

## On subjacency and Barriers in Arabic

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### □ ABSTRACT □

*Sine chomsky (1973) subjacency has been established as a universal principle on movement transformations. Since then a number of studies (Abd AL-Ghani, 1981; Farghal, 1986; Bakir, 1986 and others) have also established subjacency as an operative principle on movement transformations in the syntax of Arabic. Put in simple terms, subjacency is a condition which determines how far an element can be moved. It specifies that a moved constituent can not cross more than one bounding node. Bounding nodes in English are taken to be S and NP.*

*Due to recent developments in linguistic theory, the Government Binding framework in particular, and the quest for minimizing universal principles, Haegeman (1991), following Chomsky (1986) has reinterpreted subjacency within the notion Barrier.*

*The purpose of this paper is to determine if subjacency in Arabic can be - as is the case in English - reformulated in terms of the notion barrier. If this can be demonstrated, then this research will contribute positively to the universality of barriers and consequently to the minimality of universal principles, a desired result in simplifying the task of both the linguist and the language learner.*

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## المواضعة والقيود في العربية

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### □ ملخص □

يمكن تعريف المواضعة بأنها القاعدة التي تحكم حركة العناصر المختلفة داخل المجلة . ويعد مفهوم المواضعة مفهوماً عالمياً في حركة التحويلات القواعدية نظرية شومسكي (1973) ومنذ ذلك الوقت ظهرت دراسات تعتبر المواضعة مفهوماً فاعلاً في حركة التحويلات في اللغة العربية .

ونتيجة لتطور النظرية اللغوية الحديثة وبخاصة نظرية العامل والرابط فقد تم إعادة صياغة المواضعة ضمن مفهوم القيود في لغات أخرى ، و يهدف هذا البحث إلى تبين أنه بالإمكان إعادة صياغة مفهوم المواضعة ضمن مفهوم القيود في اللغة العربية أيضاً . وبهذا فإن هذا البحث يسهم اسهاماً إيجابياً في تقليل عدد المفاهيم العالمية وبالتالي يؤدي إلى تسهيل مهمة الباحث والمتعلم.

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### 1. Introductory remarks

In the sixties and seventies of this century Chomsky and his followers introduced what has come to be known, "Transformational Syntax". This transformational syntax rests on two basic components: phrase structure rules and transformational rules. Phrase structure rules reflect the syntactic categories that comprise sentences such as NP, VP, AP, PP, etc. Transformational rules, on the other hand, are designed to account for syntactic processes that take place within the sentence such as relativization, interrogation, passivization, etc. But before long linguists have realized that transformational rules are very powerful. They are powerful on two counts: First, from a theoretical point of view there is no limit to the number of transformations that can be formulated; Second, those transformations can overgenerate, i.e., they allow artificial or even ungrammatical strings to be generated. But, of course this runs counter to what these transformations are supposed to achieve. They are supposed to adequately characterize natural languages and to successfully account for language acquisition which takes place in a very short period of time. Thus the need has arisen to constrain and reduce the number of these transformations.

Several constraints and/or conditions have been established to achieve this goal. Most notably among them are Chomsky (1964) A-over-A-Principle, Ross (1967) island constraints, Chomsky Specified Subject Condition (SSC) and Tensed Sentence Condition (TSC) ... etc. Subsequent work, however, has shown that those constraints are either too strong or too weak and in the majority of cases they are construction specific (Riemsdijk and Williams 1986). However, one of the main concerns of linguistic research is to formulate highly general constraints by omitting descriptive details from the structure of individual rules. The immediate task of linguists becomes to unify, generalize and abstract those constraints into universal rules with a certain amount of parametric variation. This is how the principle of "Subjacency" has come into existence.

The principle of subjacency is basically concerned with movement transformation: Wh-movement, NP-movement and PP-movement (subsumed under the modular term Move- $\alpha$ ). To be more concrete, let us cite the following example:

1. \*Which books did you ask John where Bill bought<sup>(1)</sup> ?

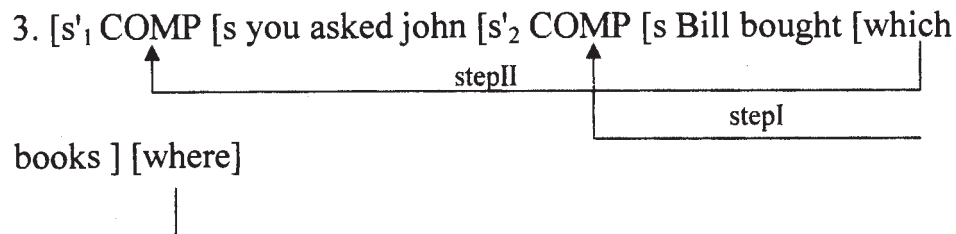
Ross (1967) explains the ungrammaticality of this example by stating that the lower clause is a *wh*-Island which doesn't license movement, Chomsky (1973) relies on two constraints in order to explain the ungrammaticality of this example: the SSC and the TSC. Subsequent work attempts to explain a variety of such constraints in terms of deeper and more natural principles. Chomsky (1977) and Rizzi (1982) propose the subjacency condition in order to account for the ungrammaticality of the above example<sup>(2)</sup>. If we can view the sentence in (1) as a bounding node, then the subjacency principle can be formulated as follows:

2. Subjacency Condition<sup>(3)</sup>

No rule can relate X, Y in the structure  
 $[_{\gamma} \dots X \dots [_{\alpha} \dots [_{\beta} \dots Y \dots (\text{or} \dots Y \dots) \dots [_{\beta} \dots ]_{\alpha} \dots X \dots ]$   
 where  $\alpha, \beta$  are bounding nodes.

In other words no rule may move Y, which is in the cyclic category  $\beta$ , to position X in  $\gamma$ , if  $\gamma$  includes a cyclic category which includes  $\beta$ . This means that moved elements may only cross one cyclic (bounding) category, but never more than one. S and NP are taken to be the only bounding nodes in English since they are the only nodes within which the application of transformation takes in a well defined sense.

In order to show how subjacency rules out sentence (1) as ungrammatical, we will posit (3) as the D-structure of (1):



First *wh*-movement applies in the deeply embedded clause, taking *where* as step I shows to land in the COMP position of  $s_2$ . Now *wh*-movement applies to move *which books*, but because COMP of  $s_2$  is filled with *where*, *which books* can only move directly to the COMP of  $s_1$  as step II shows. But subjacency will block this derivation because in order for *which books* to land in the higher COMP it has to cross two bounding nodes, two S's in this case; hence the ungrammaticality of the sentence is accounted for.

(1) This example is taken from Van Riemsdijk and Williams (1986:61)

(2) It should be mentioned that subjacency was first proposed by Chomsky (1973), but he didn't apply it to the island-phenomenon in that article.

(3) This formulation of the principle is partially borrowed from Van Riemsdijk and Williams (1986,62)

In order to confirm the fact that when subadjacency is not violated the result of wh-movement is a grammatical string I will cite the following example:

4. whom do you think Ali will invite  $t_i$ ?

The D-structure of this sentence is (5)

5. [s' COMP<sub>1</sub> [s<sub>1</sub> you think [s'COMP<sub>2</sub> [s<sub>2</sub>Ali will invite whom]]]]

*whom* as step I shows moves to COMP<sub>2</sub> crossing only one bounding node "s<sub>2</sub>" step II shows that *whom* moves to COMP<sub>1</sub> also crossing only one bounding node "s<sub>1</sub>"<sup>(4)</sup>

As far as Arabic is concerned a number of linguists (Abd Al-Ghani,1981,Farghal,1986 and operative principle on movement transformations in the syntax of Arabic as well. To see this, examine the following examples:

6. man sayad<sup>c</sup>u zayd-un

Whom will – invite Zayd –NOM

"Whom will Zayd invite?"

(6) represents the S-structure of the D-structure in (7)

7. [s' COMP [s sayad'u zayd –un man]

As step I indicates, the movement of the wh-element *man* crosses only one bounding node, s and the resulting structure (6) is grammatical. However, the following sentence in (8) is ungrammatical because subadjacency has been violated, i. e., the moved element crosses two bounding nodes:

8. \*māḏā lā taqbalu- l-iddi'a'anna zayd-un fa'ala  $t_i$ ?<sup>(5)</sup>

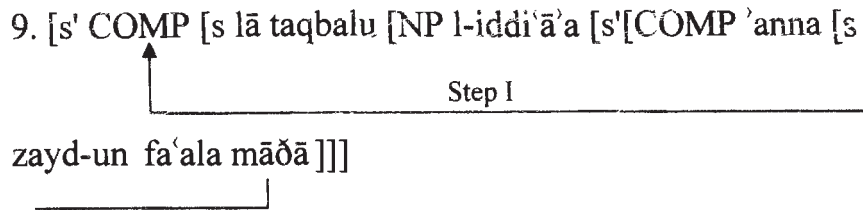
What not accept the-claim that Zayd-Acc did?

"\*What don't you accept the claim that Zayd did?"

In order to show how the ungrammaticality of (8) obtains, I will posit (9) as the D-structure of(8):

4- It should be pointed out that the movement here is successive cyclic.

5-This sentence is taken from Abd Al Ghani(1981:92)



where step I shows that wh-element *m āḏā* crosses two bounding nodes NP and S, which renders the sentence ungrammatical. So it can be seen that subjacency in Arabic yields the correct explanation of the (un) grammatical status of sentences like (6) and (8). This clearly demonstrates that movement transformations in Arabic do obey subjacency as is the case in English.

### 1. Subjacency and Barriers

So far we have observed that subjacency is an operative principle on movement transformation in both English and Arabic. Taking the bounding node, the core of the subjacency condition, to be either NP or S, we impose a restriction on the distance a constituent can move.

The barrier concept, on the other hand is introduced by Chomsky (1986), is concerned with government and lack of government. In other words, a barrier specifies whether maximal projections such as NP, VP, etc are not barriers for outside governors. However, the two concepts: *barrier* and *bounding node* are similar though they have been treated in the literature as two independent concepts. They both serve to restrict the application domain of grammatical processes. Haegeman (1991), following Chomsky (1986), formulates a definition of the notion barrier which can be used in the definition of both government and subjacency.

But before we proceed, and due to recent modifications in the notational system of X-bar theory, a number of technical terms have to be adopted in this paper. The S notation has been replaced by IP (Inflectional Phrase) and the S' has been replaced by CP (Complementizer Phrase). To illustrate these technical terms, I cite the following examples from Arabic:

10. [s katabā Zayd-un risalat-an] =IP

wrote Zayd-Nom letter-Acc

"Zayd wrote a letter"



11. uridu[‘an yaktup-a Zayd-un risalat-an] =CP

I want that write-subj Zayd Nom letter-Acc

"I want Zayd to write a letter"

Main clauses (or S's) of the type bracketed in (10) are considered IP's. However, subordinate clauses (or S''s) of the type bracketed in (11) are considered CP's.

It should be noted that in the earlier analysis of clauses as s', there was only the COMP position, but in the current literature CP has two positions: [Spec, CP] and C. The landing site of wh-elements, for example, is the [Spec, CP]. As a matter of fact even IP has a [Spec, IP] which is usually the NP subject of IP.

It has been demonstrated by Haegeman (1991) that neither infinitival IP nor finite IP constitutes a barrier to outside government as the following examples of her illustrate:

12. I believe [<sub>IP</sub>him to be happy]

13. [<sub>CP</sub> Who do [<sub>IP</sub> you think [<sub>CP</sub> t<sub>i</sub> left ]]]?

In (12) the subject NP of the lower infinitival IP is assigned Acc case by the matrix verb *believe*. This means that the IP can not be a barrier for an outside governor. The same point applies to (13). In order to satisfy the Empty Category Principle (ECP), the lowest traces must be properly governed. Since these traces are not theta.-governed, the antecedent in [Spec, CP] must antecedent govern them which means that the IP projection in (13) can not be a barrier for outside government. Haegeman has even shown that a CP projection does not constitute a barrier for outside government as the following example shows:

14. When do [<sub>IP</sub> toy think [<sub>CP</sub> t<sub>i</sub> [<sub>IP</sub> [Edward will invite Peter t<sub>i</sub> ]]]]

Since IP is not a barrier to outside government and since the lowest trace t<sub>i</sub> must be properly governed, the intermediate trace t<sub>i</sub> antecedent-governs the lowest trace. However, the intermediate trace has also to be properly governed; it can only be antecedent-governed. Thus, it can be concluded that *when* antecedent-governs the intermediate trace. This means that neither IP nor CP constitutes a barrier to government. Haegeman has also demonstrated that there are certain maximal projections including both IP and CP which constitute barriers to outside government. The following example illustrates this point:

15. Jack decided [<sub>CP</sub> [<sub>IP</sub> PRO to see the movie]

PRO<sup>(6)</sup> must be ungoverned, so we have to conclude that either CP or IP is a barrier to outside government. So, Haegeman concludes that maximal projections are not barriers by definition. Rather, barrierhood is a relative property determined by the syntactic position of the maximal projection.

In order to account for this problematic situation where maximal projections sometimes are barriers and sometimes are not, Chomsky (1986) introduces the term L-marking (lexical marking). According to him a maximal projection which is an adjunct is not L-marked. It follows, according to Chomsky (1986), that a maximal projection which is L-marked is transparent to outside government of an element inside it. A maximal projection which is not L-marked is opaque to outside government of an element inside it. Hence, it is a blocking category (BC). Chomsky (1986: 14,15) defines L-marking and BC as in (16) and (17) respectively:

16. L-marking

A L- marks B iff A is a lexical category that theta-governs B.

17. BC (Blocking Category)

C is BC for B iff C is not L-marked and dominates B .

However, it should not be understood that every BC is necessarily a barrier. Consider the following example:

18. When do [<sub>IP</sub> you think [<sub>CP</sub> t<sub>i</sub> that [<sub>IP<sub>2</sub></sub> Bill left t<sub>i</sub> ]]]?

It should be noted that *that* does not L-mark IP<sub>2</sub>; *think*, on the other hand, theta-marks CP and therefore it is L-marked. But *think* does not theta-mark IP<sub>2</sub>. Hence IP<sub>2</sub> is not L-marked and it is a BC. However, t<sub>i</sub> must be governed by t<sub>i</sub>' which means that though IP<sub>2</sub> is a BC. It is not a barrier for outside government. As a matter of fact it has been demonstrated by Haegeman that even when IP is a BC, it is never a barrier on its own. Moreover, other maximal projections can be either barriers intrinsically, by being BCs themselves or by inheritance, i. e., dominating a BC.. Thus a barrier has been defined by Chomsky (1986: 14) in the following fashion:

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<sup>(6)</sup> PRO is phonetically null pronoun. It can only occur as the subject of an infinitive clause as in (15) above. However, unlike other ordinary pronouns it can be governed or case marked.



19. A is a barrier for B iff (a) or (b):

(a) A is a maximal projection and A immediately dominates C, C is a BC for B

(b) A is a BC for B, A is not IP

This means that the definition of government has to be modified in order to incorporate the notion barrier. Haegeman (1991:486) proposes the following redefinition of government to incorporate this notion:

## 20. Government

a. X governs Y iff

(i) X is either of the category A, N, V, P, I;

or

X and Y are co-indexed;

(ii) X C-commands Y;

(iii) no barrier intervenes between X and Y

(iv) minimality is respected

b. Minimality Condition on Government

There is no Z such that Z satisfies (i), (ii), and (iii) and

X C-commands Z.

In barriers, Chomsky uses the notion barrier in the definition of government and he also uses it to replace the notion bounding node in the definition of subjacency<sup>(7)</sup>. Put in simple terms, government can not cross a barrier, and movement must not cross more than one barrier. Now we will see what happens when we apply the notion barrier to cases of subjacency. Consider the following examples:

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<sup>7</sup> It should be mentioned that Chomsky (1986 :30) offers a somewhat different definition of subjacency by invoking chain links. He states that, "if  $(\alpha_i, \alpha_{i+1})$  is a link of a chain, then  $\alpha_{i+1}$  is subjacent to  $\alpha_i$ ". This might be a worthy topic for future research, but will not pursue it here any further.

21. a . When will jim fix the car?

b . When do you think Jim will fix the car?

The S-structure of (21a) is (22) below:

22. [<sub>CP</sub> When<sub>i</sub> will [<sub>IP</sub> Jim fix the car t<sub>i</sub> ]?]

*When* is generated in a position outside VP. *When* crosses only IP. IP is not L-marked, so by definition it is a BC, but it is not a barrier. Hence, the movement of *when* does not violate subjacency.

The S-structure of (21b) is in (23) below:

23. [<sub>CP</sub> When<sub>i</sub> do [<sub>IP</sub> you [<sub>VP</sub> think [<sub>CP</sub> t'<sub>i</sub> [<sub>IP</sub> Jim will fix the car t<sub>i</sub> ]]]?]

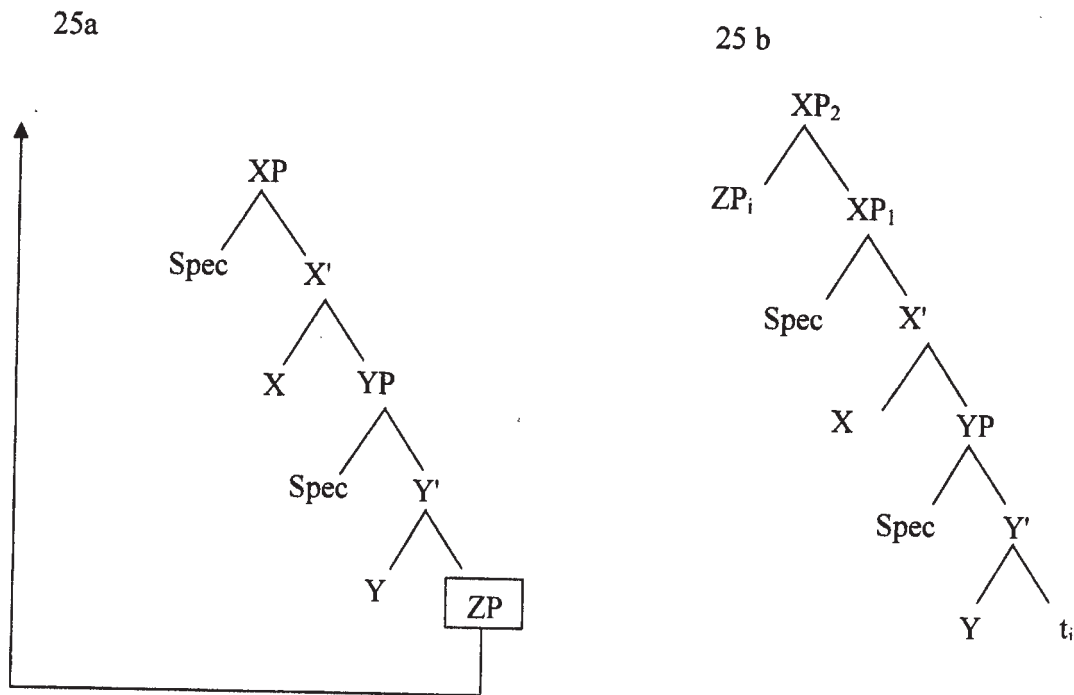
The movement of *when* from the lower trace to the intermediate trace crosses only IP which is not a barrier. Thus, it is perfectly natural and causes no subjacency effects. However, the movement of *when* from its intermediate trace to [Spec, CP] crosses three maximal projection. It crosses CP, but CP is L –marked hence not a BC. It crosses a VP which is not L –marked, hence it is a BC and it crosses IP which is a BC, but it is not a barrier intrinsically, but it may become a barrier by inheritance if it dominates a BC. In (23) IP does dominate VP, a BC, hence IP is a barrier. This means that *when* crosses two barriers ought to violate subjacency. But (21b) is perfectly grammatical and subjacency is not violated. The structure in (23) raises problems to the analysis developed so far. As a matter of fact, using the notion barrier to other examples of wh-movement will render them as violations of subjacency while in reality they are not. Consider the following example:

24. Who (m)<sub>i</sub> did [<sub>IP</sub> Mary [<sub>VP</sub> see t<sub>i</sub> ]?]

It is obvious from this example that VP, a BC, is a barrier and IP is a barrier by inheritance because it dominates a BC. Hence, the wh-element crosses two barriers and should violate subjacency. But subjacency is respected and the example is perfectly grammatical.

Haegeman (1991) solves this problem by resorting to the notion of adjunction. Adjunction is a grammatical process by which a new

structural position is created above the original position for a wh-element to land. Suppose that the constituent ZP in (25a)<sup>8</sup> below is going to move and there is no position to which it can be moved. This means that we have to create a new position as in (25b). It should be remembered, however, that the new position has to respect all the principles of the grammar especially the X-bar format, and the moved element into this position should be able to c-command its trace.

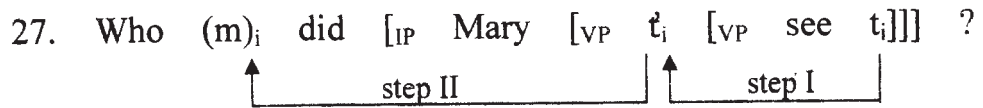


It should be pointed out that the moved element ZP in (25b) is not completely within the maximal projection of X. It is only partly within this maximal projection, since it is not dominated by both XP<sub>1</sub> and XP<sub>2</sub>, but only by XP<sub>2</sub>. Put differently, the moved element is neither completely inside, nor outside the maximal projection of X, and this is basically what the notion of adjunction is about. Let us go back to our example in (24), repeated here as (26) for convenience:

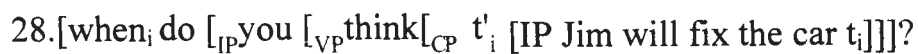
26. Who (m)<sub>i</sub> did [<sub>IP</sub> Mary [<sub>VP</sub> see t<sub>i</sub>]] ?

<sup>(8)</sup> (25a) and (25b) are borrowed from Haegeman (1991 : 352).

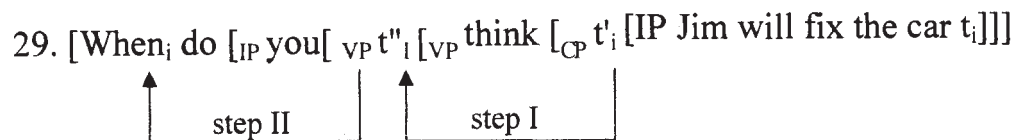
if we allow the moved element to be adjoined to the VP, then we have the following structure and the movement of *who* (*m*) in (26) will be carried out in two steps:



Step I of wh-movement does not cross VP; it crosses only one segment of it. So no barrier is crossed and subjacency is not violated. Step II does not cross VP either. Only a part of VP is crossed. Step II does cross IP, a non-L-marked projection hence a BC, but, by assumption IP is not a barrier inherently. It inherits barrierhood. It can not become a barrier by inheritance in this example because of the VP adjoined trace. Between the VP-adjoined trace and IP there is only a segment of a maximal projection, not a full BC. Hence, step II does not cross a barrier and subjacency is not violated and the sentence is fully grammatical. In this way we can retain our formulation of subjacency in terms of barriers. Now let us go back to the problematic example in (23), repeated in (28) below and check if the adjunction analysis will give us the desired result:



If we apply VP-adjunction to (28) then we will have the following representation:



Step I crosses CP which is L-marked by the verb "think", hence it is not a BC. It does not cross VP, but part of it which does not constitute a barrier. Step II crosses part of VP, again not a full BC, hence not a barrier. It also crosses IP which is not L-marked, hence a BC but on its own does not constitute a barrier and it can not be a barrier by inheritance for the same reasons we discussed in the previous example. Hence, no barriers are crossed and no subjacency violations are incurred and the example is grammatical. Now we will consider subjacency examples from Arabic to decide if subjacency in Arabic can be reformulated in terms of the notion barrier, as is the case in English.

## 2. barriers in Arabic

Let us adopt the formulation of subjacency within the notion barrier proposed by Haegeman (1991: 494):

30. Movement must not cross more than one barrier.

As a starter we will consider the following example from Arabic:

31. man da' ā 'aliyy-un ?

Whom invited Ali-NOM

"Whom did Ali invite ?"

The S-structure of (31) is (32) below:

32. man<sub>i</sub> [IP da' ā 'aliyy-un t<sub>i</sub> ?]



man<sub>i</sub> crosses IP which is not a barrier on its own and no subjacency violation is involved and the resulting structure is perfectly grammatical. Let us take the following example:

33. a. 'alqā aš-šā 'ir-u qasī dat-an 'an 'alhu bi

recited the-poet-Nom poem-Acc about the love-Gen

"The poet recited a poem about love"

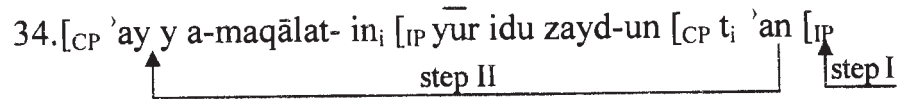
b. [<sub>CP</sub> 'amma<sub>i</sub> [<sub>IP</sub> 'alqā aS-Sā 'ir-u [<sub>NP</sub> qasī dat-an t<sub>i</sub>]]] ?



about what

It can be observed that the moved element crosses two maximal projections: an NP and an IP. However, the NP is L-marked by the verb 'alqā and hence not a BC, but IP is not L-marked, hence a BC, but not a barrier. So, no barriers have been crossed and subjacency is obeyed. Let us cite another example:

It can be observed that the moved element crosses two maximal projections: an NP and an IP. However, the NP is L-marked by the verb 'alqā and hence not a BC, but IP is not L-marked, hence a BC, but not a barrier. So, no barriers have been crossed and subjacency is obeyed. Let us cite another example:



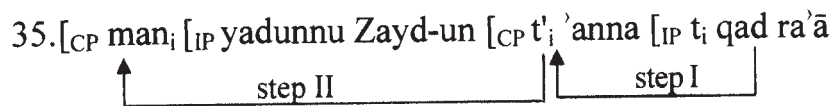
Which essay-Gen want Zayd-NOM that read he

yaqra'ā t<sub>i</sub>] <sup>9</sup>

"Which essay did Zayd want to read?"

step I crosses IP which, though a BC, is not a barrier. Step II crosses CP which is L-marked, hence not a barrier and IP which is a BC, but not a barrier intrinsically. So no barrier is crossed and this explains the grammaticality of the sentence.

Another example of subjacency in Arabic is the following:



'aliyy-an]]]] ?

Whom thinks Zayd-NOM that Ali – Acc

"\*Whom does Zayd think that saw Ali ?"

Step I crosses IP which is not a barrier and subjacency violation is committed. Step II crosses CP which is L-marked and hence not a barrier. It also crosses IP, a BC, but not a barrier. Hence the sentence should be grammatical, but it is not. I believe that the ungrammaticality of the sentence is not related to movement and subjacency but because of the presence of the complementizer 'anna if 'anna is deleted or replaced by the so-called light 'an (cf. Abd A Ghani, 1981) the sentence will be grammatical after affecting movement. A similar situation has been observed with the complementizer "that" in English. The ungrammaticality of the following example has been attributed to the presence of the complementizer "that"

<sup>9</sup> This example is taken from Abd-Al Ghani(1981 :90).



36. \*Who<sub>i</sub> do you think [<sub>CP</sub>t'<sub>i</sub> came ] ] ?

It has been argued that the presence of "that" in this example prevents the intermediate trace t'<sub>i</sub> from properly governing the lower trace t<sub>i</sub>. This situation violates the ECP which requires that empty categories be properly governed. This is why Lasnik and Saito (1984) propose to delete "that" in the LF (Logical Form), since it does not contribute semantically to the meaning of the sentence.


This explains the grammaticality of the following sentence where "that" has been deleted,

37. Who do you [think [<sub>CP</sub>t'<sub>i</sub> [t<sub>i</sub> came ] ] ]?

I believe the same can be argued for the complementizer "anna" in Arabic. 'anna in (35) intervenes between the intermediate trace t'<sub>i</sub> and the lower trace thus preventing proper government. The violation in (35) is an ECP violation, not a barrier violation, and since 'anna can be deleted without changing the interpretation of the sentence, then 'anna does not contribute to the semantics of the sentence. The grammatical version of (35) without 'anna is (38) below:

38. [<sub>CP</sub>man<sub>i</sub> [<sub>IP</sub>yadunnu zayd-un [<sub>CP</sub>t'<sub>i</sub> qad ra'ā 'liyy-an]

One final example that will demonstrate the applicability of the notion barrier to subjacency cases in Arabic is the following:

39. \* [<sub>CP</sub>māḏā lā [<sub>IP</sub>taqbalu l-iddi'a 'a 'a [<sub>CP</sub>t'<sub>i</sub> 'anna [<sub>IP</sub>zayd-an  


what not accept the claim that Zayd-Nom

fa'ala t<sub>i</sub> ] ] ] ?

did?

"\*What don't you accept the claim that Zayd did ?"

This sentence is ungrammatical. If the use of barriers can explain the ungrammaticality of this sentence, then we can safely conclude that notion barrier is adequately operative in the grammar of Arabic and hence can replace subjacency without any difficulty whatsoever. Step I crosses IP, a BC, but not a barrier. One might legitimately ask at this point, what about the [<sub>VP</sub>fā'ala] isn't it a BC? The answer is in the affirmative, but we can apply VP-adjunction quite efficiently and IP would not constitute

a barrier. Step II crosses two maximal projections: CP and IP .Cp is not L-marked and hence it is a BC. IP is not a barrier by itself, but it can be a barrier by inheritance. Since IP dominates another BC, it becomes a barrier. Thus it can be seen that step I crosses two barriers and this explains the ungrammaticality of the sentence.

### 3. Conclusion:

I believe that we can confidently conclude that the notion barrier can quit easily replace the subjacency principle in Arabic. This means that the grammar of Arabic, on the one hand lends great support to the barrier principle, ; on the other, giving up subjacency in the grammar of Arabic and maybe the grammars of other languages means reducing the number of universal principles, a desired result for both linguists and language learners.

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