carpet and sofa*”; or bound (Grammatically determined): “*Grammaticalised uses of prepositions are those which are controlled by a verb, adjective or noun, as happens with talk to them, obsessed with being, kind to animals, cases of cruelty.*” (DOWNING, 2015, p. 469).

From the features pointed out by Downing (2015), the one that interests us more is the potential for structural ambiguity:

As PPs are frequently **embedded** in other PPs, structural ambiguity may occur with a **prep+Ng+prep+Ng** sequence: ‘near the bar on the corner’ admits two analyses: (a) near

[the bar on the corner] in which ‘on the corner’ is the post-modifier of ‘the bar’. (b) near [the bar] + [on the corner] consists of two independent adjuncts which might be reversed in order: on [the corner] + [near the bar] (DOWNING, 2015, p. 469).

When such cases arise, in order to disambiguate the sequence, as this present study shows, there are some possibilities such as: the use of proper punctuation; the addition of extra information; the reversal of the constituents as seen in the above instance; or even a combination of these suggestions.

II.2 WRITTEN VS SPOKEN ENGLISH FEATURES

In the context of *Structural Ambiguity* (SA), the differentiation between the written mode and the spoken mode in English is crucial. The main reason is, in the spoken English mode, the meaning of a sentence is clearer, because of the stress in contrasting words, pauses and the tone, being less susceptible to ambiguity. Having this point in consideration, the focus of this study is in the written English mode.

Simatupang (2007) contrasts written and spoken languages, and points punctuation as the way to disambiguate sentences in written language; on the spoken language what takes the role of punctuation signs is the way the sentence is uttered, with or without juncture. The author gives as example the ambiguous sentence: “*The teacher thanked the students who had given her some flowers*” (SIMATUPANG, 2007, p. 103), and explains:

This fifth sentence can be ambiguous because it can be written in two versions with absolutely different meaning: • The teacher thanked the students who had given her some flowers. • The teacher thanked the students, who had given her some flowers. In spoken language, the first sentence is uttered without juncture, while the second with juncture between the antecedent (NP) and the Adjective clause. (SIMATUPANG, 2007, p. 103).

Taghiyev (2018) emphasizes the difference between written and spoken language features very straightforwardly:

All linguists who have dealt with structural-syntactic ambiguity hitherto agree upon the fact that phrase or sentence structure can be ambiguous and misunderstood due to the attachment problems between words in the sentence. (TAGHIYEV, 2018, p.59).

On the one hand, this characterizes the written mode of language.

On the other hand, for spoken language: “...*very important supra-segmental devices such as contrastive stress, pause and tone level which are very effective disambiguators of human speech.*” (sic.) (TAGHIYEV, 2018, p.59). So, for Taghiyev (2018), due to those supra-segmental devices, spoken language differs from written language, in the sense that:

In natural languages, depending on the intention of the speaker, sentences are pronounced namely this way, i.e. some words have contrastive stress on them in order not to induce ambiguity; otherwise, there would occur misunderstanding at every step. Actually, it is not the case in a spoken language. (TAGHIYEV, 2018, p.60).

Thus, the author points out as source of ambiguity the logocentrism, or “*intentional misinterpretation of the written text, which lacks the devices of supra-segmental phonetics, namely contrastive stress and pause, but not due to oral speech of the speaker.*” (TAGHIYEV, 2018, p.60). According to the author, it justifies the focus on structural ambiguity study on written language. The most important thing of this contrasts is the attempt “*to demonstrate the gap between oral human speech and its written version, which disables the latter to transmit human speech exactly.*” (TAGHIYEV, 2018, p.61).

The distinctions of written and spoken modes of language pointed out by the authors above, highlight that they have an important role when considering structural ambiguity. Contrasting them helps not only to understand the reasons that make structural ambiguity arise, but also, the possible ways of disambiguating sentences. Furthermore, it gives insights on how the attempt of representing spoken language in written form can be difficult.

II.3 STRUCTURAL AMBIGUITY

A *Structurally Ambiguous* sentence arises when there are multiple possible interpretations for the sentence. As examples of ambiguous sentences we have: “*The girl hit the boy with a book*” (SIMATUPANG, 2007, p. 100); “- *Let’s eat up the road. – No, thanks, I don’t like concrete.*” (TAGHIYEV, 2018, p. 59); “*Heseltine asked how old Sam was.*” (BURTON-ROBERTS, 2016,

p.18). The first sentence can be interpreted as: *The girl used a book to hit the boy or The girl hit the boy, who had a book*. The second example, a structural joke, can be interpreted as: *Let's eat while on the road or Let's eat the pavement*; The ambiguity on the last sentence: "*Heseltine asked how old Sam was.*" is dealt in more details ahead.

According to Simatupang (2007): "A word, phrase, or sentence is ambiguous if it has more than one meaning." (SIMATUPANG, 2007, p. 99). The author categorizes ambiguity in two kinds, lexical and structural. "*Lexical ambiguity, the one resulting from the ambiguity of a word, is the more common one.*" (SIMATUPANG, 2007, p.100) and "*Structural ambiguity, occurs when the meaning of the component words can be combined in more than one way (O'Grady et al. 1997)*" (SIMATUPANG, 2007, p. 100).

Using slightly similar terms, according to Taghiyev (2018):

Linguistic ambiguity itself falls into two main types; one being lexical-semantic ambiguity, the other being structural-syntactic ambiguity. In lexical-semantic ambiguity a word or phrase in the utterance has more than one meaning ... in structural-syntactic ambiguity ... not a single word or phrase in the utterance has more than one semantic meaning, but still the whole utterance is misunderstood due to the ambiguity in the structure of the sentence. (TAGHIYEV, 2018).

In our present study, our focus is on Structural Ambiguity. Concerning that ambiguity, it can be identified in a constituency level, as the example below from Burton-Roberts (2016, p.18):

[1] "*Heseltine asked how old Sam was.*"

The ambiguity arises when trying to identify which question Heseltine asked.

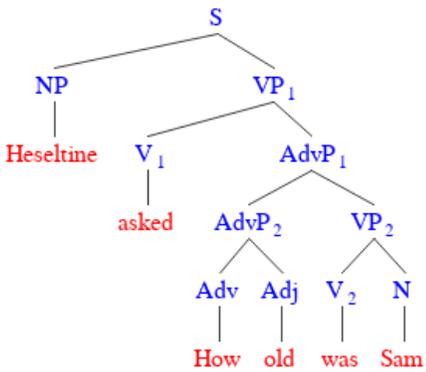
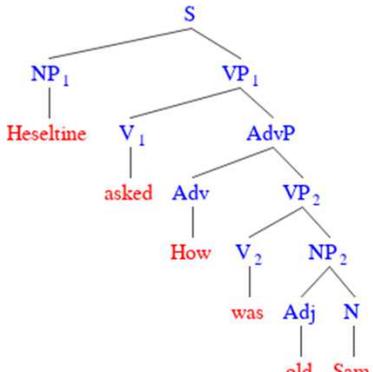
The two different questions that could have been asked by Heseltine are [a] How old is Sam? and [b] How is old Sam? As these different questions show, on the first interpretation, [a], old belongs with how to form the phrase how old. In this question, the phrase as a unit has been moved from its position at the end of the sentence (Sam is how old?). On this interpretation, since old forms a constituent with how, it simply cannot also form a constituent with Sam. It's on the second interpretation, [b], that old and Sam go together, forming a constituent. (BURTON-ROBERTS, 2016, p.18)

In both interpretations we have a noun phrase (NP) as subject: "*Heseltine*"; a verb phrase (VP) headed by: "*asked*"; followed by an embedded adverb phrase (AdvP) where the two possible interpretations will differ. In one interpretation the adjective "*old*" acts as a postmodifier for the

adverb “How”, forming a constituent. In the other interpretation the adjective “old” acts as a premodifier of the noun “Sam”, forming another constituent. So, in structural terms, the ambiguity is solved by moving the adjective within the embedded adverb phrase according to what we mean with the sentence.

Sentence [1] can be contrasted in terms of Syntactic Trees, as on Table I below:

Table I – Contrast between the syntactic trees for sentence [I]

First Interpretation	Second Interpretation
<p>[S [NP Heseltine] [VP [V asked] [AdvP [AdvP [Adv How] [Adj old]] [VP [V was] [N Sam]]]]]</p> <p>Figure 2 - Syntactic Tree of Sentence [I] – First Interpretation</p> 	<p>[S [NP Heseltine] [VP [V asked] [AdvP [Adv How] [VP [V was] [NP [Adj old] [N Sam]]]]]]]</p> <p>Figure 3- Syntactic Tree of Sentence [I]– Second Interpretation</p> 

Source: Own authorship, using IronCreek Software jsSyntax Tree generator.

Another very interesting example pointed out by Burton-Roberts (2016, p.75) is:

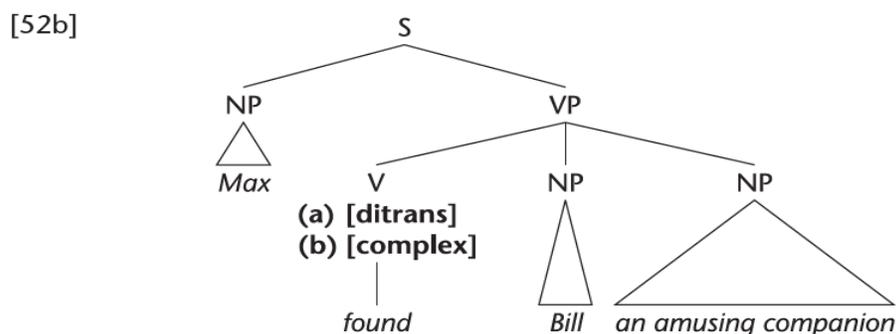
“[52a] Max found [Bill] [an amusing companion].”

This ambiguous sentence can have at least two possible interpretations, depending upon the assigned functions of the two complements of the verb. The way Burton-Roberts (2016) solves the ambiguity is assigning “two different sub-categorisation features to the V found.” (sic.) And explains it as follows:

On one interpretation, [52a] corresponds in meaning with **(a)** Max found an amusing companion for Bill. On this interpretation, the verb find is ditransitive: Bill refers to the beneficiary and is functioning as indirect object, and an amusing companion is the direct object. Notice that three participants are involved on this (ditransitive) interpretation. On the other interpretation, [52a] corresponds with **(b)** Max found Bill to be an amusing companion. On this interpretation, Bill and an amusing companion have the functions associated with the complements of complex transitive verbs: direct object (Bill) and object-predicative (an amusing companion). On this complex transitive interpretation, there are only two participants, Max and Bill; an amusing companion merely attributes a property to Bill. The distinction in meaning between (a) and (b) – and hence the ambiguity – and the different functions of Bill and an amusing companion is all accounted for simply by the difference in sub-categorisation feature attached to the V. (sic) (BURTON-ROBERTS, 2016, p. 75)

In this scenario, in the syntactic tree structure according to Burton-Roberts (2016), for both interpretations occurs basically *the same*, differing only on the verb sub-categorization that is attached to the V node, as showed on the figure 4 below:

Figure 4 – V node sub-categorizations for Sentence [52a]



Source: (BURTON-ROBERTS, 2016, p. 76)

The ambiguity is, indeed, solved as proposed by Burton-Roberts (2016) in:

[52a I] “*Max found an amusing companion for Bill.*” (BURTON-ROBERTS, 2016, p. 75)

[52a II] “*Max found Bill to be an amusing companion.*” (BURTON-ROBERTS, 2016, p.

75)

We propose for the solutions above, the syntactic trees on the following Table:

Table II – Contrast between the syntactic trees for sentences [52a I] and [52a II]

First Interpretation	Second Interpretation
<p>[S [NP Max] [VP [V found] [NP [NP an amusing companion] [PP for Bill]]]]</p> <p>Figure 5 – Syntactic Tree of Sentence [52a I]</p> <pre> graph TD S --> NP1[NP1] S --> VP[VP] NP1 --> Max[Max] VP --> V[V] VP --> NP2[NP2] V --> found[found] NP2 --> NP3[NP3] NP2 --> PP[PP] NP3 --> NP3_text[an amusing companion] PP --> PP_text[for Bill] </pre>	<p>[S [NP Max] [VP [V found] [NP [N Bill] [VP to be an amusing companion]]]]</p> <p>Figure 6 – Syntactic Tree of Sentence [52a II]</p> <pre> graph TD S --> NP1[NP1] S --> VP1[VP1] NP1 --> Max[Max] VP1 --> V[V] VP1 --> NP2[NP2] V --> found[found] NP2 --> N[N] NP2 --> VP2[VP2] N --> Bill[Bill] VP2 --> VP2_text[to be an amusing companion] </pre>

Source: Own authorship, using IronCreek Software jsSyntax Tree generator.

From the syntactic trees on Table II, we notice that both of them have a NP as subject, a VP headed by “*found*”. But they differ in regard to the complements of the verb.

On the first interpretation, “*Bill*” is the indirect object, and “*an amusing companion*” the direct object of the ditransitive verb “*found*”. In terms of constituency, the PP “*for Bill*” is acting as postmodifier of the NP “*an amusing companion*”. Due to the ditransitivity of the verb “*found*” in the VP, both the NP “*an amusing companion*” and the PP “*for Bill*” act as postmodifiers of the verb “*found*”, head of the VP.

On the other hand, for the second interpretation the NP “*Bill*” is the direct object and the VP “*to be an amusing companion*” is acting as a postmodifier for “*Bill*”. What is quite the opposite, as the roles have been switched around. This is significant, since in semantic terms the 2 sentences have different meanings.

In order to analyze the two interpretations and the steps taken to disambiguate the sentences, we will use, roughly, the way Simatupang (2007) represents the sentences, *i.e.*, each

sentence on a line and on the line below each sentence the designation of the VPs, NPs, PPs, etc. Then we proceed following the necessary steps for disambiguation. We will also use Simatupang's (2007) typology for the phrases, as shown on *Table III – Types of structural ambiguities*, ahead in the text. This procedure will be repeated whenever possible for all ambiguous samples analyzed in this study.

Thus, in short, the processes to solve the ambiguity on the sentence “*Max found Bill an amusing companion*” can be described as:

1) First Interpretation

[a] Max found [Bill] [an amusing companion] – Original ambiguous sentence.

VP NP₁ NP₂

[b] Max found [an amusing companion] [Bill] – Movement of constituents.

VP NP₂ NP₁

[c] Max found [an amusing companion] **for** [Bill] – Additional information added.

VP NP₂ PP NP₁

[d] Max found [an amusing companion] for [Bill] – Solved ambiguity.

VP NP PP

Therefore, during the disambiguation process, the sentence structure changes from a VP + NP + NP ambiguous construction, but a bracketing cannot be established yet, since the sentence has in it subjacent structures corresponding to multiple interpretations, to a VP + NP + PP unambiguous structure, that now can be bracketed as [VP [NP [PP]]].

2) Second Interpretation

[a] Max found [Bill] [an amusing companion] – Original ambiguous sentence.

VP NP₁ NP₂

[b] Max found [Bill] **to be** [an amusing companion] – Additional information added.

VP NP₁ VP NP₂

[c] Max found [Bill] to be [an amusing companion] – Solved ambiguity.

VP NP VP

During the disambiguation process, the sentence structure changes from a VP + NP + NP ambiguous construction, thus, not allowing bracketing, to a VP + NP + VP unambiguous structure that can be bracketed as [VP [NP [VP]]].

From many types of structural ambiguity, Simatupang (2007, p. 100-101), explores five types of structural ambiguity on his paper, as shown on Table III, below:

Table III – Types of structural ambiguities

Structural Ambiguities	
Type 1	VP + NP + PP
Type 2	Gerund + VP
Type 3	VP + NP + more ... than + NP
Type 4	VP + NP + PP ₁ + PP ₂
Type 5	NP + Adj. Clause

Source: Adapted from Simatupang (2007, p. 100-101)

The type of structure as [a] *Max found [Bill] [an amusing companion]* is not listed in the types above, but it has a very close similarity to Type 1, in fact, Type 1 is one of the structures that solves the ambiguity.

So, in order to verify our specific case, let's describe [a] as a new type, namely:

Type 6: VP + NP₁ + NP₂

As a result, following Simatupang (2007) approach, we conclude that [a] is ambiguous due to a lack of information in the construction. We can describe [a] as follows:

Type 6: VP + NP₁ + NP₂

Max found [Bill] [an amusing companion]

VP NP₁ NP₂

That bifurcates in the interpretations 1 and 2 solutions aforementioned.

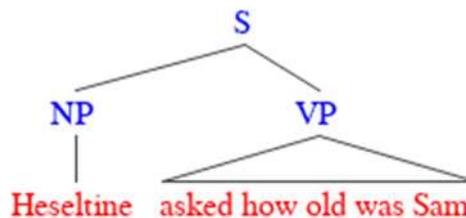
II.4 SYNTACTIC TREES

In Section II.1, we referred briefly to phrases as a grouping of words. More precisely: “*Sequences of words that can function as constituents in the structure of sentences are called PHRASES.*” (BURTON-ROBERTS, 2016, p. 12). This structure can be depicted using tree diagrams, as stated in: “*Tree diagrams represent structure by marking which sequences of words in a sentence are its constituent phrases. So syntactic tree diagrams are, more specifically, called PHRASE MARKERS.*” (BURTON-ROBERTS, 2016, p. 12). Since phrases can be groups of words that can form sentences, we have “*PHRASES – elements of structure intermediate between sentence and word.*” (BURTON-ROBERTS, 2016, p. 12).

A syntactic tree or phrase marker is a graphic way of representing the constituents of a sentence, how they relate to each other, hierarchically, focusing on their dependence and other aspects. In this context, we understand that “*In a phrase marker, a sequence of elements is represented as a constituent if there is a node that dominates all those elements and no others.*” (BURTON-ROBERTS, 2016, p. 17).

We can illustrate a syntactic tree with the example on the Figure 7 below:

Figure 7 – Example of a syntactic tree



Source: Own authorship, using IronCreek Software jsSyntax Tree generator.

This structure can also be represented through brackets: [S [NP Heseltine] [VP asked how old was Sam]]. From the syntactic tree on Fig. 7 above we notice that the subject of the sentence: *Heseltine asked how old was Sam.* is the Noun Phrase (NP) “*Heseltine*” or just one word, so the node NP dominates only “*Heseltine*”. However, the VP node dominates all the words that form the whole predicate of the sentence, namely “*asked how old was Sam.*” The reason a triangle is used to highlight those words is that we are considering here, only the predicate as a whole, without going deeper into the structure.

III METHODOLOGY

III.1 RESEARCH TYPOLOGY

The typology of this research has an applied qualitative interpretative nature.

On the one hand, it’s considered applied due to its applications for aiming at discovering solutions for *Structural Ambiguity in Syntactic Phrases Construction*, shedding light into its causes. For such a purpose, real language in use shall support solutions for such ambiguities in communication scenarios (cf. PAWAR, 2020, p.47).

On the other hand, it’s seen as qualitative, once it uses texts for findings in order to establish the quality of the subject of this research, namely: *Structural Ambiguity in Syntactic Phrases Construction* and our positioning in respect to this subject (cf. PAWAR, 2020, p.46).

Last but not least, it’s interpretative, for interpreting the data-driven findings to cope with structural ambiguity and the meaning implications for possible solutions (cf. PAWAR, 2020, p.46).

III.2 RESEARCH TOOLS

III.2.1 **BNC- British National Corpus** – for collecting samples of written and spoken English.

III.2.2 **Online Phrase Tree Maker** – for contrasting syntactic constructions constituency concerning susceptibility to structural ambiguity.

III.3 DATA COLLECTION

Data samples of written and spoken English modes were collected from the corpora sites: British National Corpus (BNC): < <https://www.english-corpora.org/bnc/> > and from British Accents and Dialects (BAD): < <https://www.bl.uk/british-accents-and-dialects/articles/regional-voices-an-introduction-to-language-variation-across-the-uk> >.

III.3.1 **Procedures:** This study starts by a literature review on Structural Ambiguity in phrases; a contrast between spoken and written English mode features will be established; samples of those modes with Structural Ambiguities will be collected from corpora sites and then they will be categorized according to the type of phrase and the source of ambiguity; finally, a solution for the ambiguities will be proposed, also the relevance of the study in English language teaching will be highlighted.

III.3.2 **Data Collection, Construction and Analysis Criteria** – syntactic category-driven. On the categories of prepositional phrases (PPs), adjective phrases (APs), noun phrases (NPs), etc. In order to identify which syntactical structures are susceptible to generating structural ambiguity.

III.4 CORPUS

A) Spoken English sample:

The spoken English samples was collected from the site: “British Accents and Dialects” (BAD).

As described on the *About the project*⁷ tab of the site: “*British accents and dialects features recordings of vernacular speech in 70 locations across the UK and over 600 audio clips chosen to illustrate how accents and dialects vary according to place and how spoken English has changed over time.*”

The genre of the samples is *unscripted interviews*, as described in the *About the project* tab: “*Interviews were unscripted and unrehearsed, encouraging speakers to use their normal speech forms.*”

B) Written samples:

The written English samples were collected from the site: British National Corpus (BNC).

As described in the BNC site⁸: “*... it contains 100 million words of text from a wide range of genres (e.g. spoken, fiction, magazines, newspapers, and academic).*”

III.4.1 Corpus-based Instances (from BNC and BAD):

[A] “*Call me a taxi, would you?*” (FOX, 1991)

[B] “*Maya was sitting on the bed next to me.*” (MARTIN, 1991)

[C] “*I worked in Wilkinson’s in the Strand Road.*” (MCCLAUGHLIN, 1999)

[D] “*Mr Nick Morris, 40, a producer with Academy Commercials, which has first-floor offices overlooking Bridle Lane, was standing next to a window shattered by the explosion.*”

[E] “*She saw the man on the pavement*” (SEYMOUR, 1991)

The samples [A], [B], [D] and [E] are written English samples from BNC.

The sample [C] is a spoken English sample from BAD.

⁷ Source: < <https://www.bl.uk/british-accent-and-dialects/about-the-project> >

⁸ Source: < <https://www.english-corpora.org/bnc/> >

The sample [D], from BNC, has its origins in the Daily Telegraph, and the author is not specified⁹.

The preponderance of written English samples in relation to spoken ones, is due to the nature of the corpus' search engines. BAD corpus has no search by terms, and although BNC has it, the scripted samples of spoken English are still fewer.

III.4.2 Analysis Procedures

III.4.2.1 Categorization of the Samples - Our analysis was divided into two phases:

III.4.2.1.1 *Written English Utterances*

Concerning written utterances, samples were collected from the British National Corpus (BNC).

III.4.2.1.2 *Spoken English Utterances*

In addition, spoken English samples were collected from the “*British Accents and Dialects*” (BAD).

III.4.2.2 Identification and Description of Structural Ambiguity in the Utterances Collected.

Samples were analyzed in order to identify the multiple inner syntactic structures that generated ambiguity.

⁹ Date: (1985-1994); Title: [Daily Telegraph, elect. edn. of 19920407]. World affairs material, pp. ??, 1145 s-units. Available at < <https://www.english-corpora.org/bnc/> >. Accessed on 17 May 2023.

III.4.2.3 The Contrast Between the Interpretations of each Ambiguous Utterance.

A contrast between the bracketing structures correspondent to the possible interpretations of the ambiguous samples were established, followed by the respective syntactic tree structures for each interpretation.

III.4.2.4 Suggestions for Structural Disambiguation of the Ambiguous Utterances.

According to the literature review suggestions were given to disambiguate the sentences.

IV RESULTS AND DISCUSSION

IV.1 SAMPLE [A] ANALYSIS

To start off our analysis, let's consider the written sample collected from the British National Corpus (BNC), below:

[A] "*Call me a taxi, would you?*" (FOX, 1991)

The ambiguity arises because sentence [A] can be interpreted in two possible ways. We have seen previously in Section *II.1. The Structure of Phrases*, that Burton-Roberts (2016) points out the two main constituents of a sentence, namely Subject and Predicate.

For the first interpretation, we can rearrange sentence [A], and rewrite it as:

[A.1] "*You would call a taxi for me.*"

Splitting Sentence [A.1] in its two main constituents, we have: The Subject: “*You*”, a noun phrase (NP) and the Predicate: “*would call a taxi for me.*”, a verb phrase (VP). In the VP: “*would call a taxi for me*”, the modal “*would*”, works as a premodifier of the verb “*call*” (the head of the VP). The verb “*call*” is ditransitive. “*Me*” refers to the beneficiary and is functioning as indirect object, and “*a taxi*” is the direct object of the ditransitive verb “*call*”. Thus, the prepositional phrase (PP) “*for me*” is acting as a postmodifier of the NP “*a taxi*”. Due to the ditransitivity of the verb “*call*” in the VP, both the NP “*a taxi*” and the PP “*for me*” act as postmodifiers of the verb “*call*”, head of the VP. The bracketing structure for the sentence is: [S [NP Pron] [VP [VP [MOD] [Vditrans]] [NP [NP] [PP]]]].

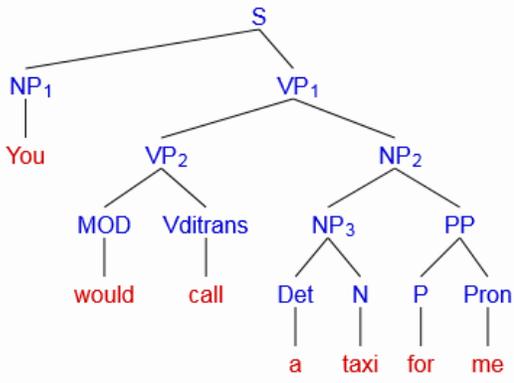
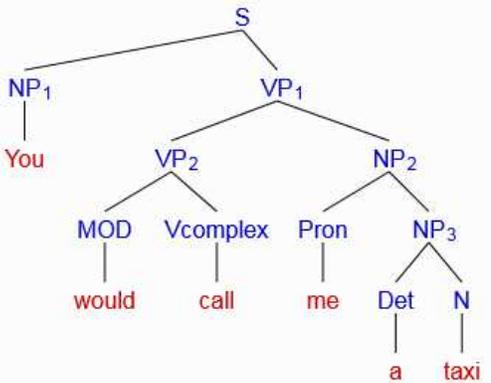
On the other hand, for the second interpretation, we can rearrange sentence [A] as:

[A.2] “*You would call me a taxi.*”

Now we split Sentence [A.2] in its two main constituents, namely: The Subject: “*You*”, a noun phrase (NP) and the Predicate: “*would call me a taxi.*”, a verb phrase (VP). In the VP: “*would call me a taxi*”, the modal “*would*”, works as a premodifier of the verb “*call*” (the head of the VP). The verb “*call*” is a complex transitive verb, “*Complex transitive verbs take TWO COMPLEMENTS: A DIRECT OBJECT (NP) and an OBJECT PREDICATIVE.*” (BURTON-ROBERTS, 2016, p. 74). Thus, the NP: “*me*” is the direct object of the complex transitive verb “*call*”; in addition we have a NP, functioning as the direct object of a verb, being a pronoun (considering: “*call me*” as the VP), this is called *Objective case* or *accusative case*, (cf. BURTON-ROBERTS, 2016, p.68); the NP: “*a taxi*” functions as an object-predicative attributing a property to the direct object “*me*”. In this interpretation the verb “*call*” has the same meaning as the verbs: “*name*” or “*address*”. In terms of the bracketing structure, we have for sentence [A.2]: [S [NP Pron] [VP [VP [MOD] [Vcomplex]] [NP Pron [NP [Det] [NP]]]]].

Sentence [A] can be contrasted in terms of Syntactic Trees, as on the following table:

Table IV - Contrast between the syntactic trees for sentences [A.1] and [A.2]

First Interpretation	Second Interpretation
<p>[S [NP You] [VP [VP [MOD would] [Vditrans call]] [NP [NP [Det a] [N taxi]] [PP [P for] [Pron me]]]]]</p> <p>Figure 8 – Syntactic Tree of Sentence [A.1]</p> 	<p>[S [NP You] [VP [VP [MOD would] [Vcomplex call]] [NP [Pron me] [NP [Det a] [N taxi]]]]]</p> <p>Figure 9 – Syntactic Tree of Sentence [A.2]</p> 

Source: Own authorship, using IronCreek Software jsSyntax Tree generator.

From the syntactic tree structures on Table IV, we notice that both of them have a NP as subject, a VP headed by the verb “call”, although they differ on the sub-categorization that is attached to the V node. They also differ in regard to the complements of the verb.

Thus, in short, the processes to solve the ambiguity on sentence [A] “*Call me a taxi, would you?*” (FOX, 1991) can be described as:

1) First Interpretation

[a] Call [me] [a taxi] would you – Original ambiguous sentence.

VP NP₁ NP₂ MOD

[b] You would call [a taxi] [me] – Movement of constituents.

MOD VP NP₂ NP₁

[c] You would call [a taxi] **for** [me] – Additional information added.

MOD VP NP₂ PP NP₁

[d] You would call [a taxi] for [me] – Solved ambiguity.

MOD VP NP PP

Therefore, during the solving process, the sentence structure changes from a VP + NP + NP + MOD ambiguous construction which a bracketing cannot be established yet, since it has in it subjacent structures corresponding to two interpretations, to a MOD + VP + NP + PP unambiguous structure, that now can be bracketed as [VP [MOD] [Vditrans]] [NP [NP] [PP]].

2) Second Interpretation

[a] Call [me] [a taxi] would you – Original ambiguous sentence.

VP NP₁ NP₂ MOD

[b] You would call [me] [a taxi] – Movement of constituents.

MOD VP NP₁ NP₂

[c] You would call [me] [a taxi] – The ambiguity is preserved.

MOD VP NP₁ NP₂

Therefore, considering “*call*” as (refer to as, name), the ambiguity remains. This second interpretation is most probably due to etymologic reasons behind the verb “*to call*”. Something we may notice is that “*call*¹⁰” is a monomorphemic verb, of Anglo-Saxon origin, verbs with these characteristics are known as allowing dative alternation:

it has often been claimed that morphophonological constraints on the dative alternation are discernable, in English at least (Grimshaw & Prince 1986, Gropen et al. 1989, Pesetsky 1995, Harley 2007). “Native” Anglo-Saxon verbs participate in the alternation, but many that do not, disallowing the DO-dative, are Latinate and/or more transparently multimorphemic (VIAU, 2007, p.29)

¹⁰ call (v.)

mid-13c., “cry out; call for, summon, invoke; ask for, demand, order; give a name to, apply by way of designation,” from Old Norse *kalla* “cry loudly, summon in a loud voice; name, call by name,” from Proto-Germanic **kall-* (source also of Middle Dutch *kallen* “speak, say, tell,” Dutch *kallen* “to talk, chatter,” Old High German *kallon* “speak loudly, call”), from PIE root **gal-* “to call, shout.” Related: *Called*; *calling*.

Source: <https://www.etymonline.com/word/call>

Let's consider our first sample of written English: [A] "*Call me a taxi, would you?*" (FOX, 1991). We can rearrange sentence [A] as:

[A.0] "*You would call me a taxi.*"

From sentence [A.0], two situations may arise depending upon which subcategory we designate to the verb according to its complements:

On the one hand, for the first interpretation, we may consider the verb "*call*" as ditransitive, then we can have two possibilities of sentence with the same meaning, namely: "*You would call a taxi for me*" and "*You would call me a taxi*". This is called dative shift or dative alternation. Thus, an easy way to avoid misinterpretation is just to choose to rearrange and rewrite [A.0] as: [A.1] "*You would call a taxi for me.*"

On the other hand, we may consider the verb "*call*" as complex transitive verb, which lead us to the second interpretation, as we rearrange [A.0] as: [A.2] "*You would call me a taxi.*". In this case, "*me*" is a direct object, and "*a taxi*" an object predicative.

Therefore, we notice that in both situations, when we subcategorize the verb as ditransitive or complex transitive, we have ambiguities. On the first situation we have for the ditransitive verb, the dative alternation that offers an easy way to disambiguate, just shifting from one to another of the two possibilities for the complements: from [NP me] + [NP a taxi] to [NP a taxi] + [PP for me]. On the second situation, we have for the complex transitive verb only one possibility, as having [NP me] + [NP a taxi], this possibility remains ambiguous, when a correspondence identification between the categories of the NP (Direct Object) and the NP (Object Complement) cannot be established. Notice that in a literary context, in which a car having had just seen a new car, may ask: How would I call you? Having as answer from the new car: "*You would call me a taxi*".

As a result, the ambiguity arises when we attribute a transitive complex verb category to a ditransitive verb sentence. This gives us an important clue for one possible way in which ambiguities can be generated, namely: when a verb is both ditransitive and complex transitive.

Relation to the research questions

And as addressing our first research question on what kind of syntactic structures, aside from prepositional phrases, tend to be more susceptible to structural ambiguity in written English contexts, in our first instance: sentence [A] “*Call me a taxi, would you?*” (FOX, 1991), we find the nominal phrases: NP₁: “*me*” and NP₂: “*a taxi*”.

In addition, in relation to our second research question on how constituency can help to predict structural ambiguity in written English, we verified that knowing the constituents of sentence [A] enabled us to move those constituents according to the functions such constituents have in the sentence. In turn, it allowed us to identify two possible structures corresponding to two different meanings of the sentence, characterizing it as a structural ambiguity: “*A word, phrase, or sentence is ambiguous if it has more than one meaning*” (SIMATUPANG, 2007, p. 99). And last but not least, such knowledge of the constituents of the sentence, made it possible to add new phrases in the sentence forming new constituents, in order to disambiguate it.

IV.2 SAMPLE [B] ANALYSIS

Considering the written sample, collected from the British National Corpus (BNC), below:

[B] “*Maya was sitting on the bed next to me.*” (MARTIN, 1991)

Sentence [B] is ambiguous because it can be interpreted in two different ways.

For the first interpretation, we can rearrange sentence [B] as:

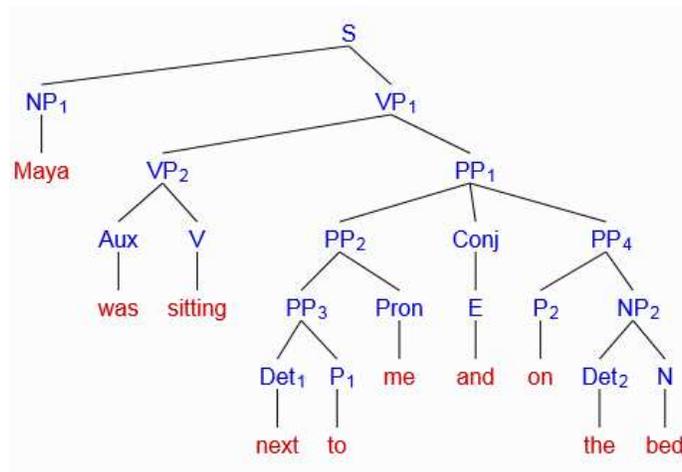
[B.1] “*Maya was sitting next to me on the bed.*”

Splitting Sentence [B.1] in its two main constituents, we have: The Subject: “*Maya*”, a noun phrase (NP) and the Predicate: “*was sitting next to me, on the bed.*”, a verb phrase (VP). In the VP: “*was sitting next to me, on the bed.*”, the auxiliary verb “*was*”, is functioning as a

premodifier of the verb “*sitting*” (the head of the VP). The verb “*sitting*” is intransitive. Thus, the PPs: “*next to me*” **and** “*on the bed*” are postmodifiers of the intransitive verb “*sitting*”.

Concerning that first interpretation, more particularly, the PP: “*next to me*” is a postmodifier of the verb “*sitting*” and the PP: “*on the bed*” is a postmodifier of the PP: “*next to me*”. Notice we highlighted the word “*and*”, since both PPs are simultaneously postmodifiers of the intransitive verb “*sitting*”, hence both PPs belong to the same category of phrase, thus having both the same function, in addition they are independent adjuncts. We can interpret them as a *Phrasal Co-Ordination of PPs*, with the coordinating conjunction “*and*” ellipated, as shown in Fig 10 below. In terms of bracketing we have: [S [NP] [VP [VP [Aux] [V]] [PP [PP [PP [Det] [P]] [Pron]] [PP [P] [NP [Det] [N]]]]]]].

Figure 10 - Phrasal Co-Ordination of PPs



Source: Own authorship, using IronCreek Software jsSyntax Tree generator.

The bracketing showing the ellipated conjunction [E]_{Conj} “*and*” is: [S [NP Maya] [VP [VP [Aux was] [V sitting]] [PP [PP [PP [Det next] [P to]] [Pron me]] [Conj [E and]] [PP [P on] [NP [Det the] [N bed]]]]]]].

For the second interpretation, we can keep the same order of the constituents of sentence [B], as in:

[B.2] “*Maya was sitting on the bed next to me.*”

Splitting Sentence [B.2] in its two main constituents, we have: The Subject: “*Maya*”, a noun phrase (NP) and the Predicate: “*was sitting on the bed next to me*”, a verb phrase (VP). In the VP: “*was sitting on the bed next to me*”, the auxiliary verb “*was*”, works as a premodifier of the verb “*sitting*” (the head of the VP). The verb “*sitting*” is intransitive. Therefore, the PP: “*on the bed next to me*” is a postmodifier of the intransitive verb “*sitting*”. The head of the PP: “*on the bed next to me*” is the preposition (P): “*on*”, its complement is the noun phrase (NP): “*the bed next to me*”, in which the embedded PP: “*next to me*” is the postmodifier of the NP: “*the bed*”. In terms of bracketing we have: [S [NP] [VP [VP [Aux] [V]] [PP [P] [NP [NP [Det] [N]] [PP [PP [Det][P]] [Pron]]]]]]].

Sentence [B] can be contrasted in terms of Syntactic Trees, as on Table V below:

Table V – Contrast between the syntactic trees for sentences [B.1] and [B.2]

First Interpretation	Second Interpretation
<p>[S [NP <i>Maya</i>] [VP [VP [Aux <i>was</i>] [V <i>sitting</i>]] [PP [PP [PP [Det <i>next</i>] [P <i>to</i>]] [Pron <i>me</i>]] [PP [P <i>on</i>] [NP [NP [Det <i>the</i>] [N <i>bed</i>]]]]]]]</p>	<p>[S [NP <i>Maya</i>] [VP [VP [Aux <i>was</i>] [V <i>sitting</i>]] [PP [P <i>on</i>] [NP [NP [Det <i>the</i>] [N <i>bed</i>]] [PP [PP [Det <i>next</i>] [P <i>to</i>]] [Pron <i>me</i>]]]]]]]</p>
<p>Figure 11 – Syntactic Tree of sentence [B.1]</p>	<p>Figure 12 – Syntactic Tree of sentence [B.2]</p>
<p>Source: Own authorship, using IronCreek Software jsSyntax Tree generator.</p>	

From the syntactic tree structures on Table V, we notice that both of them have a NP as subject, a VP headed by the verb “*sitting*”, although they differ in terms of postmodifiers of the verb.

Therefore, in short, the processes to disambiguate sentence [B] “*Maya was sitting on the bed next to me.*” (MARTIN, 1991) can be described as:

1) First Interpretation

[a] Maya was sitting [on the bed] [next to me] – Original ambiguous sentence.

VP PP₁ PP₂

[b] Maya was sitting [next to me] [on the bed] – Movement of constituents.

VP PP₂ PP₁

[c] Maya was sitting [next to me] [on the bed] – Solved ambiguity.

VP PP₂ PP₁

The solving processes start off with the original ambiguous sentence as it is in [a] “*Maya was sitting on the bed next to me.*”, which its structure VP + PP₁ + PP₂ has an ambiguous construction, as by definition of structural ambiguity in Section II.3. *Structural ambiguity* of our theoretical background, it has two subjacent structures whose bracketing process cannot be established yet. After a movement of the constituents, the original ambiguous sentence [a] changes into [c] “*Maya was sitting next to me on the bed.*” with a VP + PP₂ + PP₁ unambiguous structure.

We saw previously, on p. 30 of the present study, that sentence [B.1] “*Maya was sitting next to me on the bed.*” Can be interpreted as a Phrasal Co-Ordination of PPs, as in: “*Maya was sitting next to me **and** on the bed*” with the coordinator “**and**” ellipped, we showed the correspondent syntactic tree structure on Figure 10. In order to analyze more properly how we have come to this solution in this case, let’s consider Downing (2015, p. 256) who dedicates Section 32.3.1 to “*Free and fixed order of coordinates*”, and states that:

In simple coordination, the coordinates can generally be reversed: (a) You can have eggs and bacon (b) You can have bacon and eggs (a) We can go by bus or by train. (b) We can go by train or by bus. However, there are a number of expressions in which the order is fixed by convention, such as bread and butter, in and out, fast and furious, now or never, over and above, sooner or later, time and again, up and down, wait and see, young and old. (DOWNING, 2015, p. 256)

The coordinators “*and*” and “*or*” are called ‘*pure*’ coordinators (cf. DOWNING, 2015, p. 256). In the first sample in the quote above, we have the coordinator “*and*” coordinating two NPs: “*eggs*” and “*bacon*” respectively. Since it is a simple coordination, it can be reversed (NPs swap) as “*bacon*” and “*eggs*”. On the second instance, we have two PPs coordinated by “*or*”: “*by bus*” or “*by train*”; also, a simple coordination, thus can be reversed (PPs swap) as “*by train*” or “*by bus*”.

Following the same reasoning and interpreting our sentence: [a] “*Maya was sitting on the bed next to me.*” as a Phrasal Co-Ordinations of PPs coordinated by “*and*”, we have: “*Maya was sitting on the bed **and** next to me.*” Since it is a simple coordination, the PPs: “*on the bed*” and “*next to me*” can be reversed (or swapped) as: “*next to me*” and “*on the bed*”. As a result, we have: “*Maya was sitting next to me **and** on the bed*”, finally with the ellipited coordinator “*and*” we have our solved unambiguous sentence as in: [c] “*Maya was sitting next to me on the bed.*” Whose syntactic tree structure was shown previously on Figure 11 on Table V.

The swapping is also possible since those PPs are independent adjuncts, similar to the structural ambiguity sample by Downing (2015) in Section II.1. *The Structure of Phrases: “structural ambiguity may occur with a prep+Ng+prep+Ng sequence”* (DOWNING, 2015, p. 469). In this case, the author states that having two independent adjuncts their order may be reversed.

2) Second Interpretation

[a] Maya was sitting [on the bed] [next to me] – Original ambiguous sentence.

VP PP₁ PP₂

[b] Maya was sitting [on the bed] [next to me] – Preposition “*on*” stressed.

VP PP₁ PP₂

Sentence [B.2] “*Maya was sitting on the bed next to me.*”, in the written mode, will remain ambiguous, since if we swap the PPs we go back to the first interpretation. In this case, the unambiguous interpretation depends upon the knowledge and in the reader’s proficiency of the English language, as it was stated in the excerpt below:

We sometimes do not know if a sentence has a clear message or ambiguity. Whether or not we recognize the ambiguity depend on our linguistic knowledge. For English learners, however, it is still not easy to know if a sentence is ambiguous or not. Having adequate proficiency of English, we are aware of the ambiguity, and try to avoid them, if possible.

In writing, for example, we need to use some formal signals (e.g. punctuation) to avoid ambiguous sentences. (SIMATUPANG, 2007, p. 99, 103).

In terms of syntactic tree structure of sentence [B.2], (cf. Table V), we can notice that the preposition P₁: “*on*” is in higher level than the embedded NP₃: “*the bed*” and PP₂: “*next to me*”. This fact may serve as a hint for the importance of highlighting or stressing the preposition “*on*” on the spoken mode. This way of disambiguating the sentence corroborates with Taghiyev’s (2018) point of view that there are “...*very important supra-segmental devices such as contrastive stress, pause and tone level which are very effective disambiguators of human speech.*” (sic.) (TAGHIYEV, 2018, p.59).

Relation to the research questions and objectives

With the aforementioned discussion on sample [B] “*Maya was sitting on the bed next to me.*” (MARTIN, 1991) we managed to identify and to describe syntactic constructions more susceptible to structural ambiguity, such as the prepositional phrases: PP₁: “*on the bed*” and PP₂: “*next to me*”, fulfilling this way our first specific objective.

And, in relation to our second research question we could verify that constituency had a major role in predicting structural ambiguity in written English. The knowledge of the constituents of sentence [B] enabled us to move those constituents according to their functions within the sentence. It made possible to verify the existence of two possible structures corresponding to two different meanings of the sentence, what characterizes structural ambiguity by definition, according to Simatupang (2007, p.99).

Last but not least constituency was essential in identifying which supra-segmental devices were necessary to disambiguate the sentence, such as the contrastive stress of the preposition “*on*”, on the second interpretation: [B.2] “*Maya was sitting **on** the bed next to me.*”. Corroborating what Taghiyev (2018) states, that there are: “...*very important supra-segmental devices such as contrastive stress, pause and tone level which are very effective disambiguators of human speech.*” (sic.) (TAGHIYEV, 2018, p.59), for the spoken mode.

IV.3 SAMPLE [C] ANALYSIS

Consider the spoken mode sample, collected from the British Accents and Dialects (BAD), below:

[C] “*I worked in Wilkinson’s in the Strand Road.*” (MCCLAUGHLIN, 1999)

Sentence [C] is ambiguous because it can be interpreted in two different ways. For the first interpretation we can consider sentence [C] as:

[C.1] “*I worked in Wilkinson’s in the Strand Road.*”

Splitting sentence [C.1] in its two main constituents, we have: The Subject: “*I*”, a noun phrase (NP) and the Predicate: “*worked in Wilkinson’s in the Strand Road.*”, a verb phrase (VP). In the VP: “*worked in Wilkinson’s in the Strand Road.*”, the verb “*worked*” is intransitive. Thus, the PPs: “*in Wilkinson’s*” and “*in the Strand Road*” are postmodifiers of the intransitive verb “*worked*”.

In the first interpretation, the PP: “*in Wilkinson’s*” is a postmodifier of the intransitive verb “*worked*” and the PP: “*in the Strand Road*” is a postmodifier of the PP: “*in Wilkinson’s*”. Therefore, both postmodifiers belong to the same category of phrases, having both the same function as adjuncts. In terms of bracketing we have: [S [NP] [VP [V] [PP [PP [P] [NP]]] [PP [P] [NP [Det][NP]]]]].

For the second interpretation, we can rearrange sentence [C] “*I worked in Wilkinson’s in the Strand Road.*” as:

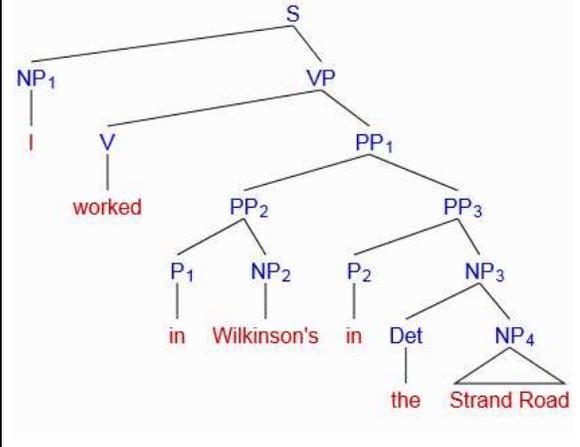
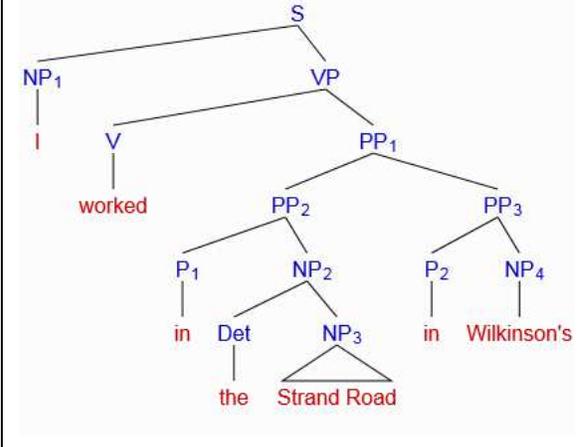
[C.2] “*I worked in the Strand Road in Wilkinson’s.*”

Splitting sentence [C.2] in its two main constituents, we have: The Subject: “*I*”, a noun phrase (NP) and the Predicate: “*worked in the Strand Road in Wilkinson’s.*”, a verb phrase (VP). In the VP: “*worked in the Strand Road in Wilkinson’s.*”, the verb “*worked*” is intransitive. Therefore, the PPs: “*in the Strand Road*” and “*in Wilkinson’s*” are postmodifiers of the intransitive verb “*worked*”.

On the second interpretation, the PP: “*in the Strand Road*” is a postmodifier of the intransitive verb “*worked*” and the PP: “*in Wilkinson’s*” is a postmodifier of the PP: “*in the Strand Road*”. Similarly, to the first interpretation, we also have both postmodifiers belonging to the same phrase category, also, both functioning as adjuncts. In terms of bracketing we have: [S [NP] [VP [V] [PP [PP [P] [NP [Det] [NP]]] [PP [P] [NP]]]]].

Sentence [C] can be contrasted in terms of Syntactic Trees, as on the following Table:

Table VI – Contrast between the syntactic trees for sentences [C.1] and [C.2]

First Interpretation	Second Interpretation
<p>[S [NP I] [VP [V worked] [PP [PP [P in] [NP Wilkinson's]]] [PP [P in] [NP [Det the] [NP Strand Road]]]]]]]</p> <p>Figure 13 – Syntactic Tree of sentence [C.1]</p> 	<p>[S [NP I] [VP [V worked] [PP [PP [P in] [NP [Det the] [NP Strand Road]]] [PP [P in] [NP Wilkinson's]]]]]]]</p> <p>Figure 14 – Syntactic Tree of sentence [C.2]</p> 

Source: Own authorship, using IronCreek Software jsSyntax Tree generator.

From the syntactic tree structures on Table VI, we notice that both sentences have the NP “*I*” as subject, and a VP headed by the intransitive verb “*worked*”, although they differ in terms of postmodifiers of the verb.

Therefore, in short, the processes to disambiguate sentence [C] “*I worked in Wilkinson’s in the Strand Road.*” (MCCLAUGHLIN, 1999) can be described as:

1) First Interpretation

[a] I worked [in Wilkinson's] [in the Strand Road] – Original sentence.

VP PP₁ PP₂

[b] I worked [**in** Wilkinson's] [in the Strand Road] – First Preposition “*in*” stressed.

VP PP₁ PP₂

[b] I worked [**in** Wilkinson's] [in the Strand Road] – Solved ambiguity.

VP PP₁ PP₂

If the intended interpretation of sentence [C] “*I worked in Wilkinson's in the Strand Road.*” is to say: *I worked at Wilkinson's Factory nearby the Strand Road*, the sentence in [a] remains as it is. No changes required, its structure VP + PP₁ + PP₂ remains unaltered. The same reasoning used in the analysis of sentence [B.2] can be applied here, the preposition “*in*” in the PP₁: “*in Wilkinson's*” can be stressed in a spoken mode context if there is any apparent ambiguity. This usage of contrastive stress as a way to disambiguate a sentence is effective according to Taghiyev (2018, p.59), as quoted in the [B.2] analysis.

2) Second Interpretation

[a] I worked [in Wilkinson's] [in the Strand Road] – Original ambiguous sentence.

VP PP₁ PP₂

[b] I worked [in the Strand Road] [in Wilkinson's] – Movement of constituents.

VP PP₂ PP₁

[c] I worked [in the Strand Road] [in Wilkinson's] – Solved ambiguity.

VP PP₂ PP₁

Therefore, during the solving process, we start off with the original ambiguous sentence as in [a] “*I worked in Wilkinson’s in the Strand Road.*” with structure VP + PP₁ + PP₂ having an ambiguous construction, as by definition of structural ambiguity in Section II.3. *Structural ambiguity* of our theoretical background, it has two or more subjacent structures corresponding to two or more possible interpretations, thus a bracketing process cannot be established yet. After a movement of the constituents, the original ambiguous [a] changes into [c] “*I worked in the Strand Road in Wilkinson’s.*” with a VP + PP₂ + PP₁ unambiguous structure. The PPs, two independent adjuncts were swapped. In this interpretation, the sentence means: *I worked on the Strand Road nearby Wilkinson’s Factory.*

Relation to the research questions and objectives

The discussion on the sample [C] “*I worked in Wilkinson’s in the Strand Road.*” (MCCLAUGHLIN, 1999), above, allowed us to identify the prepositional phrases: PP₁: “*in Wilkinson’s*” and PP₂: “*in the Strand Road.*” as syntactic constructions susceptible to structural ambiguity, answering this way our first research question.

Whereas in determining the importance of constituency to predict structural ambiguity in written English, we concluded that knowing the constituents of sentence [B] enabled us to move those constituents according to their functions in the sentence. This in turn, made possible to identify two possible structures corresponding to two different meanings of the sentence, what characterizes structural ambiguity by definition, according to Simatupang (2007, p.99).

And last but not least, constituency was crucial to identify which supra-segmental devices were necessary to disambiguate the sentence, such as the contrastive stress of the preposition “*in*” in the spoken mode, on the first interpretation: [C.1] “*I worked **in** Wilkinson’s in the Strand Road.*” in accordance to Taghiyev (2018), who states that there are: “...*very important supra-segmental devices such as contrastive stress, pause and tone level which are very effective disambiguators of human speech.*” (sic.) (TAGHIYEV, 2018, p.59).

IV.4 SAMPLE [D] ANALYSIS

Consider the written sample, collected from the British National Corpus (BNC), below:

[D] “*Mr Nick Morris, 40, a producer with Academy Commercials, which has first-floor offices overlooking Bridle Lane, was standing next to a window shattered by the explosion.*”

Sentence [D] is structurally ambiguous because it can be interpreted in multiple different ways.

For the first interpretation, we keep the same syntagmatic order of the constituents of sentence [D]:

[D.1] “*Mr Nick Morris, 40, a producer with Academy Commercials, which has first-floor offices overlooking Bridle Lane, was standing next to a window shattered by the explosion.*”

Splitting sentence [D.1] in its two main constituents, we have: The Subject: “*Mr Nick Morris, 40, a producer with Academy Commercials, which has first-floor offices overlooking Bridle Lane¹¹,*”, a noun phrase (NP) and the Predicate: “*was standing next to a window shattered by the explosion.*”, a verb phrase (VP). In the VP: “*was standing next to a window shattered by the explosion.*”, the auxiliary verb “*was*”, is functioning as a premodifier of the intransitive verb “*standing*” (the head of the VP). Thus, the PP: “*next to a window*” and the VP: “*shattered by the explosion.*” are postmodifiers of the intransitive verb “*standing*”.

The Subject: “*Mr Nick Morris, 40, a producer with Academy Commercials, which has first-floor offices overlooking Bridle Lane,*”, a noun phrase (NP), was truncated as: NP: “*Mr Nick Morris*”, for practical reasons: one reason is, the nominal group (NG): “*40, a producer with Academy Commercials, which has first-floor offices overlooking Bridle Lane,*” functions as just an apposition to “*Mr Nick Morris*”; another reason, the number “*40*” in this NG generates an error on the syntactic tree generator (Unexpected NUMBER at idx 7); last but not least, the Subject of sentence [D] is not the focus of our analysis.

¹¹ This Subject also has an apposition: “*Mr Nick Morris*” ↔ “*a producer with Academy Commercials*”. Followed by an embedded clause: “*which has first-floor offices overlooking Bridle Lane*”. This clause works as an extra information about the subject. It’s called a complementizer clause [CP].

Considering that in the first interpretation, the PP: “*next to a window*” is a postmodifier of the verb “*standing*” and the VP: “*shattered by the explosion.*” is a postmodifier of the PP: “*next to a window*”. In terms of bracketing we have: [S [NP Mr Nick Morris...] [VP [VP [Aux was] [V standing]]] [PP [PP [PP [Det next] [P to]] [NP a window]]] [VP [V shattered] [PP [P by] [NP [Det the] [N explosion]]]]]]].

For the second interpretation, we can rearrange the constituents of sentence [D] as:

[D.2] “*Mr Nick Morris, 40, a producer with Academy Commercials, which has first-floor offices overlooking Bridle Lane, was standing shattered by the explosion next to a window.*”

Splitting sentence [D.2] in its two main constituents, we have: The Subject: “*Mr Nick Morris, 40, a producer with Academy Commercials, which has first-floor offices overlooking Bridle Lane,*”, a noun phrase (NP) and the Predicate: “*was standing shattered by the explosion next to a window.*”, a verb phrase (VP). In the VP: “*was standing shattered by the explosion next to a window.*”, the auxiliary verb “*was*”, works as a premodifier of the intransitive verb “*standing*” (the head of the VP). Therefore, the VP: “*shattered by the explosion*” and the PP: “*next to a window*” are postmodifiers of the intransitive verb “*standing*”.

Related to that second interpretation, the VP: “*shattered by the explosion*” is a postmodifier of the verb “*standing*” and the PP: “*next to a window*” is a postmodifier of the VP: “*shattered by the explosion*”. In terms of the bracketing structure, we have: [S [NP Mr Nick Morris...] [VP [VP [Aux was] [V standing]]] [VP [VP [V shattered] [PP [P by] [NP [Det the] [N explosion]]]]] [PP [PP [Det next] [P to]] [NP a window]]]]].

For the third interpretation, we can rearrange the constituents of sentence [D] as:

[D.3] “*Mr Nick Morris, 40, a producer with Academy Commercials, which has first-floor offices overlooking Bridle Lane, was standing next to a shattered window by the explosion.*”

Splitting sentence [D.3] in its two main constituents, we have: The Subject: “*Mr Nick Morris, 40, a producer with Academy Commercials, which has first-floor offices overlooking Bridle Lane,*”, a noun phrase (NP) and the Predicate: “*was standing next to a shattered window by the explosion.*”, a verb phrase (VP). In the VP: “*was standing next to a shattered window by the explosion.*”, the auxiliary verb “*was*”, works as a premodifier of the intransitive verb “*standing*”

(the head of the VP). Thus, the PP: “*next to a shattered window*” and the PP: “*by the explosion.*” are postmodifiers of the intransitive verb “*standing*”.

Now, let’s consider our third interpretation, the PP: “*next to a shattered window*” is a postmodifier of the verb “*standing*” and the PP: “*by the explosion.*” is a postmodifier of the PP: “*next to a shattered window*”. In terms of the bracketing structure, we have: [S [NP Mr Nick Morris...] [VP [VP [Aux was][V standing]] [PP [PP [PP [Det next][P to]] [NP a shattered window]] [PP [P by] [NP the explosion]]]]].

For the fourth interpretation, we can rearrange the constituents of sentence [D] as:

[D.4] “*Mr Nick Morris, 40, a producer with Academy Commercials, which has first-floor offices overlooking Bridle Lane, was standing by the explosion next to a shattered window.*”

Splitting sentence [D.4] in its two main constituents, we have: The Subject: “*Mr Nick Morris, 40, a producer with Academy Commercials, which has first-floor offices overlooking Bridle Lane,*”, a noun phrase (NP) and the Predicate: “*was standing by the explosion next to a shattered window.*”, a verb phrase (VP). In the VP: “*was standing by the explosion next to a shattered window.*”, the auxiliary verb “*was*”, works as a premodifier of the intransitive verb “*standing*” (the head of the VP). Therefore, the PP: “*by the explosion*” (with its embedded NP: “*the explosion*”) and the PP: “*next to a shattered window.*” (with its embedded NP: “*a shattered window*”) are postmodifiers of the intransitive verb “*standing*”.

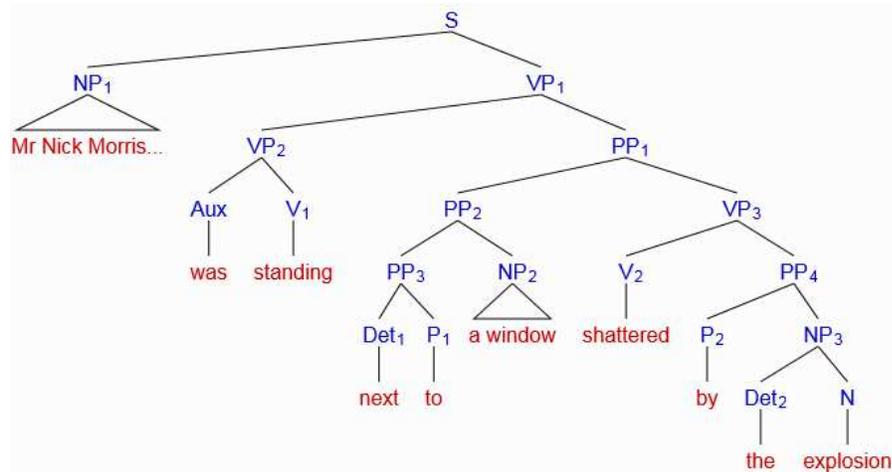
Having it in mind, in our fourth interpretation we have: the PP: “*by the explosion*” (with its embedded NP: “*the explosion*”) is a postmodifier of the verb “*standing*” and the PP: “*next to a shattered window.*” (with its embedded NP: “*a shattered window*”) is a postmodifier of the PP: “*by the explosion*”. In terms of the bracketing structure, we have: [S [NP Mr Nick Morris...] [VP [VP [Aux was][V standing]] [PP [PP [P by] [NP the explosion]] [PP [PP [Det next][P to]] [NP a shattered window]]]]].

Sentence [D] can be contrasted in terms of Syntactic Trees, as on the following tables: VII (interpretations 1 and 2) and VIII (interpretations 3 and 4):

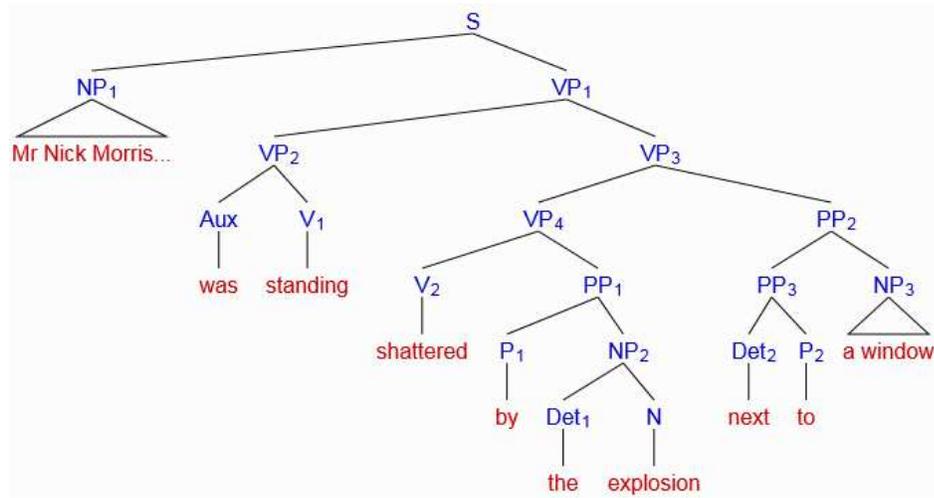
Table VII – Contrast between the syntactic trees for sentences [D.1] and [D.2]

First Interpretation

[S [NP Mr Nick Morris...] [VP [VP [Aux was] [V standing]] [PP [PP [PP [Det next] [P to]] [NP a window]] [VP [V shattered] [PP [P by] [NP [Det the] [N explosion]]]]]]]]]

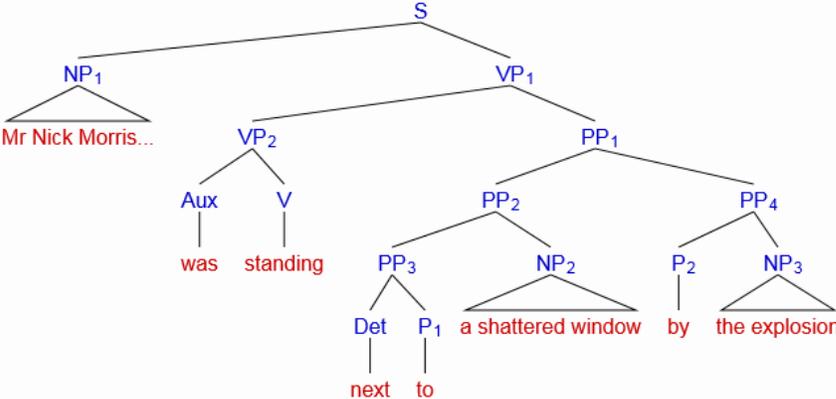
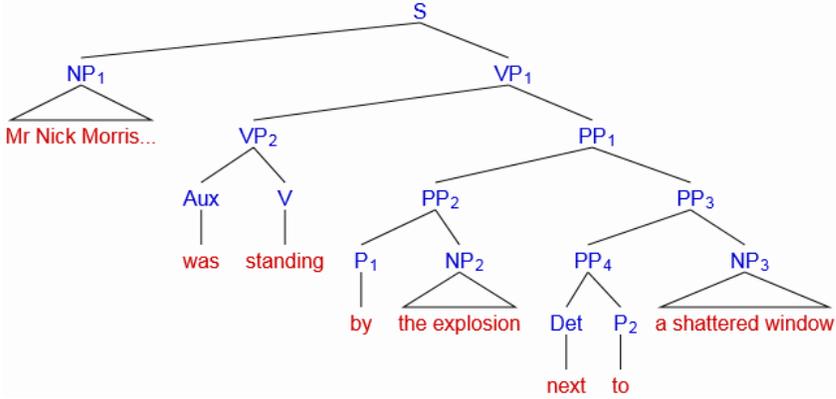
Figure 15 – Syntactic Tree of sentence [D.1]**Second Interpretation**

[S [NP Mr Nick Morris...] [VP [VP [Aux was] [V standing]] [VP [VP [V shattered] [PP [P by] [NP [Det the] [N explosion]]]]] [PP [PP [Det next] [P to]] [NP a window]]]]]]]

Figure 16 – Syntactic Tree of sentence [D.2]

Source: Own authorship, using IronCreek Software jsSyntax Tree generator.

Table VIII – Contrast between the syntactic trees for sentences [D.3] and [D.4]

Third Interpretation
<p>[S [NP Mr Nick Morris...] [VP [VP [Aux was] [V standing]] [PP [PP [PP [Det next] [P to]] [NP a shattered window]] [PP [P by] [NP the explosion]]]]]]</p>
<p style="text-align: center;">Figure 17 – Syntactic Tree of sentence [D.3]</p> 
Fourth Interpretation
<p>[S [NP Mr Nick Morris...] [VP [VP [Aux was] [V standing]] [PP [PP [P by] [NP the explosion]] [PP [PP [Det next] [P to]] [NP a shattered window]]]]]]</p>
<p style="text-align: center;">Figure 18 – Syntactic Tree of sentence [D.4]</p> 

Source: Own authorship, using IronCreek Software jsSyntax Tree generator.

From the syntactic tree structures on Tables VII and VIII, we notice that they have a NP as subject, a VP headed by the verb “*standing*”, although they differ in terms of postmodifiers of the verb.

Therefore, in short, the process to disambiguate sentence [D] “*Mr Nick Morris, 40, a producer with Academy Commercials, which has first-floor offices overlooking Bridle Lane, was standing next to a window shattered by the explosion.*” is described below.

The Subject: “*Mr Nick Morris, 40, a producer with Academy Commercials, which has first-floor offices overlooking Bridle Lane,*”, a noun phrase (NP), was truncated as: NP: “*Mr Nick Morris*”, to facilitate our analyze.

1) First Interpretation

1.1- Original ambiguous sentence (after being truncated):

[a] Mr Nick Morris was standing [next to a window] [shattered by the explosion.]

VP₁

PP

VP₂

1.2- Prepositional phrase “*next to*” stressed:

[b] Mr Nick Morris was standing [**next to** a window] [shattered by the explosion.]

VP₁

PP

VP₂

Sentence [D.1] “*Mr Nick Morris, 40, a producer with Academy Commercials, which has first-floor offices overlooking Bridle Lane, was standing next to a window shattered by the explosion.*” in the written mode will remain ambiguous. Its interpretation may depend upon the

knowledge and proficiency in English language by the reader as pointed out by Simatupang (2007, p. 99, 103), as aforementioned in the [B.2] analysis.

Similarly, to the case in [B.2] “*Maya was sitting **on** the bed next to me.*”, in which we highlighted the preposition “*on*” as a way to disambiguate the sentence in the spoken mode, in our current [D.1] case, we adopt the same approach of highlighting the propositional phrase “*next to*” as a way to disambiguate the phrase in the spoken mode. In accordance with Taghiyev (2018) about the usage of “*supra-segmental devices such as contrastive stress, pause and tone level which are very effective disambiguators of human speech.*” (sic.) (TAGHIYEV, 2018, p.59).

In this first interpretation there is a causality relation between the explosion and the shattered window.

2) Second Interpretation

2.1- Original ambiguous sentence (after the subject being truncated):

[a] Mr Nick Morris was standing [next to a window] [shattered by the explosion]

VP₁

PP

VP₂

2.2- Movement of the constituents:

[b] Mr Nick Morris was standing [shattered by the explosion] [next to a window]

VP₁

VP₂

PP

2.3- Solved ambiguity:

[c] Mr Nick Morris was standing [shattered by the explosion] [next to a window]

VP₁

VP₂

PP

The solving process start off with the original ambiguous sentence (with truncated subject), as it is in [a] “*Mr Nick Morris was standing next to a window shattered by the explosion*”, which its VP structure: VP₁ + PP + VP₂ has an ambiguous construction. As by the definition of structural ambiguity in Section II.3, it has more than one subjacent structure whose bracketing process cannot be established yet. After a movement of the constituents, the original sentence [a] changes into [c] “*Mr Nick Morris was standing shattered by the explosion next to a window.*” with a VP₁ + VP₂ + PP unambiguous structure.

3) Third Interpretation

3.1- Original ambiguous sentence (after the subject being truncated):

[a] Mr Nick Morris was standing [[next to] [a window shattered]] [[by] [the explosion]]

VP PP₁ NP₁ AP PP₂ NP₂

3.2 – Movement of the syntagma “*shattered*” from a postpositive position to an attributive position:

[b] Mr Nick Morris was standing [[next to] [a shattered window]] [[by] [the explosion]]

VP PP₁ AP NP₁ PP₂ NP₂

3.3 – Solved ambiguity:

[c] Mr Nick Morris was standing [[next to] [a shattered window]] [[by] [the explosion]]

VP PP₁ AP NP₁ PP₂ NP₂

The solving process start off in deciding which constituent the syntagma “*shattered*” belongs to. This decision takes also into consideration the class we are attributing to “*shattered*”. Since we have already dealt with the options in which “*shattered*” is a verb and belongs to the VP: “*shattered by the explosion*” in the first and second interpretations, what remains is the possibility of considering “*shattered*” as an adjective and constituent of the PP: “*next to a window*”, serving as an AP of the NP: “*a window*”.

Having it in mind, we have the sentence as in [a] “*Mr Nick Morris was standing next to a window shattered by the explosion*”, which the VP is structured as VP + PP₁ + NP₁ + AP + PP₂ + NP₂, if the intended interpretation is what we just proposed in the previous paragraph, [a] is ambiguous not only due to multiple subjacent structures, but also due to the position of the syntagma “*shattered*”, which we assigned to the AP category. So, our solution proceeds, in moving “*shattered*” from a postpositive position to an attributive position in relation to the noun “*window*”, what results in [c] “*Mr Nick Morris was standing next to a shattered window by the explosion*” with VP structure as: VP + PP₁ + AP + NP₁ + PP₂ + NP₂. A more satisfactory way to make [c] less susceptible to ambiguity is to add a *comma* after “*window*” in the written mode: [c] “*Mr Nick Morris was standing next to a shattered window, by the explosion.*” As suggested by Simatupang (2007, p. 99, 103): “*In writing, for example, we need to use some formal signals (e.g. punctuation) to avoid ambiguous sentences.*” (SIMATUPANG, 2007, p. 99, 103). Simatupang (2007) also points out the juncture as a way of disambiguating the sentence in spoken mode:

To make the ambiguous sentences unambiguous and grammatical, it is necessary to have some sort of formal signals which help the reader or hearer to recognize the sentence structure (Taha, 1983). Some of the signals include function words, inflections, affixes, stress, juncture (or word division and punctuation in writing), and major class membership. (SIMATUPANG, 2007, p. 100)

What this third interpretation adds is the possibility of disconnecting “*the explosion*” as the cause of the “*shattered window*”. Since “*the explosion*” could have happened nearby “*a window*” that was already “*shattered*” before “*the explosion*” itself. There is no causal relation between “*the explosion*” and the “*shattered window*”.

4) Fourth Interpretation

4.1- Original ambiguous sentence (after the subject being truncated):

[a] Mr Nick Morris was standing [next to a window shattered] [by the explosion]

VP

PP₁

PP₂

4.2 – Movement of the syntagma “*shattered*” from a postpositive position to an attributive position:

[b] Mr Nick Morris was standing [next to a shattered window] [by the explosion]

VP

PP₁

PP₂

4.3 – Movement of the constituents resulting in the solved ambiguity:

[c] Mr Nick Morris was standing [by the explosion] [next to a shattered window]

VP

PP₂

PP₁

In the solving process, the steps 4.1 and 4.2 are the same as 3.1 and 3.2 of the third interpretation above in the text.

In step 4.2, we have 2 independent adjuncts in [b], namely: PP₁: “*next to a shattered window*” and PP₂: “*by the explosion*”, we can reverse them, as we have seen previously in Section II.1 The Structure of Phrases of this present study, according to Downing (2015, p. 469) sample. Resulting in [c] “*Mr Nick Morris was standing by the explosion next to a shattered window.*” unambiguous sentence with VP structure: VP + PP₂ + PP₁.

Relation to the research questions and objectives

Therefore, as syntactic structures generating structural ambiguity in sentence [D] “*Mr Nick Morris, 40, a producer with Academy Commercials, which has first-floor offices overlooking Bridle Lane, was standing next to a window shattered by the explosion.*”, we found the phrases: PP: “*next to a window*” and VP₂: “*shattered by the explosion*”, answering this way our first research question.

To know the constituents of sentence [D], helped us to identify and solve its structural ambiguity, answering this way our second research question. In addition, it enabled us:

1. To move those constituents according to their functions within the sentence (on the second interpretation the positions of the PP and VP₂ above were swapped and on the fourth interpretation the constituents were also moved);

2. To identify multiple possible structures corresponding to four different meanings of the sentence, what characterizes structural ambiguity, according to Simatupang (2007, p.99);

3. To move the syntagma “*shattered*” within sentence [D] in order to disambiguate it (on the third and fourth interpretations);

As we identified and described, fulfilling our first specific objective, the syntactic structures generating structural ambiguity in sentence [D] are the phrases: PP: “*next to a window*” and VP₂: “*shattered by the explosion*”.

In addition, we contrasted those four syntactic constructions constituency showing how they generated structural ambiguity, achieving this way our second specific objective.

Besides that, we identified supra-segmental devices necessary to disambiguate the sentence, such as the contrastive stress of the PP: “*next to*” in the spoken mode, on the first interpretation: [D.1] “*Mr Nick Morris, 40, a producer with Academy Commercials, which has first-floor offices overlooking Bridle Lane, was standing **next to** a window shattered by the explosion.*” as preconized by Taghiyev (2018, p.59).

IV.5 SAMPLE [E] ANALYSIS

Consider the written sample, collected from the British National Corpus (BNC), below:

[E] “*She saw the man on the pavement*” (SEYMOUR, 1991)

Sentence [E] is ambiguous because it can be interpreted in two different ways.

On the one hand, for the first interpretation, we have sentence [E] as:

[E.1] “*She saw on the pavement the man*”

Splitting sentence [E.1] in its main constituents, we have: The Subject: “*She*”, a noun phrase (NP) and the Predicate: “*saw on the pavement the man*”, a verb phrase (VP). In the VP: “*saw on the pavement the man*”, the verb “*saw*” (the head of the VP) is transitive.

Thus, the PP: “*on the pavement the man*” is complement of the transitive verb “*saw*”. With an embedded NP: “*the man*” as a postmodifier of the PP: “*on the pavement*”.

In terms of the bracketing structure, we have: [S [NP She] [VP [V saw] [PP [PP [P on] [NP the pavement]] [NP the man]]]].

On the other hand, for the second interpretation, we have sentence [E] “*She saw the man on the pavement*” as:

[E.2] “*She saw the man on the pavement*”

Splitting sentence [E.2] in its two main constituents, we have: The Subject: “*She*”, a noun phrase (NP) and the Predicate: “*saw the man on the pavement*”, a verb phrase (VP). In the VP: “*saw the man on the pavement*”, the verb “*saw*” (the head of the VP) is transitive. Therefore, the NP: “*the man on the pavement*” is a complement of the transitive verb “*saw*”, with an embedded PP: “*on the pavement*” as a postmodifier of the NP: “*the man*”.

In terms of the bracketing structure, we have: [S [NP *She*] [VP [V *saw*] [NP [NP *the man*] [PP [P *on*] [NP *the pavement*]]]]].

Table IX – Contrast between the syntactic trees for sentences [E.1] and [E.2]

First Interpretation	Second Interpretation
[S [NP <i>She</i>] [VP [V <i>saw</i>] [PP [PP [P <i>on</i>] [NP <i>the pavement</i>]]] [NP <i>the man</i>]]]]	[S [NP <i>She</i>] [VP [V <i>saw</i>] [NP [NP <i>the man</i>] [PP [P <i>on</i>] [NP <i>the pavement</i>]]]]]]
Figure 19 – Syntactic Tree of sentence [E.1]	Figure 20 – Syntactic Tree of sentence [E.2]
<pre> graph TD S --> NP1[She] S --> VP VP --> V[saw] VP --> PP1 PP1 --> PP2 PP1 --> NP3[the man] PP2 --> P[on] PP2 --> NP2[the pavement] </pre>	<pre> graph TD S --> NP1[She] S --> VP VP --> V[saw] VP --> NP2 NP2 --> NP3[the man] NP2 --> PP PP --> P[on] PP --> NP4[the pavement] </pre>

Source: Own authorship, using IronCreek Software jsSyntax Tree generator.

From the syntactic tree structures on Table IX, we notice that both sentences have the NP: “*She*” as subject, and a VP headed by the transitive verb “*saw*”, although they differ in terms of complements of the verb.

The processes to disambiguate sentence [E] “*She saw the man on the pavement*” (SEYMOUR, 1991) can be described as:

1) First Interpretation

[a] She saw [the man] [on the pavement] – Original ambiguous sentence.

VP NP PP

[b] She saw [on the pavement] [the man] – Movement of the constituents.

VP PP NP

[c] She saw [on the pavement] [the man] – Solved ambiguity.

VP PP NP

The solving processes start off with the original ambiguous sentence as it is in [a] “*She saw the man on the pavement.*”, which its structure VP + NP + PP has an ambiguous construction, since by the definition of structural ambiguity in Section II.3. *Structural ambiguity* of our theoretical background, it has two subjacent structures whose bracketing process cannot be established yet. After a movement of the constituents, the original ambiguous sentence [a] changes into [c] “*She saw on the pavement the man.*” With a VP + PP + NP unambiguous structure.

2) Second Interpretation

[a] She saw [the man] [on the pavement] – Original ambiguous sentence.

VP NP PP

[b] She saw [**the man**] [**on the pavement**] – Stressed on the same tone.

VP NP PP

[c] She saw [**the man**] [**on the pavement**] – Solved ambiguity.

VP NP PP

If the intended interpretation of sentence [E] “*She saw the man on the pavement*” is to say: “*She saw a man who was on the pavement*”, the sentence in [a] remains as it is. Thus, its structure VP + NP + PP stays unaltered in the written mode. The PP “*on the pavement*” works as an object-predicative attributing a property to the direct object “*the man*”.

On the spoken mode, the sentence can be disambiguated by uttering the predicative “*the man on the pavement*” in the same tone, to highlight all its syntagma have the same weight in the meaning.

Relation to the research questions

The syntactic structures generating structural ambiguity in sentence [E] “*She saw the man on the pavement*” (SEYMOUR, 1991) are the phrases: NP: “*the man*” and PP: “*on the pavement*”, so aside the PP, we have the NP as an ambiguity generator, what answers our first research question.

In relation to our second research question: 2- *How can constituency help to predict structural ambiguity in written English?*

To know the constituents of sentence [E], helped us to identify its structural ambiguity answering our second research question, besides it enabled us:

1. To move those constituents according to their functions in the sentence;
2. To identify two possible structures corresponding to two different meanings of the sentence, what characterizes structural ambiguity according to Simatupang (2007, p. 99).
3. Last but not least to identify which supra-segmental devices were necessary to disambiguate the sentence, such as the contrastive stress and tone of the predicative “*the man on the pavement*”. As pointed out by Taghiyev (2018): “...very important supra-segmental devices such as contrastive stress, pause and tone level which are very effective disambiguators of human speech.” (sic.) (TAGHIYEV, 2018, p.59).

In summary, from the samples below:

[A] “*Call me a taxi, would you?*” (FOX, 1991)

[B] “*Maya was sitting on the bed next to me.*” (MARTIN, 1991)

[C] “*I worked in Wilkinson’s in the Strand Road.*” (MCCLAUGHLIN, 1999)

[D] “*Mr Nick Morris, 40, a producer with Academy Commercials, which has first-floor offices overlooking Bridle Lane, was standing next to a window shattered by the explosion.*”

[E] “*She saw the man on the pavement*” (SEYMOUR, 1991)

We have the following constituent phrases (since the Subjects are all NPs, and their function is common for all sentences only the Predicates are considered in our analysis, since that’s where the multiple subjacent structures appear.):

[A] – NP₁: “*me*” and NP₂: “*a taxi*”.

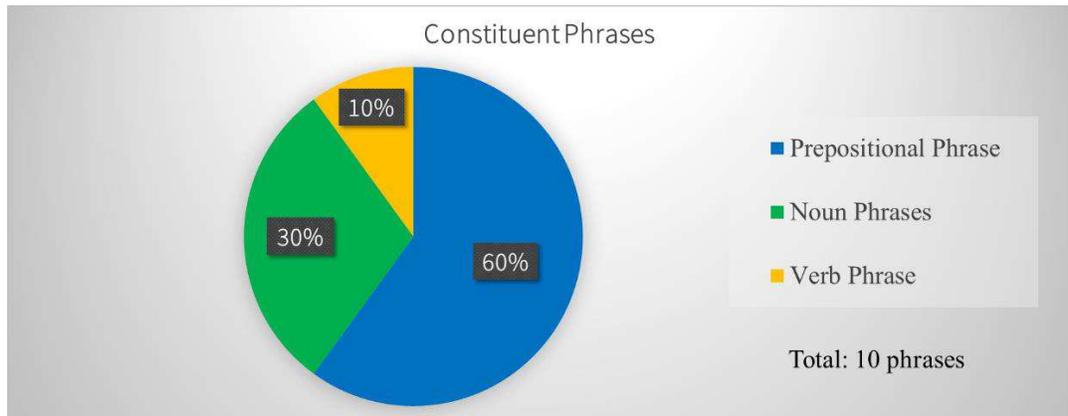
[B] – PP₁: “*on the bed*” and PP₂: “*next to me*”.

[C] – PP₁: “*in Wilkinson’s*” and PP₂: “*in the Strand Road.*”.

[D] – PP: “*next to a window*” and VP₂: “*shattered by the explosion*”.

[E] – NP: “*the man*” and PP: “*on the pavement*”.

In a total of five samples composed of ten constituent phrases, six were PPs (60%), three NPs (30%) and one VP (10%), (cf. Figure 21). This illustrates the high susceptibility to structural ambiguity of prepositional phrases, also the commonness of PPs in English language, as we saw in the introduction of this study, (cf. DOWNING, 2015, p. 467).

Figure 21 – Constituent Phrases Distribution

Source: Own authorship

Thus, considering the whole predicates (with the inclusion of the main VP node), we have new types of structural ambiguity on the following Table X:

Table X – Samples types of structural ambiguity

[A]	MOD + VP + NP ₁ + NP ₂	Type 7
[B]	VP + PP ₁ + PP ₂	Type 8
[C]	VP + PP ₁ + PP ₂	Type 8
[D]	VP ₁ + PP + VP ₂	Type 9
[E]	VP + NP + PP	Type 1

Source: Own authorship

Table III in Section II.3 STRUCTURAL AMBIGUITY has five types of ambiguity considered by Simatupang (2007, p. 100-101). From our samples, only sentence [E] (Type 1) is listed there.

We identified a new type, we called it Type 6: VP + NP₁ + NP₂, corresponding to “[52a] *Max found [Bill] [an amusing companion].*” (BURTON-ROBERTS, 2016, p.75). Thus, sentence [A] is a variation of Type 6, with the MOD addition, we can name it Type 7.

From Table III we have Type 4: VP + NP + PP₁ + PP₂. Therefore, sentences [B] and [C] are slightly similar to Type 4 (without the NP), let's call this new structure Type 8. Last but not least, let's name sentence [D] structure as Type 9.

V APPLICATIONS

As we have seen throughout this study: “*Structural ambiguity, occurs when the meaning of the component words can be combined in more than one way (O’Grady et al. 1997)*” (SIMATUPANG, 2007, p. 100). In other words, when there are multiple subjacent structures in a sentence corresponding to different meanings, we call it an ambiguous sentence.

In many critical situations structural ambiguity should be avoided, for instance, in communications involving satellites, tower and a flight, physicians during a surgery, security and law related scenarios, etc. Therefore, this study is relevant in shedding light on the structural causes of ambiguity, also in finding solutions for such ambiguities, promoting this way clear unambiguous sentences. The processes and strategies used in this study to achieve that may be useful for unambiguous communications in the situations above.

In an EFL context, for teachers-to-be, this study may contribute for a deeper understand of why ambiguity occurs, how to solve it and to tailor activities for students in a clearer way, besides fostering their interest in language in general, and in particular in English language. This study is also important for developing writing skills.

VI CONCLUSION

This study sought to examine the issue of structural ambiguity in syntactic phrases construction. This examination culminated into the results prompted by the two research questions proposed.

Concerning to the first research question, it was found that, aside from prepositional phrases (PPs), the phrases that tend to be more susceptible to structural ambiguity in written and spoken English contexts are nominal phrases (NPs) and verb phrases (VPs).

Meanwhile, from the second research question on how constituency can help to predict structural ambiguity in written and spoken English, it was concluded that knowing the constituents of a sentence and their functions within it allows to identify the possible multiple structures corresponding to different meanings of the sentence, in other words, by definition to identify structural ambiguity. Such knowledge also enables the movement of the constituents within the sentence in order to disambiguate it. Sometimes it may be necessary to add new phrases in the sentence in the written mode, or to use of supra-segmental devices such as contrastive stress, pause and tone level in the spoken mode to accomplish an unambiguous sentence. Last but not least, deciding which constituent a syntagma belongs to, may be crucial in the disambiguating process.

The limitations of this study are due to the low number of samples, also the scarcity of spoken English samples in order to contrast with written ones. Nonetheless, we hope this study to contribute for future research.

Regardless those limitations, this study is important for providing approaches to deal with structural ambiguity in syntactic phrases constructions, giving it solutions and promoting clear unambiguous sentences so essential in many communication situations. In addition, it is valuable for teachers-to-be in having a deeper understanding of structural ambiguity, its possible causes and solutions, also its applications in EFL contexts.

Further studies in structural ambiguity may take a higher number of samples, in particular spoken English ones, so the contrast with written English samples would reveal a broader range of disambiguating strategies. As consequence of a higher number of samples the probability of appearance of other categories of phrases increases. This is important, since the categories which the constituents of sentences belong to, affects directly on which strategies may be used in the disambiguating processes. Higher the set of strategies to deal with structural ambiguity, deeper the understanding of it. Also, EFL teachers-to-be, teachers already in the field, professors in general, should be attentive for when structural ambiguity comes up in language in use situations, since the found samples may be valuable for research. This awareness may prompt to new discoveries related to SA, besides fostering a researcher mindset with a conscious critical transformative use of the language.

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