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ADJECTIVAL OR ADVERBIAL? THE USE OF MOVABILITY AND RELATIVE CLAUSES TO AVOID A PREPOSITIONAL PHRASE ATTACHMENT AMBIGUITY

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Abstract

This study is intended to help English foreign language learners avoid a type of syntactic ambiguity in sentences resulting from prepositional phrases (PPs). The students are guided to make use of the features of both adverbials and adjectivals in resolving this type of ambiguity. The movability of adverbials and the use of relative clauses instead of adjectival prepositional phrases are the two tricks that have helped students construct comprehensible sentences. The study avoids the use of syntactic tree diagrams since the relation among the words of the sentence should be clear before applying or drawing the syntactic tree diagrams. The students are given two assignments: the first after an introduction to the form and functions of PPs and the second after detailed instructions about the functions of PPs and how they can be a source of ambiguity in a sentence. This paper seeks to provide a practical solution to help learners avoid constructing ambiguous PPs. When people can infer more than one meaning, this ambiguity is considered a linguistic problem since language is used mainly to communicate thoughts and messages among people (Sturta, et al., 2003).

Keywords: ambiguity, prepositional phrases, adverbial, adjectival, movability, relative clauses.

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1. Introduction

People use language mainly to communicate with each other and deliver messages about different topics (Irawan, 2009). Sentences are formed out of words, phrases and clauses according to grammatical parsing that involves identifying "the form, function and syntactic relationship of each part" (Nordquist, 2019). These grammatical rules are intended to guarantee the clearness of a linguistic message.

If the main aim of using language is to communicate definite ideas and thoughts, ambiguity here can negatively affect this purpose. Resolving this issue is the main goal of this paper, in which the researcher brings to learners' attention a type of ambiguity in English sentences that arises from the use of prepositional phrases and presents a solution to this problem.

It has been noticed that EFL students use prepositional phrases in their sentences without paying attention to their effect on the message they want to deliver. Most learners lack the knowledge that a prepositional phrase has two different grammatical functions: adverbial and adjectival. The situation becomes worse when a prepositional phrase is a source of ambiguity in a sentence. In other words, the same prepositional phrase can have either an adverbial or adjectival function at the sentence level, and these functions give totally different meanings to the sentence.

This study tries to find a way to help students recognize the functions of a prepositional phrase and resolve the ambiguity caused by it. As Irawan (2009) stated, careful attention should be given to making learners aware of this issue and helping them to resolve any source of confusion in communicating with others. From a personal experience, the more you tackle this issue, the more students pay attention to the structure of the sentences they produce or receive.

1.1. Literature review

Language ambiguity:

"A sentence is said to be ambiguous whenever it can be associated with two or more different meanings" (Cann, 1993:8). Both words and sentences can have more than one meaning (Kempson, 1977). Ullmann (1972) divided ambiguity into three types:

- Phonological ambiguity that arises in spoken language and is related to hearing similar sounds for different words, such as I scream and ice cream.
- Lexical ambiguity that arises when a single word has more than one meaning, such as the word bank.
- Grammatical or syntactic ambiguity that arises when the structure of the sentence can be interpreted in different ways.

Cehan (2019) added another type of ambiguity in language: pragmatic or contextual ambiguity. This type arises when one sentence can be linked to more than one speech act; for example, the sentence "I feel tired" can be interpreted as a statement, a request, or even an expression of feeling unhappy.

The specific type of ambiguity of interest in the present study is syntactic ambiguity. The source of ambiguity here comes from prepositional phrases. Prepositional phrases are not always a source of ambiguity, but they can be when appearing in the following sequence:

Noun phrase + verb + noun phrase + prepositional phrase

NP + V + NP + PP (Khawalda & Al-Saidat, 2012)

Study of Ambiguity:

Linguists have recognized the necessity of studying language ambiguity for a long time. Conway (2002) discussed ambiguity in relation to criticism of legal drafting. He pointed to the problem that can be faced in understanding an ambiguous document. He called for simple and clear language that could be understood by ordinary people. He reviewed some sources of syntactic ambiguity and concluded that the precision of communication increases if there is an awareness of the need to avoid syntactic ambiguities.

Houpt (2006) measured the effect of some factors – the number of words, the average frequency, the number of characters per word, and the headword of the prepositional phrase – on how humans examine the information to deal with ambiguous prepositional phrases in both English and French. The study showed a significant interaction between attachment type and language. Headwords had a significant effect when the data were transformed.

Khawalda and Al-Saidat (2012) conducted a study on different sources of structural ambiguity. The subjects were 60, and all of them were Arab university students specializing in English. They found that the subjects faced difficulty in interpreting structural ambiguous sentences and inferred the general meaning based on the sequence of words.

Based on a study of the strategies used by 114 learners of English as a foreign language, Tsai (2012) emphasized the fact that learners need to apply specific strategies to achieve reading comprehension for syntactically ambiguous sentences.

In (2017), Jha conducted a study to explore the probable ambiguities that have become incomprehensible for learners of English as a foreign language to decode the intended meaning. The 10 listed major types of ambiguities included prepositional phrase attachment, which can be a source of ambiguity, as learners face difficulty in decoding these phrases as adverbial or adjectival.

Nadina Cehan (2019) conducted a study on the structural ambiguity of the sentences "The shooting of hunters is terrible" and "Flying planes can be dangerous" by conducting a corpus investigation on these sentences. The study proved that people recognize ambiguity rather than corpus data, and to verify the corpus data, the subjects were asked to paraphrase the ambiguous sentences.

Previous studies clearly show the existence of the problem of language ambiguity that needs to be further investigated. There are many sources of ambiguity, and prepositional phrase attachment is a source of structural ambiguity in English. Consequently, this source needs to be studied and clarified.

Resolving Prepositional Phrase Attachment Ambiguity:

Yang (2014) thinks that eliminating ambiguity is important to maintain understanding unless that ambiguity is intended for a specific purpose: humour, literary works, advertisement, and so on.

A resolution of the ambiguity caused by a prepositional phrase attachment was described by Kailash Nadh and Christian Huyck (2009). The strategy was based on the four main components of a sentence with a prepositional phrase: head verb, head noun of noun phrase, preposition, and head noun of the attached prepositional phrase. Their study used lattices of hierarchies, and the results recorded 90.53% correct attachment decisions.

Bailey, Lierler and Susman (2015) suggested a method of resolving the problem of ambiguity caused by prepositional phrase attachment. Their method depended on incorporating semantic knowledge with syntactic parsing. Verbnet and Wordnet were the core lexical ontologies of their project. Although the researchers witnessed poor precision for the "right" features, that method, as they reported, was promising and could show great development in the future.

Paraphrasing could be another resolution for resolving structurally ambiguous sentences. Duan, Hill and White (2016) suggested using natural language generation to create paraphrases that disambiguate structurally ambiguous sentences. The validity of the chosen paraphrases was measured with Amazon Mechanical Turk, which has high accuracy.

The present study attempts to add a method to disambiguate a sentence with an ambiguous prepositional phrase. The aim is to guide English learners to easy ways to rewrite their sentences to convey the intended meaning, whether adverbial or adjectival, by making use of the movability of adverbials or replacing the prepositional phrase with a relative clause.

1.2. Research hypotheses

The hypotheses of the study are as follows:

- 1- Most students are not aware of the existence of ambiguous prepositional phrases.
- 2- Students find it difficult to distinguish adverbial prepositional phrases from adjectival prepositional phrases.
- 3- Students' performance in recognizing the function of a prepositional phrase improves after they receive guidance on how to test the function of a prepositional phrase.
- 4- Students' performance in resolving the ambiguity of a sentence with unclear prepositional phrases improves after they receive guidance on two ways of restructuring their sentences that reflect the two functions of an ambiguous prepositional phrase.

2. Method

2.1. Sample / Participants

The students who participated in this study are all learners of English as a foreign language (EFL). They are female students at College of Languages, Princess Nourah University (PNU) in Saudi Arabia. Their age ranges between 18 to 22 years. They take a course named "Grammar in Use" in which they study the main components of a sentences- words, phrases, and clauses.

2.2. *Instrument(s)*

Two written assignments containing ambiguous and unambiguous sentences. The ambiguity if exists was a result of a PP attachment.

2.3. Data collection procedures

The subjects of the study were instructed about prepositional phrases, including their form and functions. Generally, a prepositional phrase has two main functions: adverbial when it adds information to the verb or adjectival when it adds information to a noun. However, sometimes, a single prepositional phrase in a sentence can be interpreted to have either of these functions, giving rise to an ambiguous sentence.

After the instruction, the subjects were given an assignment containing two parts: the first part comprised

After the instruction, the subjects were given an assignment containing two parts: the first part comprised ten sentences with prepositional phrases to decide the function of each prepositional phrase in each sentence, and the second part comprised two sentences with ambiguous prepositional phrases to identify the two possible meanings of each one. The assignment was given as follows:

Decide whether the underlined prepositional phrases are adjectival or adverbial:

He arrived in time.

The cat in the middle is the cutest.

I always buy my milk from the convenience store on Main Street.

I always buy my milk from the convenience store on Main Street.

He arrived in the nick of time.

She lives in a big building.

The big house at the end of the street is my uncle's.

The girl with long hair is my neighbour.

I usually study in the library.

I like spaghetti with mushrooms.

I watched the game on the porch.

The following sentences are ambiguous – the PP can be seen as adjectival and adverbial – give the two meanings that each sentence can have:

Meaning 1:
Meaning 2:
I met the girl with a big smile.
Meaning 1:
Meaning 2:

The sentences are taken from the following websites:

https://www.grammarflip.com/curriculum/prepositional-phrases-as-adjectives

https://learnenglish.britishcouncil.org/english-grammar-reference/where-adverbials-go-in-a-sentence

https://examples.yourdictionary.com/preposition-examples.html

https://learnenglish.britishcouncil.org/english-grammar-reference/adverbials-of-place

https://www.google.com/search?safe=strict&rlz=1C1CHBD enSA885SA885&sxsrf=ALeKk0069HY

KZL5KBqy_cIvqCzYWvK8TMg:1613491177875&source=univ&tbm=isch&q=adjectival+prepositio

nal+phrase+examples&sa=X&ved=2ahUKEwj5noWE4-

https://www.google.com/search?safe=strict&rlz=1C1CHBD enSA885SA885&sxsrf=ALeKk0069HY

KZL5KBqy_cIvqCzYWvK8TMg:1613491177875&source=univ&tbm=isch&q=adjectival+prepositio

nal+phrase+examples&sa=X&ved=2ahUKEwj5noWE4-

7uAhWauHEKHc5GBEAQjJkEegQIKRAB&biw=1368&bih=802&dpr=2#imgrc=JBQmefu6zxE3xM

&imgdii=lejLHK-fKIvY4M

During the following weeks (almost 6), the students were given more information about the functions of a prepositional phrase and how to test their sentences to identify the correct function. When encountering an ambiguous prepositional phrase, they were guided to benefit from the grammatical features of both adverbials and adjectivals to rewrite their sentences in a way that shows the function of the intended meaning. The movability of adverbials and changing the adjectival prepositional phrase

the intended meaning. The movability of adverbials and changing the adjectival prepositional phrase

into a relative clause are the two strategies the students practiced to resolve this type of ambiguity. The

following are clarifying examples:

After a verb, the prepositional phrase is adverbial, NP+V+PP

After a noun, a PP is adjectival if it comes immediately after the noun and before the main verb,

NP+PP+V

After a noun in the predicate, a PP can be adjectival if it can be replaced by that relative clause,

NP+V+NP+PP

After a noun, a PP can be adverbial if it is movable, NP+V+NP+PP

Subsequently, the subjects were given a similar assignment but with different sentences as follows:

Decide whether the underlined prepositional phrases are adjectival or adverbial:

She put the money on the table.

The little boy with the blue hat ate the pudding.

The sound of the motorcycle was very loud.

She lives <u>near her workplace</u>.

She had carefully put the glass on the shelf.

We are running in the gym today.

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The door	by	the kitchen	was	locked.

The dogs in the park run.

Sign your name at the bottom of the page.

The books on the shelf are my sister's.

<u>The following sentences are ambiguous – the PP can be seen as adjectival and adverbial – give the two meanings that each sentence can have:</u>

Ali washed the dishes in the sink.	
Meaning 1:	
Meaning 2:	
I greeted the woman on the stage.	
Meaning 1:	
Meaning 2:	

$\underline{\textbf{Decide whether the following sentences are ambiguous or not; choose ambiguous or unambiguous}:$

- I put the sweet potatoes in the vegetable bin.

Ambiguous Unambiguous

- The kid ate the apple on the table.

Ambiguous Unambiguous

3.4 Data analysis

The T test was used to analyse and compare the performance of the students in recognizing the functions of prepositional phrases in ten sentences (Table 1-1 and Table 1-2) as follows:

One-Sample S	tatistics			
	N	Mean	Std. Deviation	Std. Error Mean
assignment 1	10	76.4400	10.62755	3.36073
assignment 2	10	93.0200	7.64312	2.41697

One-Sample	Test						
	Test Valu	e = 0					
						95%	Confidence
						Interval	of the
			Significance		Mean	Difference	e
	Т	df	One-Sided p	Two-Sided p	Difference	Lower	Upper
assignment 1	22.745	9	<.001	<.001	76.44000	68.8375	84.0425

assignment 2 38	8.486	9	<.001	<.001	93.02000	87.5524	98.4876
•							

From the tables, figures, and observations of the performance of the participants on the two assignments, the following should be highlighted:

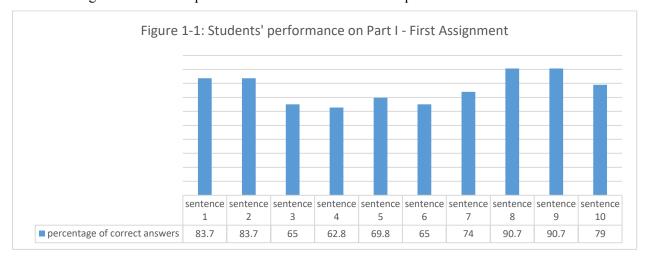
- There was a significant difference between the performance of the students on the first and second assignments.
- The average performance of the participants on part I of the first assignment was 76.44%, while on the second assignment, that average increased to 93.02%. In other words, the participants' ability to differentiate between the two functions of a prepositional phrase improved.
- The difference between the participants' performance on part II on the two assignments was considerable, from 16% to 96.2%.
- On the third part of the second assignment, there was a notable improvement in the students' ability to recognize ambiguous prepositional phrases.

3. Results

Based on the first assignment, the researcher could grasp the level of the students' initial knowledge about the functions of the prepositional phrases and the ambiguity they might cause in a sentence. Forty-three students completed that assignment. The following table summarizes the performance of the students on the first part of the assignment:

Table 1-1: *Students' Performance on Part I – First Assignment*

_
The percentage of correct
answers
83.7%
83.7%
65%
62.8%
69.8%
65%
74%
90.7%
90.7%
79%
76.44



The following chart shows the performance of the students on this part:

Concerning the second part, the following points are highlighted:

- 1- In grammatically correct sentences, just 16% of the participants could give the two meanings of each ambiguous sentence.
- 2- Approximately 5% of the students understood the idea of having two meanings of one sentence but could not communicate those meanings correctly.
- 3- Approximately 28% could only grasp one meaning.
- 4- Nine percent of the participants simply rewrote the original sentences without any change or added some adverbial words, such as always or usually.
- 5- Forty-two percent of the participants did not understand the idea of having two meanings of one sentence. Some of them provided no answer; some divided the same sentence into two parts one for the adverbial meaning and the other for the adjectival meaning; and others changed the meaning of the sentence. Examples include the following:

I saw the game and I work.

I met the girl while she was watering the roses.

Adverbial: I watched the game.

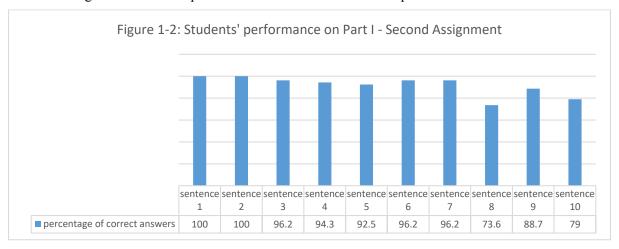
Adjectival: on the porch.

The second assignment was intended to test any development in the level of the students' knowledge about the functions of prepositional phrases and the ambiguity they might cause in a sentence. The number of students who completed this assignment was 53. Some students joined the course during the second week and did not take part in the first assignment. The following table summarizes the performance of the students on the first part of the assignment:

The sentence	The percentage of correct
	answers
She left the money <u>on the table</u> .	100%
The little boy with the blue hat ate the pudding.	100%
The sound of the motorcycle was very loud.	96.2%
She lives <u>near her workplace</u> .	94.3%
She had carefully put the glass on the shelf.	92.5%
We are running in the gym today.	96.2%
The door by the kitchen was locked.	96.2%
The dogs in the park run.	73.6%
Sign your name at the bottom of the page.	88.7%
The books on the shelf are my sister's.	92.5%
Percentage of Correct Answers	93.02

Table 1-2: *Students' Performance on Part I – Second Assignment*

The following chart shows the performance of the students on this part:



For the second part, the following points are highlighted:

- 1. A total of 96.2% of the students who completed the assignment could give the two meanings of each ambiguous sentence and transform those meanings into grammatically correct sentences.
- 2. A total of 1.9% of the students could give the adverbial meaning of the first sentence but could not give the adjectival meaning, although the second sentence was answered correctly.
- 3. A total of 1.9% of the students could only give the adverbial meaning of both ambiguous sentences. The third part of the assignment tested the ability of the students to determine whether a sentence is ambiguous. The students were given two sentences: one was ambiguous, and the other was not. Fifty-two out of 53 students (98%) gave the correct answer for both sentences. In other words, just one student did not give the correct answer for each sentence.

4. Discussion

Based on the above analysis of the students' performance in identifying the functions of prepositional phrases and how to recognize and resolve a sentence attached to an ambiguous prepositional phrase, the hypotheses of the study were tested in the following way:

1- Most students are not aware of the existence of ambiguous prepositional phrases.

The students' performance on the first assignment strongly supports this hypothesis. Only 16% of the participants could provide the two meanings of the ambiguous sentences.

2- Students find it difficult to distinguish adverbial prepositional phrases from adjectival prepositional phrases.

The first assignment was given after the students were introduced to the form of a prepositional phrase and were given a brief explanation about its two main functions. The performance of the students exceeded expectations: on average, the student's correctly identified the difference between adverbial and adjectival prepositional phrases on 76.44% of the test questions.

3- Students' performance in recognizing the function of a prepositional phrase improves after they receive guidance on how to test the function of a prepositional phrase.

The results of the study support this hypothesis because the average percentage of correct answers on the difference between adverbial and adjectival prepositional phrases increased to 93.02%.

4- Students' performance in resolving the ambiguity of a sentence with unclear prepositional phrases improves after they receive guidance on two ways of restructuring their sentences that reflect the two functions of an ambiguous prepositional phrase.

Based on the performance of the students who participated in this study, this hypothesis is supported. The participants were more able to understand the two meanings of each ambiguous sentence after learning strategies for recognizing these meanings. The findings reveal a very significant increase in the participants' ability to make use of the movability of adverbials and the replacement of an adjectival prepositional phrase with a relative clause to rewrite their sentences in a simple way to show the two meanings. The third part of the second assignment emphasized this improvement.

5. Conclusions

This study is based on the fact that language ambiguity is a linguistic issue that needs attention and solutions since it negatively affects the process of communication. Hence, this study aims to help EFL learners recognize a type of ambiguity resulting from prepositional phrase attachment. It tries to present simple grammatical techniques to resolve that ambiguity. The strategy directs the attention of learners to make use of the grammatical features of both adverbials and adjectivals. The movability of adverbials

and changing the adjectival prepositional phrase to an adjectival clause are the two techniques investigated in this study.

The results of the study show notable improvement in the participants' awareness of the existence of ambiguous prepositional phrases and their ability to solve the problem by rewriting the ambiguous sentence in one of the two given ways to reflect their intended meaning. If the adverbial meaning is intended, the students move the prepositional phrase to the beginning of the sentence, whereas if the adjectival meaning intended, the prepositional phrase is replaced by a relative or adjectival clause.

The main findings of the study are as follows:

- 1. Most EFL learners are not aware of the existence of ambiguous prepositional phrases, which can lead them to deliver unclear messages in their spoken or written communication.
- 2. EFL learners' performance in recognizing the function of a prepositional phrase and the potential for an ambiguous sentence as a result of prepositional phrase attachment significantly improves after they are provided with detailed instructions, as shown above.
- 3. Moving the adverbial prepositional phrase to the initial position of a sentence and replacing an adjectival prepositional phrase with a relative clause are found to be significantly effective methods for avoiding ambiguity.
- 4. Providing learners with simple techniques is effective in making them aware of some linguistic problems that can negatively affect their communication.

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