# Unbounded Dependency in English and Arabic: A Lexical – Functional Grammar Approach

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### 1-Transcription and Glossing Guidelines

The symbols in table (1) in the appendix are used to transcribe the Arabic consonants. These symbols are arranged according to the Arabic alphabet. The symbols are adapted from Encyclopaedia of Arabic Language and Linguistics (2005).

#### 3-Introduction

This study is a descriptive and theoretical discussion of UDs or what is so called Long- distance dependencies. We will need to study topicalization of constituents in sentences. It discusses topicalization according to lexical- functional grammar perspective in both English and Arabic. The study will be divided into three main sections; the first one will start by presenting some definitions of UDs in the relevant grammar. Section two will state the meaning of *topicalization* in English as one of the grammatical processes which exemplifies unbounded dependencies. Then the section will show the role of the topicalized phrases in the sentences. Also in this section, a definition of topic as an associated term to topicalization and the marked topic constructions will be mentioned. In parallel to English, section three will discuss UDs and topicalization in

MSA. The study will end with a number of conclusions summarising the main findings followed by a list of references.

### 4-Definitions of Unbounded Dependency in Grammar

Leech (2006, 116-8) discusses the idea of unbounded dependency and asserts that it is an important grammatical aspect. He defines it as a kind of relation between two parts within one sentence, one of these parts can determine what might occur in the second part, and there is no limit on the distance between these two parts; as in example (1).

# (1) What does the man drink \_\_\_\_?

An English *wh*-question such as the one in (1) presents a structure in which one type of dependency is clearly marked; this is the relation between the wh-phrase *what* and the gap in the complement position following the verb *drink*, the position in which the object of the verb normally occurs. Noticeably, the dependency becomes clearer when the agreement between the wh-phrase and the direct object of the verb is considered; for instance, in sentence (1) the direct object must not be animate, hence the *wh*-phrase can occur as *what*, but not as *who*. Accordingly, the sentence in (2) is ungrammatical because the *wh*-word does not conform to the type of the direct object that the selectional features of the verb dictate (ibid:117).

# \*Who does the man drink \_\_\_?

The *wh*-phrase and the gap occur in the same clause in the example (1). However, they can be separated by one, two, or more clause boundaries as in (3a-d). (Clause boundaries are marked by the square brackets []).

- (3) a. What did he think [I wrote\_\_?]
  - b. What did he think [they wanted me [to write\_\_?]]

- c. What did he think [they wanted me [to start [writing\_\_?]]]
- d. What did he think [they wanted me [to pretend [to start [writing\_\_?]]]]

Obviously, these sentences can be more complex when they have more subordinate clauses in their structure. Nevertheless, the complexity of the structure does not impose any upper limit on the relation between the whword and the gap. The wh-dependency is unbounded i.e. one can generate infinite number of clauses to fill the gap.

# Note: the asterisk (\*) stands for ungrammatical sentences.

Moreover, Dalrymple (2001, 389) presents an explanation of long-distance dependencies, in which, she claims that in many languages including English, topicalization constructions, relative clauses, and whquestions represent long-distance dependencies. Syntactically, the movement of a constituent from one position in the sentence to another makes it signifies two functions, each of which is related to one position; as in (4):

# (4) Mary, John likes.

The constituent *Mary* moves to the front position and it has two functions: a topic of the sentence and an object of the verb *likes*. Furthermore, Crystal (2008, 501) states that the term "unbounded dependency" is used to denote a grammatical relation which can hold between two or more constituents within a construction. In English, this kind of relation can be expressed by some constructions such as, topicalization, *wh*-questions, cleft sentences, and relative clauses. Also, the structural distance among these constituents is not restricted; therefore it is called a "long distance clause". As in (5 a-c), the *wh*-word occurs in the front position of the

main clause, and might be separated by one or more clauses from the gap that is associated with it.

a. What has John seen\_\_\_\_?b. What does he think John has seen\_\_\_\_?c. What does he think they have claimed John has seen\_\_\_\_?

Similarly, Falk (2001, 149) explains long-distance dependencies or unbounded dependencies as those relations that involve the initial phrase in some constructions; this phrase is understood to have two functions that are related to two different syntactic positions in the construction. The distance among these positions is unrestricted. This means that it is possible to have a number of clause boundaries between the two positions within these constructions, as in sentences (6a-b):

a. Which pen does she think I gave \_\_\_\_ to the boy?

filler gap

b. This film, they try to deny that they had never talked filler about \_\_\_\_.

gap

Two terms are used in unbounded dependencies; the first one is *filler* which refers to the top position of the construction and the term *gap* which is used to refer to the lower position of the unbounded relation. In English, in the gap position, UDs involve a missing element. Grammatically, in the filler content, there are two functions; the first one represents the position which denotes the filler position. The second one denotes the typical of gap. In the example (6a), the wh-phrase {which pen} is the filler, and the DP or NP after the transitive verb *gave* is the gap.

While in (6b), the noun phrase {*the film*} is the filler, and the NP after the transitive verb *talked* is the gap (ibid: 149).

#### 5-Topicalization in English

Crystal (2008, 488) presents a brief description for topicalization; he states that "it can be found when a constituent in the sentence changes its position to the beginning of the sentence. In this movement, the constituent has the function of a topic", as in example (7):

(7) A new car, she will buy next week.

**Topic** is a term that is used in syntax and semantics to express an entity of a sentence. This entity might be a person, thing, etc., about which something is said. On the other hand, the term **comment** is used to describe what has been said about this entity. This entity is useful to make a statement which can express the relationships among the sentences which have an ambiguous distinction for subject/predicate. The topic often occurs as the subject of the sentence as in (8a), but it is not a condition for the topic to be the subject, as in (8b). And even though when it becomes sometimes a subject, it is not required to be in the front position of the sentence, as in (8c) (ibid: 488):

- (8) a. An old man/ is coming to the town.
  - b. here is *the man*/ who sent me the parcel.
  - c. Mark Louise my name is

Alsina (2008) defines *topicalization* as one of the long-distance dependency constructions in which the moved element occurs in the front position of the clause. This element is not a *wh*-phrase, and it provides a grammatical function; either in the clause that the topicalized phrase

moved to, or in the clause which has no limitation to have more constituents in it; as in (9a-b):

(9) a. an old man, John is amazed for \_\_\_\_.

b. an old man, John seriously last month is amazed for \_\_\_\_\_.

In the examples above *an old man* has two functions: the first one is an operator in the front position and the second one is an object of the preposition *for*. Hence, long distance dependency occurs between these two grammatical functions.

Bresnan (2001, 181) suggests that topicalization in English can have the functions of either topic or focus. The answers to interrogative forms can be focused phrases when these forms (interrogatives) are omitted, as in (10a-b), (11a-b). In the case of topicalization, it can either focus the phrase in the front position or create a new topic for this phrase.

- (10) a. What did the man buy for his son?
  - b. Video game the man bought for him. (Video game= focus)
- (11) a. What did she name her kids?
  - b. Her son, she named Tom. Her daughter, she named Lucy.

(her son, her daughter = topic)

Kroeger (2004, 29) states that topicalization is a constituent in a sentence which is moved to the initial position of the sentence; it is preceded by the verb and followed by the subject NP. Many categories of clauses are topicalized; as in (12a-c):

- (12) a. [her younger sister]NP John never likes.
  - b. [that she has become a film star] s' I cannot imagine.

c. [in her new house]PP Mary lost the key of the car.

Topicalization cannot appear with phrasal verbs; however it is acceptable with the normal preposition phrases; as in (13a-b):

(13) a. [out the square] John threw the ball.

b. [up the hill] she climbed.

### 6- Marked-Topic Constructions

Kroeger (2004, 137) discusses that the element of marked topic and focus usually occurs in the beginning of the sentence. When the function of the fronted element is a topic, the sentence should involve a *comment*. While, if the fronted phrase has a function as focus, the sentence must have *a preposition*.

There are three kinds of constructions in topic-comment, in all these forms the topic phrase is preceding a comment which signifies new information related to this topic. The three forms are: (ibid: 138)

# **A-Contrastive Topic**

Contrastive topic is a construction that entails a comment by which we can get extra clarification related to this topic, the contrastive topic can be seen in examples (14 a and b) below:

(14) a. This action movie I prefer [, but the one I watched last week was bad].

b. Tom I tried to rescue; his sister I couldn't help.

On the other hand, if we find that the fronted phrase has the function of focus, then the sentence must have a preposition, as in example (14 c) below:

c. To John, the mother gave money, but to the rest of her sons she gave only candy.

#### **B-Left-Dislocation**

Left- dislocation refers to the process where a noun phrase is located initially (left position of the sentence) and a reinforcing pronoun stands for it in the relevant position in the sentence (Quirk et al, 1985:1310). Left- dislocation topic can be clarified in examples (15 a - c):

- (15) a. Our teacher Sally, a thief stole her money last month.
  - b. The shop which I know, its door has been broken by wind.
  - c. your friend John, I saw him here last night.

#### C- External Topic

According to Alcala (2014, 20) external topic can appear in a resumptive element in the argumental position they are semantically related with. They are phrases introduced by specialized markers such as: *as for, concerning*. They can only appear in root clauses and in sentence-initial position (ibid:21-24), the external topic can be shown in examples (16a-b):

- (16) a. As for Mike, most of scholars still follow his concept.
  - b. Concerning the USA, the financial crisis is finished.

Similarly, Dalrymple (2001, 390) points that English topicalization is a kind of construction which has a displaced constituent to appear in the front position of the sentence, and this constituent is dealt in this position as a *topic*. The topic phrase does a grammatical role in the clause; topicalized phrase is the phrase which has the front position in the clause. In English, topicalization construction can be one of many phrase

structure groups, the kinds of topicalized phrase are listed below; as in (17a-e). (ibid: 391):

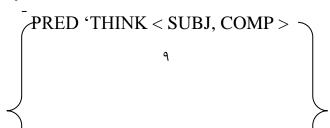
- (17) a. **NP**: *Marry*, John likes.
  - b. **PP**: To Mary, John gave present.
  - c. AP: Confidant, Mary will be in test
  - d. **CP**: *That Mary got a driving license*, I cannot believe.
  - e. **VP**: *To sleep*, I advised Mary.

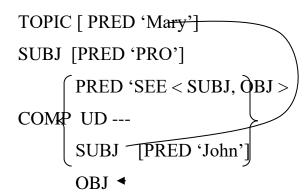
Topicalized phrases can have many grammatical functions in the front position of the clause, some of these functions are related to the *topic*, others are not. One of these functions is that the topic can have the role of object, as in (18) which shows the functional analysis or what so-called *f*-structure:

(18) Mary, John saw.

The **NP** *Mary*, in the example above, has two roles in the same time; one is the topic of the sentence, another is the object of the verb *see*. Moreover, the topic can be the OBJ of the dependent COMP, in this analysis the function of the topic is COMP OBJ, as in (19):

(19) Mary, I think that John met.





The above analysis can be applied when there is a connection between topic and COMP of some verbs; such as *think* which is called "bridge verb". Conversely, within the COMP of "non-bridge verb" like *whisper* as in (20) it cannot be applied.

\* Mary, I whisper that John met.

Long distance dependencies can have a function of modifying adjuncts. A discussion by Williams (1992) cited in (Dalrymple 2001, 393) who claims that construction, as in (21) can provide a relation between the *wh*-word in the front position and a position in an adverbial modifier.

- (21) Who does the student eat his sandwich before talking to?

  on the UDs there are constrains which can involve modifying adjuncts.

  Some of these dependencies are acceptable, as in (22):
  - (22) This garden, John walked with his son in.

Bresnan (2001:180) discusses that, in the analysis of example (23), the constituent *a letter* can have one function which is either *topic* or *focus*, and *John* has the function of the subject. According to *f*-structure, the complement which is a sentence category, is still incomplete, because of the transitive verb *wrote* must have an object in the structure. "The *topic* must be identified with some element which is functionally integrated.

The default identification of *topic* with subject cannot be appealed to here, because the subjects are syntactically expressed in their canonical phrase structure positions, and cannot be identified with the topic without violates functional uniqueness."

(23) A letter, John thinks I wrote.

Bresnan (2001:190) compares topicalization with scrambling and shows the difference between them. She claims that topicalization contains a constituent which appears in an unchangeable position, normally, sentence or clause. On the other hand, in scrambling, the order of constituent appears with many different positions of medial adjunct; as in (24a-d):

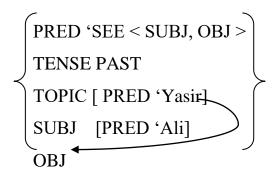
- (24) a. Sally and Sarah, the children took the money from. (Topicalization)
  - b. \*The children Sally and Sarah took the money from. (Scrambling)
  - c. \* The children took Sally and Sarah the money from. (Scrambling)
  - d. The children took the money from Sally and Sarah. (Canonical word order)

# 7- Topicalization in Modern Standard Arabic

According to Alotaibi and Borsley (2013), unlike English but as in many languages, there are unbounded dependencies in MSA which usually impose a gap and involve a presumptive pronoun as affixes attached to the noun phrase. Mohammad (2000: 63) defines topicalization in MSA as a process whereby an NP can be optionally moved from a base-generated position that is not sentence-initial to another position which usually is,

leaving a gap behind, and there are constraints on this movement. Therefore, topicalization is a result of this movement, as in (25):

The LFG analysis for the sentence in (25) above is shown below:-



In the sentence above, the topicalized constituent (yasir-an) is an object, and it has the accusative case that is determined by the lower verb, and there is a gap left after the verb. In the order of the sentences, if the verb precedes the subject, the verb cannot be in agreement in number with the subject. However, if the subject occurs before the verb, the verb must agree with the subject in gender and number.

Moreover, topicalization in Arabic obeys the prepositional phrase constraint and all conditions imposed on movement (ibid: 68)

However, according to Fassi Fehri (1993, 28) subjects occurring before verbs or what is so called preverbal subjects are required to be definite, as in (26 a- b):

(26) a. ? 1-?awlaad-u jaa?uu

the-boys- NOM came.3PM

'The boys came'

b. \*?awlaad-un jaa?uu

boys- NOM came.3PM

'boys came'

It is clear that one can notice in the sentences (26 a-b) the agreement between the preverbal subject and verb in number which is plural and gender (masculine). However, sentence in (26 b) is ungrammatical as the subject is indefinite and subject in this position must be definite. The LFG analysis for the sentences in (26) is illustrated below:

This would suggest that they are really topics associated with null subjects of some kind, and therefore that the only real subjects are post-verbal. It can be said that the null subject is not a gap but a resumptive pronoun (Aoun et al. 2010, 108).

Moreover, Ouhalla (1997) presents a description of the phrases which are called left- dislocated phrases. These phrases usually have a pragmatic function of topic, as in (27a-b):

(27) a. al-sa'at-u, ishtarat-haa Nour-u
the- clock- NOM bought. 3FS-it Nour- NOM

"(As) for the clock, Nour bought it."

b. Sarah, raaqa-haa al-mudeer-u Sarah, promoted 3MS-her the-boss-NOM "(As) for Sarah, the boss promoted her"

It can be seen from the sentences above that Left-dislocated phrases do not serve new information about the topic in the sentence. Also, these phrases are separated from the other constituents of the sentence by an intonation stop or (a pause) which expressed by *comma*. In addition, the topic (left-dislocated phrase) relates to the presumptive pronoun which is attached with the verb in the sentence.

It is worth mentioning that Arabic is unlike English where the former has the so called diacritics which can display the process of topicalization clearly. They (diacritics) can show whether the noun or noun phrase is nominative, accusative etc. In some Arabic constructions, it is preferable to change the diacritic of the fronted element as in example (27 a), other times no need for this change as in example (25).

It is noticeable that there is a resumptive pronoun for the Arabic topicalized phrases as in example (27 a), other times, there is no need at all as in example (25).

#### **Conclusions:**

The conclusions arrived at in this paper are the following:

- 1- Unbounded dependency is a relation between two parts within one sentence.
- 2- Wh- question represents a structure of dependency which is clearly marked. The Wh- phrase and the gap usually occur at the same clause. Sometimes, they can be separated by one, two or more

- clause boundaries. Dependency can be represented by topicalization, relative clauses, wh-questions and cleft sentences.
- 3- There are two functions can be realized when moving a constituent from one position to another in the sentence, they are: topic and object of the verb. Also there are two main terms used in the unbounded dependencies, they are: filler and gap. Filler represents top position of the construction, while gap shows lower position.
- 4- Topicalization refers to the change of position of any constituent to the beginning of a sentence. Topic is a syntactic and semantic term used to express an entity of a sentence. Comment is a term used to describe what has been said about a topic.
- 5- Long distance dependency occurs between two grammatical functions viz operator and object for a preposition. Topicalization can have the functions of either topic or focus. When the function of the fronted element is a topic, the sentence should involve a comment. But when the fronted element has the function of focus, the sentence must contain a preposition.
- 6- There are three forms of topic –comment constructions: (a) contrastive (b) left-dislocation (c) External. There are different kinds of topicalized phrase, these kinds are: (a) NP (b) PP (c) AP (d) CP (e) VP.
- 7- One can differentiate between topicalization and scrambling. Topicalization contains an element which appears in an unchangeable position (i.e. the beginning of the sentence or clause). The subjects are syntactically expressed in their canonical phrase structure positions, and cannot be identified with the topic without violation functional uniqueness.
- 8- Arabic topicalized constituents impose a gap and involve a presumptive pronoun as clitics attached to the noun phrase. In

- Arabic, if the verb precedes the subject, the verb cannot be in agreement in number with the subject and vice versa.
- 9- Sometimes null subject is not a gap but a presumptive pronoun. Left-dislocated phrases are separated from the other constituents of the sentence by comma. In addition, the topic (left-dislocated phrase) relates to presumptive pronoun which is attached to the verb in the sentence.
- 10- Diacritics play a vital role in Arabic topicalized phrases, where they can show whether the noun or noun phrase is nominative, accusative etc.
- 11- Arabic makes use of intonation stop or (a pause) which expressed by comma to separate phrases from the other constituents of the sentence.
- 12- Sometimes the Arabic topicalized phrases followed by a resumptive pronoun as in example (27 a), other times no need for this kind of pronouns as in example (25).

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### **Appendix**

**Table (1) Shows Arabic Alphabet Transcription Symbols** 

Arabic charact er/ sound	Transcript ion in English	IPA equivale nt	Arabic character/ sound	Transcriptio n in English	IPA equivale nt
١	?	?	ض	d	d
ب	b	b	ط	ţ	ţ
ت	t	t	ظ	Ż	Ż
ث	<u>t</u>	θ	ع	?	?
ح	j	3	غ	ġ	ġ
ح	ķ	ð	ف	f	F
خ	X	χ	ق	q	Q
۷	d	d	ك	k	K
ذ	<u>d</u>	ð	J	1	L
ر	r	r	م	m	M
ز	Z	Z	ن	n	N
س	S	S	٥	h	Н
ش	š	ſ	و	W	W
ص	Ş	Ş	ي	y	J
چ	ch	t∫	<b>ं</b>	a/at	a/at

#### 1- Abbreviations

UDs = Unbounded Dependencies NOM= nominative

COM= complementizer ACC= accusative

CP= complementizer phrase PRED= predicate

PP= preposition phrase SG= singular

NP= noun phrase P= plural

DP= determiner phraes M= masculine

VP= verb phrase F= feminine

AP= adjective phrase

MSA= Modern Standard Arabic

# العلاقات غير المحددة في اللغة الانجليزية والعربية في اطار المنهج النحوي المعجمي-الوظيفي الخُلاصة

تناقش هذه الدراسة تحليل العلاقات غير المُحدَدة والمكونات المُقدَمة الى بداية الجملة في اطار المنهج النحوي المعجمي- الوظيفي في اللغتين الانكليزية والعربية. هناك مناهج اخرى للتحليل مثل: النحو التركيبي (C×G) والنحو التقريبي (CogG) ولكن نظرية النحو المعجمي-الوظيفي تركز على علاقات مختلفة في الجملة. وايضا ان صياغة تركيب سببه التقديم يحتوي على وظائف نحوية مرتبة خطيا. علاوة على ذلك فان نظرية النحو المعجمي-الوظيفي تدرس التكامل المفرداتي كشيء اساسي اي ان علم دراسة التراكيب لايمكنه ان يعمل داخل تراكيب الكلمات. هذه الدراسه تعرف العلاقات غير المُحدَدة كنوع من العلاقة بين موقعين للمكونات المُقدَمة إما في عبارة واحدة او في عبارتين في الجملة. إنّ المسافة بين تلك المكونات هي غير محددة اي بمعنى يمكن تضمين او في عبارتين في الجملة. إنّ المسافة بين تلك المكونات هي غير محددة اي بمعنى يمكن تضمين

عبارات اكثر. تبين الدراسة بأنه في اللغة الانكليزية بالإمكان التقديم الى البداية وهذا يمكن اعتباره عملية ايجاد العلاقات غير المحددة وهو ناتج انتقال عنصر في الجملة. وتقع العبارات المُقدَمة في بداية الجملة ووظيفتها اما تكون مسنداً اليه او مفعول لفعل متعدٍ. ومن الجدر بالذكر ان هذه الدراسة تؤكد على التحليل التركيبي لمكونات الجمل المستعملة في هذا البحث.

ان هذا البحث يركز على دراسة عنصر تركيبي واحد في الجملة. علاوة على ذلك، فهي تميز بين التقديم والتغيير. وكذلك تناولت الدراسة التقديم في اللغة العربية الفصحى وعلى نحو مختلف عن اللغة الانكليزية- تكون العبارات المُقدَمة متعلقة بضمائر متصلة بالفعل على شكل لواحق وكذلك يجب ان يكون الفعل في تطابق مع المكونات المُقدَمة من حيث الجنس والعدد.

الكلمات المفتاحية: العلاقات غير المحددة, التقديم للبداية, المكونات، الاسناد و الضمير العائد.

#### **Abstract**

This study discusses unbounded dependencies and topicalized constituents within LFG analysis in both English and Modern Standard Arabic (MSA). There are other approaches for the analysis such as: construction grammar (C×G) and Cognitive grammar (CogG) but LFG focuses on different relations in the sentence. Also the formulation of the caused motion construction contains a linearly ordered grammatical functions. Besides, LFG treats the principle of lexical integrity as central i.e. syntax cannot operate into the internal structure of words. It defines unbounded dependency as a kind of relationship between two positions of topicalized constituents either within one clause or two clauses in the sentence. The distance between these constituents is not limited, which means more clauses can be embedded. Therefore, topicalization is a result of moving a constituent in the sentence. Topicalized phrases occur in the front position of the sentence and their functions can be either a topic or an object for the transitive verb. It is worth mentioning that this study focuses on the syntactic analysis of the constituents of sentences introduced in this paper.

This study investigates only a single UDs construction. Moreover, it differentiates between topicalization and scrambling. The study illustrates Unlike English, the topicalization in Modern standard Arabic (MSA). Arabic topicalized phrases are related to resumption pronouns attached to the verb as suffixes and the verb must agree in gender and number with the topicalized constituent.