THE THEORY OF *PRO* AND ARABIC EMPTY CATEGORIES

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This paper is designed to investigate Arabic empty categories as they relate to the theorems of the GB fromework. First, it will throw doubt on the universality of PRO as an empty category. Facts of Arabic indicate that what occupies the PRO position is a properly governed empty category correspondng to a phonetically realizeable pronominal. This can be attributed to the fact that Arabic doesn't possess untensed clauses. Thus PRO should give way to pro, which is an independent empty category in pro-drop languages, in subordinate clauses. Second, the paper will establish the fact that Arabic NP-movement is completely different from English NP-movement in that it is a result of optional Focus transformations rather than obligatory transformations. Hence, NP-trace may be phonetically realized in Arabic. Finally, this paper will single out the particularity of wh-trace when the questioned constituent is the Topic in that it must be phonetically realized.

Chomsky (1981:188) advances a semantic interpretation theory which he calls 'Binding Theory', The binding theory aims to explain facts of co-reference and non-coreference of nominals in sentences. To accomplish this, he subdivides nominal expressions into three basic categories: anaphors, pronominals and R-expressions. Subsequenthy, Chomsky proposes a binding theory containing one principle for each of these categories. The binding conditions are in (1) below:

(1) A. An anaphor is bound in its governing category.
B. A pronominal is free in its governing category.
C. An R-expression is free.

To illustrate, observe the examples below:

(2) John cut himself.
(3) John thought that he met Peter.
(4) John saw Peter.

In (2) above, the anaphor *himself* is bound to its antecedent *John* in the matrix S which constitutes its governing category. On the other hand, the pronominal *he* in (3) is free in the subordinate S which constitutes its governing category. It may,

however, be bound to an antecedent that lies outside its governing category, namely *John*. As for the R-expressions in (2)-(4), namely *John* and *Peter*, they are free.

Chomsky (1982:78) presents a typology of four categories of expressions as in (5) below:

(5) a) [+anaphor, –pronominal]
b) [–anaphor, +pronominal]
c) [+anaphor, +pronominal]
d) [–anaphor, –pronominal]

In the case of overt categories with lexical content, Chomsky asserts that only (5a), (5b) and (5d) can be attested in languages because an overt element corresponding to (5c) would be ungoverned by virtue of principles A and B of the binding theory and would therefore violate the Case Filter. To illustrate, observe the English examples in (6a-d) which correspond to (5a-d), respectively:

(6) a) Peter$_i$ cut himself$_i$.
b) He cut the cucumber.
c) *Peter$_i$ wants he$_i$ to cut the cucumber.
d) Peter cut the cucmber.

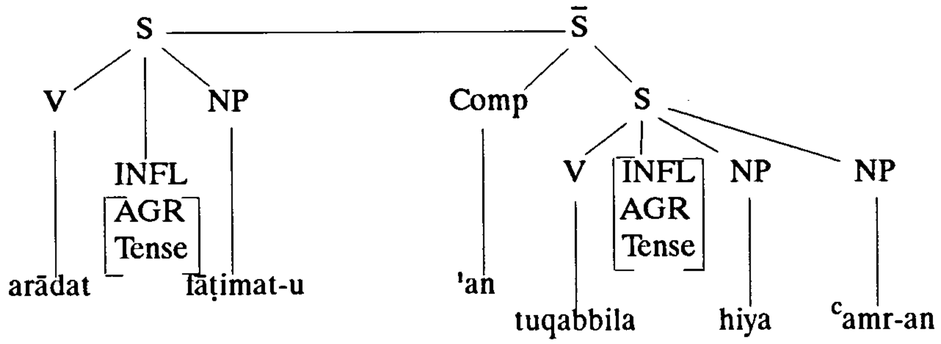
In (6a), *himself* corresponds to (5a) and is bound in its governing category in compliance with binding condition A. In (6b), *he* corresponds to (5b) and is free in its governing category in compliance with binding condition B. As for *he* in (6c), it corresponds to (5c) in violation of both binding conditions A and B, hence its illformedness. Finally, *Peter* in (6d) corresponds to (5d) and is free in its governing category.

As concerns Arabic, there is evidence that an overt element corresponding to *he* in (6c) may exist in emphatic cases. This overt element, however, does not correspond to (5c); rather, it is a subject pronoun that is properly governed by INFL in the subordinate clause. Observe the two examples below:

(7) 'arāda ᶜaliyy-un$_i$ 'an yaðhaba huwa$_i$ 'ila – l-ḥhafl-i
wanted Ali-nom that go + subj he to-def-celebration-gen
Ali wanted to go to the celebration.

(8) 'arāda-t fāṭimat-u$_i$ 'an tuqabbila hiya$_i$ ᶜamr-an
wanted-fem Fatimah-nom that kiss+subj she Amr-acc
Fatimah wanted to kiss Amr.

huwa and *hiya* in (7) and (8), respectively, are subject pronouns that are assigned the nominative case by INFL. To illustrate, following is the P-marker of (8):



Obviously, *hiya* in (9) is properly governed by INFL, hence its well-formedness. Contrastively, *he* in (6c) is ungoverned, hence its ill-formedness. This phenomenon directly points to the fact that English infinitival and gerundive constructions are radically different from those in Arabic. In English, on the one hand, infinitival and gerundive constructions can be convincingly argued to contain an anaphoric empty category which is always ungoverned. Observe the pair of sentences in (10) below:

(10) a) Ali$_i$ hates to PRO$_i$ go to the theater.
b) Ali$_i$ hates PRO$_i$ going to the theater.

As can be observed in (10), English PRO appears only in untensed clauses, hence its being ungoverned.

Arabic, on the other hand, does not possess untensed clauses at all. Examine the Arabic sentences corresponding to (10) in (11) below:

(11) a) yakrahu ᶜaliyy-un$_i$ 'an yaðhaba e$_i$ 'ila-l-masraḥ-i
hate Ali-nom that go + subj to-def-theater-gen
Ali hates to go to the theater.

b) yakrahu ᶜaliyy-un 'að-ðahab-a 'ila-l-masraḥ-i
hate Ali-nom def-going-acc to-def-theater-gen
Ali hates going to the theater.

In (11a), what appears in PRO position is an empty category, say pro, representing the dropped subject. Notably, pro is properly governed by INFL just like its phonetically realized counterpart, i.e., subject pronoun in emphatic casses (cf. (7)-(8)0. Consequently, what might mistakenly be considered PRO in Arabic is a dropped subject that may surface in emphatic cases. As for (11b), there is no empty category in it because what corresponds to the gerund or *-ing* form in English is generated as a pure nominal in object position in Arabic and accordingly, it is definitized and assigned the accuative case.

To further confirm the discrepancy between English infinitival constructions and Arabic corresponding constructions, observe the examples below:

(12) a) Ali wanted Salim$_i$ to PRO$_i$ beat Amr.
b) *Ali wanted that Salim beat Amr.

(13) a) 'arāda ^{c}aliyy-un sālim-an$_i$ 'an yaḍriba e$_i$ ^{c}amr-an
wanted Ali-nom Salim-acc that beat+subj Amr-acc
Ali wanted Salim to beat Amr.

b) 'arāda ^{c}aliyy-un 'an yaḍriba sālim-un ^{c}amr-an
wanted Ali-nom that beat+subj Salim-nom Amr-acc
Ali wanted Salim to beat Amr.

The ungrammaticality of (12b) is due to the fact that verbs like *want* subcategorize only for untensed clauses. Contrastively, all Arabic verbs subcategorize only for tensed clauses. Hence the empty category in Arabic tensed clausses is a pro, that is, a dropped subject-pronoun. Thus PRO, as an empty category in the GB theory, is absent altogether in Arabic. Instead, evidence for an empty pronominal element has been established. This element, which has been termed pro, is always case governed by INFL.

Having established the drastic difference between English PRO and Arabic pro, let us move on to discuss empty categories in some detail. It is generally assumed that the typology of empty categories simply mirrors that of overt categories. And this is exactly the case in Arabic. Look at the following examples:

(14) 'al-walad-a$_i$ ḍaraba ^{c}aliyy-un t$_i$
def-boy-acc beat Ali-nom
Ali beat the boy.

(15) ðababa pro 'ila-s-sūq-i
went (he) to-def-market-gen
He went to the market.

(16) yurīdu ^{c}amr-un$_i$ 'an yastaqbila pro$_i$ 'aḍ-ḍayf-a
want Amr-nom that receive+subj def-guest-acc
Amr wants to receive the guest.

(17) man$_i$ qābala ^{c}aliyy-un t$_i$?
who met Ali-nom
Whom did Ali meet?

In (14) above, the empty category represents the NP-trace of an NP that has undergone Focus movement. Interestingly, examples in which the NP-trace is phonetically realized are attested in Classical Arabic and to a lesser extent in Modern Standard Arabic. Therefore, we find (18) along with (14) above.

(18) 'al-walad-a$_i$ ḍaraba-hu$_i$ ^{c}aliyy-un

It should be noted that NP-trace in Arabic occupies an inherently case-marked position[1]. The inherently case-marked NP is moved with all of its features, including case. That is to say, the moved NP, which occupies a Θ-position, is anaphoric with a Θ-position, i.e., the NP-trace. As for the apparent counterexample concerning the NP-trace position in (18), it is due to the existence of the obligatory rule attracting the object pronoun or any other pronominal category in its place to the end of the verb in the form of a clitic pronoun.[2]

[1] Inherent Case-assignment is carried out in the base. The difference between inherent VS. Structural case-assignment pertains to the notion of government rather than to the syntactic position of case-assigned elements. Thus, structurally case-assigned elements receive Case in terms of government, i.e., via lexical governors, whereas inherently case-assigned elements do not, i.e., their case can not be linked to lexical governors. The case-assignment rule applying to NP-trace in Arabic is given below:

(i) XP in a structure of the form
[V INFL NP1 XP.....] is accusative.

For further details about Arabic Case-assignment, see Farghal (1986:150-169).

It should be mentioned that NP-movement in Arabic is completely different from that in English. On the one hand, English NP-movement is mostly obligatory as in NP-raising and passivization.[3] Arabic, on the other hand, does not possess NP-raising in the strict sense. This can be atributed, I believe, to the fact that Arabic is a VSO language. To illustrate, compare and contrast Arabic with English in the pairs of examples below:

(19) a) yabdū 'anna ^{c}aliyy-an ḥazīn-un
seem that Ali-acc sad-nom
It seems that Ali is sad.

b) It seems that Ali is sad.

(20) a) yabdū ^{c}aliyy-un ḥazīn-an
seem Ali-nom sad-acc
Ali seems to be sad.

b) Ali$_i$ seems t$_i$ to be sad.

In (19a) and (19b), the NP *Ali* is properly governed by *'anna* and INFL, respectively; hence their grammaticality. In (20a) also the NP *^{c}aliy* is properly governed by INFL, hence its grammaticality.

In (20b), however, the NP *Ali* is properly governed by INFL only at S-structure, i.e., it is ungoverned at D-structure since an intrasitive verb like *seem* cannot assign

[2] The rule can be formulated as below:

(i) VSO
[+pro] 132 "obligatory"
⇒
123

[3] According to Chomsky (1977) and subsequent literature, NP-movement is absolutely obligatory because, for him, focused NPs are base-generated rather than a result NP-movement. In Arabic, however, focused constituents can be argued to be a result of movement rules rather base-generation rules (for details, see Farghal (1986:82-99)).

case to the NP *Ali*. Consequently, if case-assignment is carried out at D-structure in English, we will end up having the ungrammatical sentence below:

(21) *It seems Ali to be sad.

Chomsky (1981) therefore concludes that case-assignment must be carried out at S-structure rather that at D-structure. He also concludes that NP-trace is never case-marked.

As for passivization in Arabic, it does not seem to involve NP-movement. In fact, passives in Arabic are agentless, i.e., the agent never surfaces in Arabic passivization. The passive specification can be included in INFL which acts as the governor of the NP that immediately follows it by assigning the nominative case to it. To illustrate, observe the two examples in (22a) and (23a) along with their D-structures in (22b) and (23b):

(22) a) qutila – r-raǰul-u
Kill+pass-def-man-nom
The man was killed.

b) [qutila INFL 'ar-raǰul-u]
S [Tense, AGR, Voice]

(23) a) huzima – l-ǰayš-u
defeat+pass-def-army-nom
The army was defeated.

b) [huzima INFL 'al-ǰayš-u
S [Tense, AGR, Voice]

The positing of NP-movement in (22) and (23) would seem very implausible. Therefore, I opt for base-generating them, i.e., there are no movement rules applying to them (for details about Arabic passivization, see Saad (1982)).

Let us now trun the second empty category-type in (15) and (16), namely the pro. The pro in matrix clauses like (15) has free reference and is case-governed by INFL. As for the pro in subordinate clauses like (16), it may, in addition to being co-referential with antecedent in the matrix clause as (16) indicates, have a free reference. Whatever the case is, however, it remains case-governed by INFL just like pro in matrix clauses. For the sake of illustration, following are examples demonstrating the reference facts of pro and its overt counterpart, that is, subject-pronoun, in Arabic:

(24) a) 'arāda pro_i 'an yaḥḍura pro_{iy} 'al-ḥafl-a
wanted that attend+subj def-celebration-acc

b) 'arāda $huwa_i$ 'an yaḥḍura pro_{iy} 'al-ḥafl-a
wanted he that attend+subj def-celebration-acc

c) 'arāda pro_i 'an yaḥḍura $huwa_{iy}$ 'al-ḥafl-a
wanted that attend+subj he def-celebration-acc

d) *'arāda $huwa_i$ 'an yaḥḍura $huwa_{iy}$ 'al-ḥafl-a
wanted he that attend+subj he def-celebration-acc
He wanted to attend the celebration.
or
He wanted him to attend the celebration.

Clearly, all co-reference cases between pro and subject-pronoun in matrix clauses, on the one hand, and pro and subject-pronoun in subordinate clauses, on the other, are well-formed except when two identical subject-pronouns are present in emphatic cases, hence the ill-formedness of (24d). If the subject-pronouns in both forms and refrence are distinct in (24d), it will become well-formed as bellow:

(25) 'arāda $huwa_i$ 'an taḥḍura $hiya_y$ 'al-ḥafl-a
wanted he that attend + subj she def-celebration-acc
He wanted her to attend the celebration

The final empty category-type is wh-trace as in (17) above. As can be noted, wh-trace is in an inherently case-marked position in (17). It is co-referential with the wh-element in a Θ-position. Both the wh-trace and the wh-element carry the same features.

Facts of Arabic indicate that wh-traces behave just like resumptive pronouns, which are used in topic-comment structures and relativization, in that they are free in their minimal governing categories and must be bound to wh-elements – antecedents in case of resumptive pronouns which are lying outside their minimal governing categories.[4]

As for case-assignment of wh-trace, it can be either inherent or structural in Arabic depending on the gramatical status of the wh-element at D-structure. Sentence (17) above is an example of inherent case-assignment of wh-trace. To exemplify structural case-assignment of wh-trace, observe the following example:

(26) man_i qābala t_i ^{c} aliyy-an?
who met Ali-acc
Who met Ali?

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[4] To exemplify pronouns in Arabic Topic-comment structures and Relative clauses, observe the two examples below:

(i) 'al-walad-u ¡ ḍaraba-hu¡ sālim-um
def-boy-nom beat-him salim-nom
"The boy, salim beat him."

(ii) ǰa' a-r-raǰul-u¡ –llaīxada^{c}a-hu¡ sālim-un
came-def-man-nom-who deceived-him salim-nom
"The man whom salim deceived came."

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b) 'arāda $huwa_i$ 'an yaḥḍura pro_{iy} 'al-ḥafl-a
wanted he that attend+subj def-celebration-acc

c) 'arāda pro_i 'an yaḥḍura $huwa_{iy}$ 'al-ḥafl-a
wanted that attend+subj he def-celebration-acc

d) *'arāda $huwa_i$ 'an yaḥḍura $huwa_{iy}$ 'al-ḥafl-a
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Facts of Arabic indicate that wh-traces behave just like resumptive pronouns, which are used in topic-comment structures and relativization, in that they are free in their minimal governing categories and must be bound to wh-elements – antecedents in case of resumptive pronouns which are lying outside their minimal governing categories.[4]

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came-def-man-nom-who deceived-him salim-nom
"The man whom salim deceived came."

In (26) above, wh-trace is in a case-governed position, i.e.it is assigned the nominative case by INFL.

Furthermore, wh-traces are considered as variables, i.e., they are not required to have a c-commanding antecedent at all. Compare the well-formedness of (27) with the ill-formedness of (28) below:

(27) who$_i$ did he$_y$ say that Mary saw t$_i$?
(28) *who$_i$ did he$_i$ say that Mary saw t$_i$?

(27) above is well-formed because wh-trace is considered as a variable, whereas (28) is ill-formed because wh-trace is not considered as a variable, i.e., it is co-indexed with a c-commanding antecedent that cannot be co-referential with it. It follows that a wh-trace or a variable must be Θ-free and Θ-bound with an antecedent in a Θ-position. Wh-traces, therefore, constitute a case of nonovert anaphors that have an independent Θ-role.

We have already observed that NP-traces as well as wh-traces in Arabic are case-governed. Aoun (1985:92) suggests that case-government be a necessary but not a sufficient condition for an element to be phonetically realized. In English, for instance, wh-traces cannot be phonetically realized although they are case-governed. Observe the examples in (29) and (30)

(29) a) *who$_i$ do you think that he$_i$ has left?
b) *who$_i$ do you think that t$_i$ has left?
c) who$_i$ do you think t$_i$ has left?

(30) a) *who$_i$ do you think that Mary kissed him$_i$?
b) who$_i$ do you think that Mary kissed t$_i$?
c) who$_i$ do you think Mary kissed t$_i$?

The ill-formedness of (29a) is due to the phonetic realization of wh-trace. As for the ungrammaticality of (29b), it is ascribed to violating the *[that-t] filter. Finally, the ungrammaticality of (30a) is attributed to the surfacing of wh-trace. In essence, wh-traces cannot be phonetically realized in English whether they are extracted from subject or object position.

Likewise, Arabic wh-trace may not be phonetically realized when wh-elements are extracted from subject and object position. Observe the examples in (31) and (32) below:

(31) a) *man$_i$ ðanna ^{c}aliyy-un 'an qatala huwa$_i$ 'an-nimr-a?
who thought Ali-nom that killed he def-tiger-acc
Who did Ali think that he killed the tiger?

b) man$_i$ ðanna ^{c}aliyy-un 'an qatala t$_i$ 'an-nimr-a?
who thought Ali-nom that killed def-tiger-acc
Who did Ali think killed the tiger?

(32) a) *māðā ðanna ^{c}aliyy-un 'an qatala-hu$_i$ ^{c}amr-un?
what thought Ali-nom that killed-it amr-nom
**What did Ali think that Amr killed it?*

b) māðā$_i$ ðanna ^{c}aliyy-un 'an qatala ^{c}amr-un t$_i$?
what thought Ali-nom that killed Amr-nom
What did Ali think that Amr killed?

The ill-formedness of (31a) and (32a) is due to the surfacing of wh-traces of wh-elements that have been extracted from subject and object position, respectively.

Arabic wh-traces, however, must be phonetically realized when wh-elements are extracted from topic position in embeded topic-comment structures. To illustrate, examine the cases in (33) below:

(33) a) man$_i$ taðunnu 'anna-hu$_i$ ðahaba?
who think+you that-him left
b) *man$_i$ yaðunnu 'anna t$_i$ ðahaba?
c) man$_i$ taðunnu-hu$_i$ ðahaba?
Who do you think left?

Obviously, (33a) and (33c) are well-formed although wh-traces in them are phonetically realized. As has been indicated, this is the only circumstance in which wh-traces must surface, i.e., when wh-elements are extracted from topic position in subordinate clauses. As for the ungrammaticality of (33b), it is a direct result of the fact that the wh-trace is not overt.

As regards NP-traces, they may be phonetically realized in Arabic. To illustrate, observe the following examples:

(34) a) 'at-tuffāḥat-a 'akala ^{c}aliyy-un t$_i$
def-apple-acc ate Ali-nom
b) 'at-tuffāḥat-a 'akala-hā$_i$ ^{c}aliyy-un
def-apple-acc ate – it Ali-nom
Ali ate the apple.

(35) a) 'al-bint-a$_i$ γāzala ^{c}amr-un t$_i$
def-girl-acc flirted with Amr-nom

b) 'al-bint-a$_i$ γāzala-hā$_i$ ^{c}amr-un
def-girl-acc flirted with her Amr-nom
Amr flirted with the girl.

As can be observed, NP-trace is convert, i.e., empty, in (34a) and (35a), whereas it is overt, i.e., phonetically realized, in (34b) and (35b).

In conclusion, the distribution of empty categories may differ across languages. In Arabic, for instance, what corresponds to PRO in English is a case-governed, dropped subject-pronoun, i.e., pro. Functionally, Arabic empty categories can be characterized as in (36):

(36) a) empty categories with antecedents that lack an independent Θ-role and are locally Θ-bound (NP-traces and wh-traces).

b) empty categories with/without antecedents that have an independent Θ-role (pros).

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