

# Verb Phrase Ellipsis in the English Language

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**Džepina, Matej**

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Odjel za anglistiku

Preddiplomski i sveučilišni studij Anglistike (dvopredmetni)

**Matej Džepina**

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Završni rad

Student/ica:

Matej Džepina

Mentor/ica:

Doc. dr. sc. Frane Malenica

Zadar, 2023.



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## **1. Introduction**

Ellipsis is one of the most intriguing phenomena in English linguistics. It refers to the deletion of one or more words from a phrase. The context will allow the remainder of the statement to be understood, thus the deleted words are not important to the sentence's meaning. Among the variety of types that are classified under this phenomenon, one distinctive type is the verb phrase ellipsis. As its name suggests, the part of the phrase that is subject to ellipsis is the verb phrase or one or more constituents of the verb phrase. Its syntactic and semantic properties and various other aspects have been a recurring subject of research in the past and in the present.

The goal of this study project is to thoroughly investigate verb phrase ellipsis in the English language. In order to better comprehend verb phrase ellipsis, its varied manifestations in various linguistic settings, and its consequences for the comprehension of sentence structure, this study aims to clarify the underlying principles regulating verb phrase ellipsis. This work will present this phenomenon on a theoretical basis with an empirical component.

The first chapter is the introduction where a short presentation of the topic and an overview of the work will be given. The second chapter introduces the occurrence of ellipsis generally, and by listing the types of ellipsis, narrows the progression of the work towards the central topic, i.e., verb phrase ellipsis, which will continue in the third chapter. It will also provide the fundamental elements which constitute verb phrase ellipsis, demonstrate the directions in which it can operate, and present special instances of verb phrase ellipsis, namely antecedent-contained ellipsis and argument-contained ellipsis. The fourth chapter will be processing the empirical component of this work, that is, a corpus-based research of verb phrase ellipsis. A short introduction will cover the research questions for the topic and some of the previous studies conducted on the topic. The methodology and the results will be shown thereafter, and the found results will be discussed and elaborated. The fifth chapter will provide a conclusion to the work, summarizing the most important points and key findings in the research and suggesting ideas for possible future research of the topic.

## 2. Ellipsis

The first mention of ellipsis dates back to the seventh century by St. Isidore of Seville. His statement has been translated by Barney et al. (2009, p. 57): “Ellipsis (eclipsis) is a gap in speech, in which necessary words are lacking,...” Through the field of linguistics, the phenomenon of ellipsis took on a wider meaning and its definition has been expanding constantly. One accepted definition, according to Szczegielniak (2018), is that ellipsis is a construction that lacks its phonological form in relation to the form what that structure should be given regarding the meaning it indicates. In order for there to be a discrepancy between form and meaning, the meaning connected with the gap must be able to be recovered in some way; this is how ellipsis differs from deletion, namely in the deletion of features (Szczegielniak, 2018, p. 1). According to McShane (2005), in the syntactic structure of a sentence, the word or phrase, that is elided, is expected to occupy a place, as in (1) (McShane, 2015, p. 3).

- (1) *Melanie got a rose and Christie [got] a dandelion.*

McShane (2005) takes a different approach to ellipsis and argues that although syntactic ellipsis has come to be the standard understanding of the term ellipsis among linguists, ellipsis is actually a considerably more complex phenomenon with numerous features that compete for immediate attention, especially in the field of natural language processing. Another possible differentiation inside the term of ellipsis is the semantic ellipsis, which refers to the absence of items that are necessary for a complete semantic interpretation, but are not indicated by a syntactic gap, as can be seen in (2).

- (2) *He is reading Shakespeare.*  
*She forgot her mobile phone.*

Both of these examples are missing an element in the semantic complex; the meanings of the sentences are actually *He is reading a book written by Shakespeare* and *She forgot to take her mobile phone*. The absence of a semantic component can also be detected through other methods, one of them being cross-linguistic comparison (McShane, 2015, p. 3).

## **2.1. Types of ellipsis**

In order to achieve a better comprehension of the topic, it is also important to see the various differentiations of the categorization of ellipsis. The first one addresses the categorization according to the part of speech that is elided. McCarthy (1991) distinguishes three types of ellipsis: nominal, verbal and clausal ellipsis. In the case of nominal ellipsis, also known as noun phrase ellipsis, the omitted element is the head noun in a noun phrase, as shown in (3).

(3) *We told him to make five copies, but he made only four [copies].*

A nominal ellipsis often occurs after adjectives, numerals and quantifiers. Unlike nominal ellipsis, where only one particular element can be omitted, verbal ellipses, also known as verb phrase ellipses, are the absence of auxiliary or lexical verbs in verb phrases, which can be seen in the examples (4a) and (4b) (McCarthy, 1991, p. 43). Thomas (1987) also distinguishes two types of verbal ellipsis, which he calls echoing and auxiliary contrasting. Echoing, as its name suggests, repeats a component from the verb phrase, as shown in the example (5a). Auxiliary contrasting implies a change of the auxiliary, which occurs in (5b). Thomas (1987) further emphasizes that different levels of ellipsis are permissible within a single verbal group in English (6).

(4a) A: *Is she crying?*  
B: *No, [she is] laughing.*

(4b) A: *Will you wash the dishes, please?*  
B: *Yes, I will [wash the dishes].*

(5a) A: *Do you take this woman as your bride?*  
B: *I do [take this woman as my bride].*

(5b) A: *Has he given up yet?*  
B: *No, but he should [give up] any moment now.*

(6) A: *Should Mary have been told?*



B: *Yes, she should [have been told] / should have [been told] / should have been [told].*

Individual clause elements may be omitted in English using clausal ellipsis; subject-pronoun omissions, such as *hope so, doesn't matter* are particularly frequent. Additionally, entire sections of clausal components may be removed. Many languages will at the very least require a main verb and an object pronoun replacement for the kind of sentence that is shown in (7) (Thomas, 1987, cited in McCarthy, 1991, p. 43 – 44).

(7) *He said he would buy a car as soon as he could and he has.*

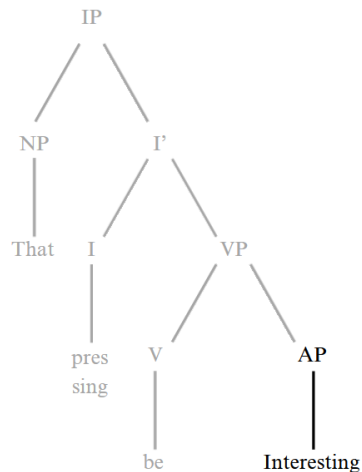
Another possible classification of ellipsis is according to the position of the elided part. Greenbaum and Quirk (1990) distinguish three positional categories: initial, medial and final. Initial ellipsis is the omission of the first elements, which also includes the aforementioned subject-pronoun omissions, as can be seen in (8a). Within medial ellipsis, words within the sentence can be elided, shown in (8b). Final ellipsis removes the last words within a sentence, such as in (8c) (Greenbaum and Quirk, 1990, p. 256).

(8a) *[It] Doesn't matter where he is right now. [We] Don't know anything about that.*

(8b) *John plays the guitar and Mary [plays] the violin.*

(8c) *I'm happy if you are [happy]. We don't agree on everything, but one day we will [agree on everything].*

Stainton (1995) creates hypotheses about ellipses, which can be characterized as different subgroups: “The Syntactic Ellipsis Hypothesis” and “The Semantic Ellipsis Hypothesis”. According to these hypotheses, syntactic ellipsis occurs when a speaker asserts anything by using an uninserted word or phrase and what the speaker really utters is an elliptical sentence whose syntactic structure is headed by INFL, which can contain auxiliary verbs and tense and agreement features, as represented in (9).



(9)

Semantic ellipsis occurs when a speaker asserts anything by using an uninserted word or phrase and what the speaker really utters is an elliptical sentence because the utterance shown in (10) expresses a proposition and contains illocutionary force. The proposition in this sentence is that there is a fire somewhere and the illocutionary force contained expresses a warning (Stainton, 1995, p. 283 – 287).

(10) *Fire!*

Besides the standard categorizations according to a common element, there are other different types of ellipses which are known under different names. These types of ellipses are: gapping, stripping, sluicing, pseudogapping, answer ellipsis, comparative deletion and null complement anaphora. Jackendoff (1971) mentions that the concept of gapping was first introduced by generative grammar and describes it as the deletion of a verb of one or more clauses bound to the right of the clause containing the same verb, as shown in (11). This construction can stack infinitely as long as it is the same verb in all the clauses (Jackendoff, 1971, p. 21).

(11) *Jack plays the guitar, Austin [plays] the drums, and Harry [plays] the keyboard.*

According to Hankamer and Sag (1976), stripping, also known as bare argument ellipsis, is the omission of everything in a clause that corresponds to a precedent clause, only one constituent remains, and sometimes clause-initial adverbs and negatives. Example (12) is an instance of stripping (Hankamer and Sag, 1976, p. 409).

(12) *David likes to go jogging, but his wife not [like to go jogging].*

The phenomenon, which Ross (1969) gave the name ‘sluicing’, under the condition that the rest of the question is the same as another component of the sentence or of a previous sentence, this rule removes everything but the preceding constituent of an embedded question, most commonly that element is a question word, which can be seen in (13a) and (13b) (Ross, 1969, p. 252).

(13a) *He is in jail because he did something illegal, but what [did he do]?*

(13b) *A: He has been working on that project and finally completed it.*

*B: How long [has he been working on that project]?*

The concept of pseudogapping was first discerned and explained by Gregory Stump (1977). Pseudogapping can commonly be mistaken as verb phrase ellipsis because it is introduced by an auxiliary or modal verb, and the elided part is the rest of the verb phrase. The difference between the two lies therein, that pseudogapping contains an additional element called ‘the remnant’, which gives it the appearance of gapping, therefore named pseudogapping, which is shown in (14). It appears mostly in comparative and contrastive sentences (Stump, 1977, p. 1 – 4).

(14) *I will bring food, and she will [bring] drinks.*

Answer ellipsis is based on question-answer pairs, where the question posed examines a previously unidentified element, commonly using question words, and the answer identifies that element, while the redundant information is elided, as in (15) (Merchant, 2005, p. 661).

(15) *A: Who is she going out with?*

*B: [She is going out with] Sam.*

Comparative deletion is the form of ellipsis which is identifiable through the construction ‘more...than’. It renders the gradable property inside of the clause introduced by ‘than’ unexpressed. An example of comparative deletion is shown in (16) (Lechner and Corver, 2017, p. 3).

(16) *His finger is bigger than the ring [is big].*

Hankamer and Sag (1976) also elaborate another elliptical process, which is named null complement anaphora. They define it as “a syntactic deletion process that strips the verb of its complement under identity with something somewhere else”. This elided complement can be a finite clause, a to-infinitive or a prepositional phrase. These variants are represented in (17a), (17b) and (17c) (Hankamer and Sag, 1976, p. 411).

(17a) *They asked me what was going on, but I didn't know [what was going on].*

(17b) *He told me to bring the money, but I forgot [to bring the money].*

(17c) *Juliet knew nothing of the idea, but her husband knew [of the idea].*

### 3. Verb phrase ellipsis

The primary focus of this work will be the verb phrase ellipsis, formerly explained as verbal ellipsis. As its name suggests, the verb phrase ellipsis omits a part of the verb phrase, the omitted element may be a lexical verb or an auxiliary verb. According to Kertz (2013), in order for the verb phrase ellipsis to be licensed, the antecedent needs to be structurally matching the elided part, as shown in (18a) and (18b) (Kertz, 2013, p. 390).

(18a) *Floyd bought a Toyota, and so did his neighbor [buy a Toyota].*

(18b) *\*A Toyota was bought by Floyd, and so did his neighbor [buy a Toyota].*

The only difference between the two sentences is in the voice of the antecedent clause. In (18a), the elided verb phrase part is structurally matched to the active-voice antecedent clause, while in (18b), the antecedent clause is passive, and the elided verb phrase part is thereby not structurally matched to it. This stems back to the surface and deep anaphora phenomena, which were studied by Hankamer and Sag (1976). Both of these phenomena denote the relationship between a pronoun and its antecedent, each at its own level of complexity and distance. There are three main differences among them: 1. surface anaphors need a linguistic antecedent, while deep anaphors can be controlled from the perspective of pragmatics – given that the relationship between the antecedent and the pronoun is more distant and complex in deep anaphora, it is possible for pragmatics to help in determining the antecedent for the pronouns, using methods employed in pragmatics, such as conversational implicatures, which establish in the example (19) that the pronoun *they* refers to a known entity in the discourse (Mark's parents); 2. surface anaphors require a structural matching between the omissions and the antecedents, while deep anaphors do not, as shown in (20); 3. surface anaphors can be affected by the missing antecedent phenomenon, which is described by Grinder and Postal (1971, p. 275). The missing antecedent phenomenon refers to the lack of an overt antecedent, as in (21).

(19) *A: Mark wanted to visit his parents, but he didn't.*

*B: That's because he didn't have a way to get there. They live in another city.*

(20) *A: My brother likes taking photos of the places he has been to.*

*B: My sister likes to write about her experiences. Her travel journal is really big.*

- (21) *Claire wants to visit Rome, and John [wants to visit Rome] too, as it is a lovely city.*

Verb phrase ellipsis can therefore be regarded as an aspect of surface anaphors. Within the very phenomenon of verb phrase ellipsis, there can be several differentiations regarding various features of the omission, some of which are dependent on the verb phrase to which the elided part belongs, and some of which are dependent on the antecedent (Hankamer and Sag, 1976, p. 392 – 393).

### **3.1. Basic structure of verb phrase ellipsis**

Kroeger (2004) elaborates that an auxiliary or modal verb must introduce verb phrase ellipsis, that is, at least one auxiliary or modal verb must occur before the elided verb phrase, like in (22a). A sentence like (22b) in which verb phrase ellipsis occurs without an auxiliary or modal is ungrammatical.

- (22a) *I brought a present, but he did not [bring a present].*  
(22b) *\*I brought a present, but he [did not bring a present].*

This characteristic is also a notable difference between verb phrase ellipsis and gapping. When the verb in a gapping construction is elided, all auxiliary verbs must also be elided, as in (23a), otherwise the sentence is ungrammatical, as in (23b). It is also important to note that verb phrase ellipsis constructions are grammatical in both coordination and subordination sentences, while gapping constructions cannot be grammatical in subordination sentences (Kroeger, 2004, p. 35 – 36).

- (23a) *I have bought a Snickers, and Mary [has bought] a Twix.*  
(23b) *\*I have bought a Snickers, and Mary has [bought] a Twix.*

Johnson (2001) explains that the ellipsis site is governed by the “Aux” group, to which he includes modals, auxiliaries, the infinitival *to* and the negator *not*. Therefore, another possible way of introducing the verb phrase ellipsis is through the infinitive particle *to*. This is only possible when the antecedent verb phrase is structurally matched to the elided verb phrase, that is, if the antecedent verb phrase also contains the infinitive particle *to*, which is shown in (24a) and (24b) (Johnson, 2001, p. 1).

- (24a) *Florian wants to sell his house, and Andrew wants to [sell his house] too.*  
(24b) *\*Florian wants to sell his house, and Andrew wants [to sell his house] too.*

Since the negator *not* can also govern verb phrase ellipsis, like in (25), it can be listed as a member of the “Aux” group, as posed by Lobeck (1995) (Lobeck, 1995, cited in Johnson, 2001, p. 2).

- (25) *I'm winning the game, but she's not [winning the game].*

Another construction in which verb phrase ellipsis appears often are tag questions, such as (26). According to Sailor (2011), tag questions are full question clauses contracted by verb phrase ellipsis (Sailor, 2011, p. 1).

- (26) *He will make it in time, won't he [make it in time]?*

### **3.2. Direction of verb phrase ellipsis**

Verb phrase ellipsis can also be categorized according to its placement in a sentence. It can operate forwards or backwards. Ha (2008) presents the notion that verb phrase ellipsis operates forwards when the antecedent is in the clause preceding the ellipsis, as in (27a), and backwards when the ellipsis occurs in the clause before the antecedent, as in (27b) (Ha, 2008, p. 121 – 122).

- (27a) *He forgot to buy the beers, so she did [buy the beers].*  
(27b) *He forgot [to buy the beers], but she didn't forget to buy the beers.*

There are two more instances of verb phrase ellipsis operating according to the subordination between clauses. It is said that it can operate upwards and downwards. Verb phrase ellipsis operates upwards when the antecedent is in the clause subordinate to the clause where the ellipsis occurs, as shown in (28a), and downwards when the ellipsis appears in the clause subordinate to the antecedent clause, as shown in (28b). It is also possible that there is no upward or downward operation, as is the case with coordinated sentences.

- (28a) *People who say they will give up never do [give up].*  
(28b) *People who say they will [give up] never give up.*

Combinations between directions of verb phrase ellipsis are also possible, as illustrated in the previous examples. (28a) represents forwards and upwards, (28b) represents backwards and downwards. The following example (29a) shows a combination of forward and downward operation.

(29a) *People never do the things they said they would [do the things].*

(29b) *\*People never [do the things] they said they would do the things.*

The example (29b) is an attempt at backward and upward operation, but the sentence is nonsensical. This phenomenon is described by Langacker (1969), and he names it Backwards Anaphora Constraint (BAC). It says that an ellipsis coming before its antecedent cannot be contained in a main clause, but in a subordinate clause. (Langacker, 1969, cited in Ha, 2008, p. 122).

### ***3.3. Antecedent-contained ellipsis***

An aspect of verb phrase ellipsis that is highly exposed to theoretical analysis is the phenomenon of antecedent-contained deletion or antecedent-contained ellipsis. Bouton (1970) is the first to discuss this phenomenon and he elaborates it as a particular type of verb phrase ellipsis, in which the ellipsis is contained within its own antecedent, as in (30).

(30) *I did everything he asked me to [do everything he asked me to [do everything he asked me to]].*

In order for antecedent-contained ellipsis to ensue, the elided verb phrase must be structurally matched to the antecedent verb phrase. The antecedent verb phrase is also copied into the ellipsis every time, which also results in the elided verb phrase being copied as well, as it is a part of the antecedent verb phrase. This leads to an infinite stacking of structures, which is known as the infinite regress problem (Bouton, 1970, cited in Kennedy, 1997, p. 662).

One of the possible aspects of antecedent-contained ellipsis is created through quantifier raising, which is explained by Fox (2002). As its name suggests, it involves the movement of a determiner phrase within the complement of a verb to a higher position in the main clause, which is presented in (31). This may lead to a change in meaning or interpretation.

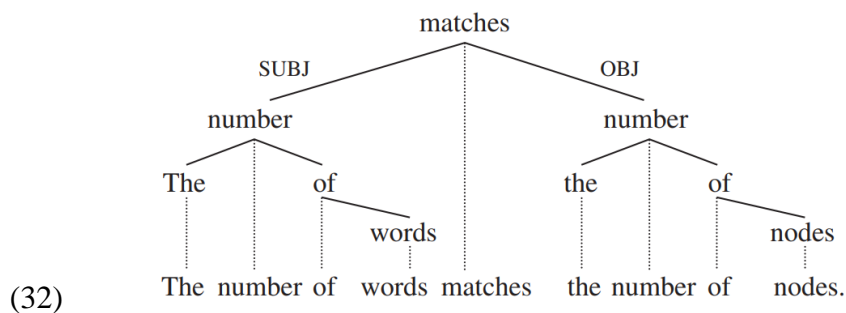


(31) *Everything he asked me to, I did.*

Given that it satisfies the condition of structural matching between the ellipsis site and the antecedent site, this can be interpreted as an account of antecedent-contained ellipsis (Fox, 2002, p. 64).

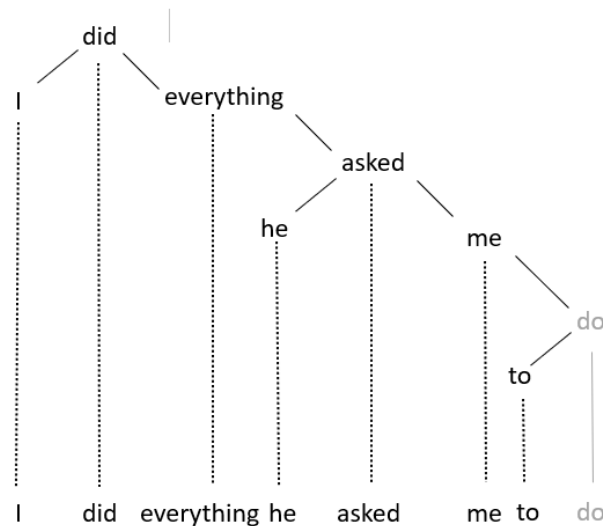
Osborne and Groß (2012) take a different approach towards explaining and solving the problem of antecedent-contained ellipsis through the framework of dependency grammar, where the assumption is that the basic syntactic unit is not the constituent but the catena. They define a catena as “a word or a combination of words that is continuous with respect to dominance”.

For a better understanding, it is necessary to explain the fundamental concepts of syntax within dependency grammar. The minimal structures in dependency grammar are words, and for each word, there is a node. The words in sentences are organized into tree diagrams, as shown in the example (32).



(Osborne and Groß, 2012, p. 103)

The center of the entire construction is the finite verb. Each dependency edge can be classified with a dependency type, which are, in the case of (33), the subject noun phrase and the object noun phrase.



(33)

~~everything he asked me to~~

Since both the ellipsis and the antecedent are regarded as catenae, i.e., individual words, the dependency grammar approach does not view the antecedent verb phrase as the antecedent for the ellipsis. The first verb phrase is viewed as a concrete and exclusive syntactic unit; therefore, the phenomenon of antecedent-contained ellipsis never occurs as such, and consequently the infinite regress problem never occurs (Osborne and Groß, 2012, p. 96 – 113).

### 3.4. Argument-contained ellipsis

Another aspect of verb phrase ellipsis elaborated by Kennedy (1994) can be connected to the aforementioned antecedent-contained ellipsis. In order for ellipsis to properly ensue, the antecedent and elided verb phrase must have identical internal arguments, like in (34a), when that is not the case, a construction like (34b) occurs.

(34a) *Max brought every chocolate she did [bring every chocolate].*

(34b) *\*Max brought every chocolate of every sort she did [bring of every sort].*

Sentence (34a) has the interpretation “for every chocolate Max brought, she brought it too”. Sentence (34b) has the interpretation “for every sort of chocolate Max brought, she brought all of the chocolates”, which is highly ungrammatical. The main difference between the two sentences is that the arguments of both the antecedent and elided verb phrase in (34a) are identical, while they differ in (34b). Without ellipsis, the sentence (34b) can become grammatically correct, like in (34c).

(34c) *Max brought every chocolate of every sort she brought.*

This leads to the emergence of the phenomenon which Kennedy refers to as argument-contained ellipsis. This phenomenon states that “ellipsis between  $VP_\alpha$  and  $VP_\beta$ ,  $VP_\beta$  contained in an argument  $A_\alpha$  of  $VP_\alpha$ , is licensed only if  $A_\alpha$  is identical to the parallel argument  $A_\beta$  of  $VP_\beta$ ” (Kennedy, 1994, p. 1 – 2).

#### **4. Corpus research of verb phrase ellipsis**

The research focusing on verb phrase ellipsis that will be conducted in this paper will be conducted via text corpora, i.e., collections of texts that have been utilized in linguistics for hypothesis testing, identification of occurrences or linguistic rule validation within a certain language territory. This research will cover a number of research questions and answering them will be the main focus of these questions, but also take into consideration other researches that have been carried out regarding this topic.

Given that the topic covered in this work belongs to the syntactic domain, the research questions are related to the syntactic aspects of verb phrase ellipsis. These help in uncovering the rules and constraints that govern the verb phrase ellipsis phenomenon, which is a relevant aspect of sentence structure. It is also important for parsing and interpreting sentences with ellipsis, and the identification of universal principles and language-specific patterns.

##### ***4.1. Previous research of the topic***

As a background to the research, it is necessary to give an overview of the previous corpus-based research that has been conducted regarding the topic of verb phrase ellipsis. The works aimed at determining the processes and the stage of language processing at which ellipsis resolution takes place have provided insight.

One of the first empirical approaches into the topic of verb phrase ellipsis has been presented in Hardt's work (1997). It deals with the resolution of verb phrase ellipsis through the examples found in Penn Treebank, a parsed text corpus that contains annotations for the syntactic or semantic structure of sentences in linguistics. In order to reject potential antecedents with impossible syntactic configurations, the system first applies a Syntactic Filter. The remaining possibilities are then ranked using Preference Factors that take into account quote structure, parallelism, recency, and clausal relations. The performance of the system is on par with the best contemporary available algorithms for pronoun resolution, and the results presented in the work mark the first comprehensive corpus-based examination of VP ellipsis resolution.

Nielsen's research (2002) develops the empirical component of verb phrase ellipsis even further and deals with the detection, identification and resolution of verb phrase ellipses. It proposes a system which will approach free texts and find parts where verb phrase ellipses occur, identify their antecedents, and try to resolve them and provide an interpretation for the ellipsis. It uses verb phrase ellipsis as its point of focus as it is the most common type of ellipsis,

but it also includes instances of pseudogapping because its resolution is similar to that of verb phrase ellipsis. Using machine learning techniques, part-of-speech tags and lexical information, this research has achieved higher precision at identifying and resolving ellipses than some of its predecessors (Nielsen, 2002, p. 1 – 7).

Zhang et al. (2019) engage the topic through a modern perspective – a neural network approach. Unlike other works, whose main focus was manually creating features taken from syntactic trees, auxiliary verbs, etc., this research addresses the utility of continuous features, the efficient use of feature representation, and the automatic compilation of features, which have not been focused on previously. In this study, they compare the features of statistical and neural models to examine the benefits of neural models for verb phrase ellipsis resolution. The verb phrase ellipsis detection and resolution are handled by two neural models, the Transformer and multi-layer perception. According to experimental findings, neural models surpass the most recent baselines in overall performance.

One of the studies related to this topic is from Nielsen (2004). His study also deals with the detection of verb phrase ellipsis using automatically parsed texts. In one of the approaches, he uses the Auxiliary-final VP feature, i.e., whether an auxiliary or a negator is the final part of the verb phrase, to search for verb phrase ellipsis. The results yielded an above average recall (percentage of retrieved relevant instances from all relevant instances) and an average precision (percentage of instances among the entire data that are relevant).

Another similar research paper is that of Lopez (1999). He establishes the similarities and differences between verb phrase ellipsis in English and in Spanish. Investigating the phenomenon in the English language, among other questions, he is seeking the causes behind the introductory auxiliaries and the appearance of verb phrase ellipsis in subordinate clauses and also analyses the subject in the part of clause which is not elided.

#### ***4.2. Methodology***

This section provides an extensive description of the method used to carry out the corpus-based analysis presented in this study. The methodology takes into account many phases of research, such as choosing a corpus, gathering data, and analyzing that data. The purpose of this section is to provide transparency and clarity on the method that was chosen to examine some syntactic properties of verb phrase ellipsis by outlining these methodological approaches. This section serves as a manual for the procedures followed in the collection, preparation, and analysis of the corpus data, helping the comprehension of the findings.

The occurrence of verb phrase ellipsis will be investigated in certain phrases where it emerges, and within these occurrences, certain elements will be elaborated. The research questions that are posed in the research are the following:

1. Does verb phrase ellipsis occur more often with nouns or pronouns as the subject?
2. Does verb phrase ellipsis appear more often in coordinate or subordinate phrases?
3. Do auxiliaries or modal verbs more commonly introduce verb phrase ellipsis?

The tool that will be used is Sketch Engine, and the method within the tool that will be used for finding instances of verb phrase ellipsis is Concordance. The corpus in which the instances will be found is the English Web Corpus of year 2021 (enTenTen21), a synchronic, monolingual web corpus. This corpus is relevant for collecting the data as it is a large text corpus that contains a great amount of data in the English language necessary for the analysis. For the first research question, a sample of 200 sentences was taken within the phrases:

“and \* can, too.”

“but \* could.”

“and \* did, too.”

“but \* did.”

For the second and third research question, a sample of 100 sentences were taken, for the phrases:

“\* will, too.”

“you \*, too.”

Unlike the previous research papers mentioned in this paper, whose main concerns are the detection, identification and resolution of verb phrase ellipsis on different levels, this research will be focusing mostly on the syntactic aspects of verb phrase ellipsis. Through the Sketch Engine tool, common elliptical phrases will be searched for and processed according to the research questions. Since verb phrase ellipsis appears most often in complex sentences, the first query will present a comparison of frequency between verb phrase ellipses found in coordinate sentences, that is, sentences that contain two or more clauses that can stand independently from one another and are connected with a coordinate conjunction; and subordinate sentences, i.e., sentences whose one or more clauses cannot stand alone as an independent sentence. Other comparisons of frequency will also be provided in the remaining research questions, namely the constituents that will be subject to comparison according to the results are following: types of verbs – since verb phrase ellipsis can be introduced by either

auxiliary or modal verbs, the focus will be on what is verb phrase ellipsis introduced by more often; parts of speech – specifically the point of interest are nouns and pronouns, and the frequency of their emergence as the subject within elliptical clauses.

**4.3. Results**

In this section, the results of the comprehensive corpus analysis will be presented, highlighting the language patterns and phenomena associated to verb phrase ellipsis. The research, which makes use of a carefully chosen corpus, offers insight into the prevalence, distribution, and contextual elements influencing verb phrase ellipsis. Through comparison of frequencies, a comprehensive overview of the findings will be provided, contributing to a deeper understanding of the linguistic landscape under study.

A number of different phrases were taken as the base example and the findings for the research will be presented on these phrases. Tables 1 – 4 depict the frequency of nouns and pronouns as the subject of the phrase in which verb phrase ellipsis occurs. There are visible differences between the phrases which used auxiliaries in the query and the phrases which used modals in the query. Nouns appear more frequently as the subject with auxiliary verbs, while pronouns appear much more frequently as the subject with modal verbs.

Table 1: Proportion of nouns and pronouns as the subject in the ellipsis phrase “and \* can, too.” in a sample of 200 sentences

Nouns	Pronouns
15,5%	84,5%
<i>If the Batman and Superman duo can get its own series, then surely Lois and Catwoman can, too.</i>	<i>She’s having a good life after kidney failure – and you can, too.</i>

Table 2: Proportion of nouns and pronouns as the subject in the ellipsis phrase "but \* could." in a sample of 200 sentences

Nouns	Pronouns
12%	88%
<i>And you couldn't really tell that on the set – but Bruce could.</i>	<i>I don't know if Canada has contacted Nancy Pelosi to see if she wants to declare herself president, but it could.</i>

Table 3: Proportion of nouns and pronouns as the subject in the ellipsis phrase "and \* did, too." in a sample of 200 sentences

Nouns	Pronouns
52%	48%
<i>Little boys grow up, and Kenny did, too.</i>	<i>And it's the problem other people have had with it, and I did, too.</i>

Table 4: Proportion of nouns and pronouns as the subject in the ellipsis phrase "but \* did." in a sample of 200 sentences

Nouns	Pronouns
21,5%	78,5%
<i>He also never objected when plans for a third bomb were suggested – but Truman did.</i>	<i>They should not have burnt her – but they did.</i>

Table 5 shows the percentages in which verb phrase ellipsis occurs in coordinate and subordinate sentences. In 100 examples taken, 79% of them were subordinate sentences, and it is important to note that 76% of the subordinate sentences featured relative clauses, 95% of the relative clauses being *that*-clauses, and the remaining 24% of the subordinate sentences being a combination of conditional clauses, clauses of time, clauses of place and clauses of comparison.

Table 5: Proportion of verb phrase ellipsis in coordinate and subordinate phrases in the ellipsis phrase “\* will, too.” in a sample of 100 sentences

Coordinate	Subordinate
21%	79%
<i>Here's one I really enjoyed, and perhaps you will, too.</i>	<i>I rather like it, and hope you will, too.</i>

Table 6 presents the proportion between verb phrase ellipsis being introduced by auxiliaries and modals. It is important to note that among the 100 examples chosen, in 39% of them verb phrase ellipsis was introduced by auxiliary verbs, 59% of the auxiliaries being the verb “do” in the present tense or past tense, the remainder of them “have” and “be”. In the case



of the 61% with modal verbs, 57% of the modals being the verb “can”, 23% of them being the verb “will”, and the remaining 20% a combination of the verbs “would”, “should” and “might”.

Table 6: Proportion of verb phrase ellipsis with auxiliaries and modals in the ellipsis phrase “you \*, too.” in a sample of 100 sentences

Auxiliaries	Modals
39%	61%
<i>Thomas, I'm feeling great and I hope you are, too.</i>	<i>We think our campuses are beautiful – and we hope you will, too.</i>

**4.4. Discussion**

The results of this corpus-based study provide information about a number of significant aspects of verb phrase ellipsis in relation to some syntactic properties. In this section, the main findings will be examined and discussed, along with any implications and possible future research areas.

One of the central findings of this study is the frequency of verb phrase ellipsis constructions and its elements in the English Web Corpus 2021. A key factor of verb phrase ellipsis is that the subject in the ellipsis phrase is most commonly a personal pronoun. Moreover, there were several observations of patterns and variations in verb phrase ellipsis. The analysis revealed that verb phrase ellipsis is a frequent phenomenon in subordinate sentences, with 95% of the sentences being *that*-clauses. It is also important to mention that verb phrase ellipsis is also more often introduced by modal verbs, mostly by “can” and “will”, than by auxiliary verbs. This highlights the importance of verb phrase ellipsis as a linguistic phenomenon worthy of investigation.

The conclusions drawn from this corpus-based study can be considered both on a theoretical level and a practical level. Theoretically, these findings help us understand the complex structure of verb phrase ellipsis in English and offer useful information for linguistic study. Additionally, they support and add to pre-existing explanations of ellipsis phenomena mentioned in this work (Johnson, 2001; Kroeger, 2004). On a practical level, this work provides insights for numerous linguistic fields, language teaching, and natural language processing. For instance, the construction of

more precise language models for natural language processing can be guided by the patterns and functions of verb phrase ellipsis discovered in this study.

As with any research, there are limitations to consider. Sketch Engine only includes texts that can be found online because it is a web corpus. Additionally, because Sketch Engine's queries cannot be used to search for phenomena, the research has to be restricted to a small set of phrases that are reflective of the phenomenon. Future studies in this field could focus on overcoming these constraints and identifying new topics for investigation, such as cross-linguistic comparisons, diachronic analysis, and more.

In conclusion, this corpus-based study helps in the comprehension of some structural elements of verb phrase ellipsis in English. The prevalence of the syntactic patterns found in this study provides a comprehensive overview of the role of the verb phrase ellipsis in English, underlining its significance for linguistic analysis and practical usage.

## 5. Conclusion

The focus of this paper was the phenomenon of verb phrase ellipsis, its usage in sentences and its properties. As stated before, verb phrase ellipsis is one of the many types of ellipsis, and one of the most frequent types. In order for verb phrase ellipsis to occur, it needs to have an antecedent to correspond to. Another requirement is that it needs to be introduced by a member of the “Aux” group (auxiliaries, modals, negator *not*, infinitive particle *to*). A possible classification for verb phrase ellipsis is according to the position in a sentence. It can operate backwards, forwards, downwards and forwards, also considering the fact that combinations between directions of operation are possible (except for backwards and upwards). A specific case of verb phrase ellipsis is the antecedent-contained ellipsis, which can develop an infinite regress problem, but can be resolved by different methods such as quantifier raising and constructions from the perspective of dependency grammar. Another particular aspect is the argument-contained ellipsis, which says that the antecedent and elided part need to possess corresponding internal arguments, otherwise the examples are ungrammatical.

The research presented in this thesis, unlike some of its predecessors, focused on some syntactic properties of verb phrase ellipsis which were posed as research questions whose main idea was to present the frequency of nouns and pronouns as the subject of the ellipsis phrase, the frequency of verb phrase ellipsis occurring in coordinate and subordinate sentences, and lastly, the proportion of appearance between auxiliaries and modals as the introductory element of verb phrase ellipsis. The results showed that pronouns are mostly frequent as the subjects, occurring often in subordinate sentences and being introduced by modal verbs more commonly than by auxiliaries.

Ultimately, verb phrase ellipsis is a symbol to the adaptability and effectiveness of language, and the research has allowed examination and comprehension of its complex character and different approaches towards it within the English language. While the study provides insightful information, it also sets the path for additional investigation and study, encouraging researchers to continue exploring the unanswered questions of verb phrase ellipsis and its role in human communication.

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## **7. Verb Phrase Ellipsis in the English Language: Summary and key words**

Verb phrase ellipsis is an occurrence in the English language which covers the omission of the entire verb phrase or one or more elements of the verb phrase. It is introduced most commonly by an auxiliary or modal verb, it can operate in coordinate and subordinate sentences, and can be influenced by inversion as well. As a polyvalent phenomenon, several special instances of it can be found in linguistics, such as antecedent-contained ellipsis and argument-contained ellipsis. Previous research on the topic dealt mainly with detection, identification and resolution of verb phrase ellipsis, but this corpus-based study deals with investigating the frequency of syntactic elements and backgrounds in which the occurrence can take place. The findings demonstrated that verb phrase ellipsis uses pronouns more frequently than nouns as the subjects, appears more often in subordinate clauses, where they are introduced by modal verbs more commonly than by auxiliaries.

Key words: verb phrase ellipsis, antecedent, auxiliary verb, modal verb, direction of operation, antecedent-contained ellipsis, argument-contained ellipsis, coordinate sentences, subordinate sentences, nouns, pronouns

## **8. Elipsa glagolske fraze u engleskom jeziku: Sažetak i ključne riječi**

Elipsa glagolske fraze je pojava u engleskom jeziku koja obuhvaća izostavljanje glagolske fraze ili jednog ili više dijelova glagolske fraze. Najčešće je uvodi pomoćni ili modalni glagol, može se pojaviti u nezavisno složenim i u zavisno složenim rečenicama te može biti pod utjecajem inverzije. Budući da je to polivalentan fenomen, u lingvistici se mogu pronaći mnogi posebni slučajevi, kao što je elipsa sadržana u antecedentu ili elipsa sadržana u argumentu. Prijašnja istraživanja teme su se pretežno bavila pronalaskom, prepoznavanjem i rješavanjem elipse glagolske fraze, a ovo istraživanje zasnovano na korpusima se bavi istraživanjem učestalosti sintaktičkih elemenata i pozadina u kojima se ta pojava može dogoditi. Rezultati su pokazali da elipsa glagolske fraze koristi zamjenice kao subjekt češće nego imenice, pojavljuje se više u zavisno složenim rečenicama, gdje se uvode uz pomoć modalnih glagola češće nego uz pomoć pomoćnih glagola.

Ključne riječi: elipsa glagolske fraze, antecedent, pomoćni glagol, modalni glagol, smjer funkcioniranja, elipsa sadržana u antecedentu, elipsa sadržana u argumentu, nezavisno složene rečenice, zavisno složene rečenice, imenice, zamjenice