

The syntactic, semantic and phonological Generation of the passivization structures in Standard Arabic^(*)

Mazen Al-Waer Ph.D.

Damascus University

Introduction

Before explaining the syntactic, semantic and phonological Aspects of Arabic passivization, I would draw the theoretical framework by which the Arabic passivization structures will be analyzed.

The structure of the Arabic sentence consists of three constituents. The first essential constituent is called Musnad (M), i.e., M-Predicate of the sentence. The second essential constituent is called Musnad ?ilayhi (MI), i.e., MI-subject or topic. The third constituent is called Fadlah (F) i.e., adjunct or constituents which are neither M nor MI. The relation which holds among these structural constituents is called ?isnād (IS) i.e., configurational predication. The IS-node is dominated by the highest Kalām-node (K) or sentence. The analysis will be based also on the three case markers of Arabic i.e., (Nom)inative, (Acc)usative, and (Gen)itive.

I shall describe the underlying structure of the Arabic passivization by using the five case roles proposed by Cook (1979) in the matrix model, i.e., (A)gent, (E)xperiencer, (B)enefactive, (L)ocative, and (O)bject. In addition, the analysis will be based on the bidirectional system of derivation proposed by Chafe (1970) and adopted by Cook (1979). The bidirectional system of derivation consists of four semantic units : Inchoative, Resultative, Causative, and Decausative derivations.

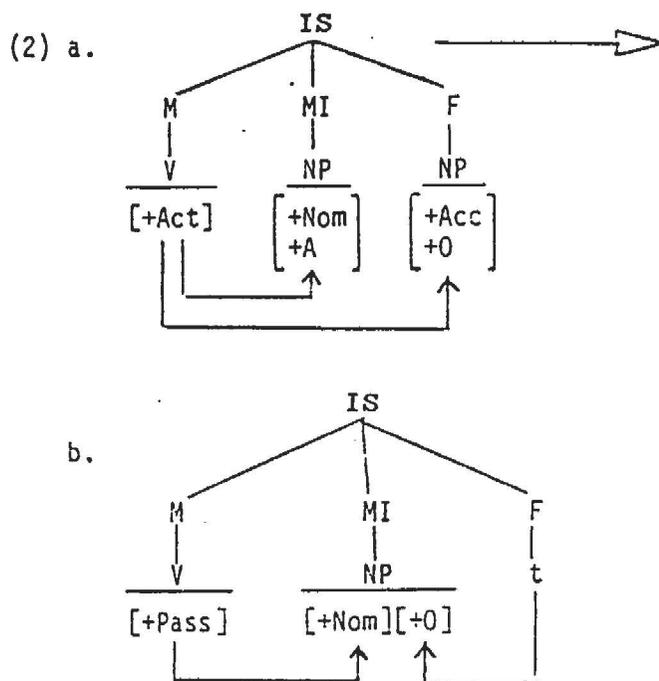
Finally, the theoretical framework will be based on the autosegmental phonology proposed by Brame (1970) and Halle (1973), and developed by McCarthy (1979). This means, by several phonological rules developed in autosegmental phonology, the Arabic root undergoes a complex set of morphophonemic changes generating different structures of passivization.

1. The Syntactic and Semantic Aspects of Arabic Passivization

The basic procedures of transformation from an active structure to a passive structure include the following:

(*) A paper presented at the conference on «the Arabic Language and Informatics» held at King Abdulaziz Public Library - Riyadh, May 10-13, 1992, Kingdom of Saudi Arabia.

This means that the structure of passivization can be viewed within our general framework as follows:



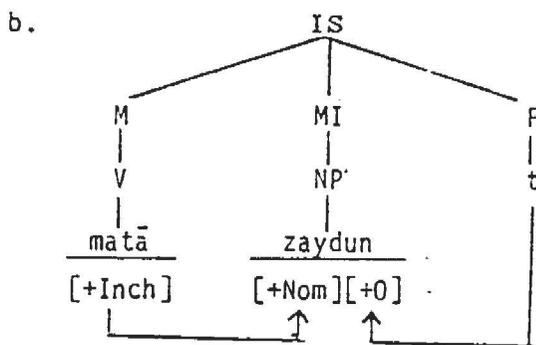
The passive verb is represented under the category M. The subject position (i.e., NP-object) is represented under the category MI. The constituent which is moved from the passive is represented under the category F(t). The main idea here is that the NP-object which is moved to the subject position must behave syntactically in the same way as the deleted NP-subject, i.e., it must be governed by M(V) and yield to its conditions and constraints.

This means that the governing category M(V) must govern the MI(NP) properly, regardless of the nature of MI, which might be NP-subject or NP-object. In the case of a passive, the NP-subject becomes \emptyset and the NP-object will take the subject position and be assigned a case and it will be governed by agreement. The M and MI will result in a passive structure.

Arab grammarians, however, were aware of the syntactic and semantic changes which might take place in the passive structure. Ibn ya^Ciš, for example, went further to include under the regular passive in the (M-MI-F) structure what is known in modern linguistics as the Inchoative structure. Ibn ya^Ciš argued that the M(V) might be either a Passive or Inchoative which must govern the constituent MI which is in this case NP-object.

Putting what Ibn ya^Ciš stated into our framework, we can see that the NP-subject of the inchoative verb is not the agent who performed the action, but rather an object undergoing an action caused by a deleted agent. And since the agent is deleted, the object must move to its position. Let us consider Ibn ya^{C-v}'s examples to illustrate the issue.²

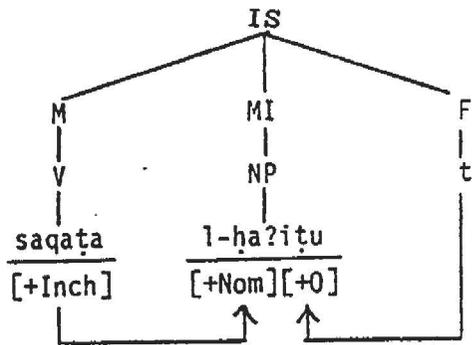
- (3) a. māta zaydun
 died Zayd
 Zayd died.



- c. CAUSE (X, CA(BE MWT(Zayd))) → CA(BE MWT(Zayd))

- (4) a. saqata l - hā?itu
 fell down the wall
 The wall fell down

b.



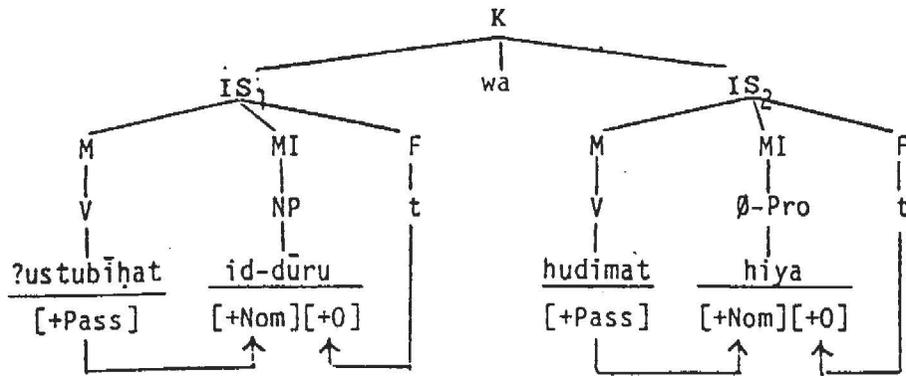
c. CAUSE (X, CA(BESQT(hā?it))) → CA(BE SQT (hā?it))

The main point here is to show that the F(NP-object) in the inchoative structure is exactly identical to the F(NP-object) in the passive structure. Neither of them is the real agent of the action, but rather both are objects. Since they must move to the MI(subject position), they must be governed by the M(V), and they will be assigned a case marker and they will be governed by agreement. Thus we conclude that the NP-object moves from its F(position) in the active form to the MI(subject position) in the inchoative or passive form, carrying with it its case role of object and receiving a new case marker of nominative.

The M category in Arabic passive might be adjacent to a pronominal empty category (i.e., \emptyset) in the subject position; i.e., the M might govern \emptyset -Pro (hidden pronoun) which refers to a hidden pronoun. This can be seen in (5a) and (5b).

- (5) a. ?ustubihat id - dūru wa huddimat \emptyset -Pro
 were pillaged the houses and destroyed they
 The houses were pillaged and destroyed.

b.

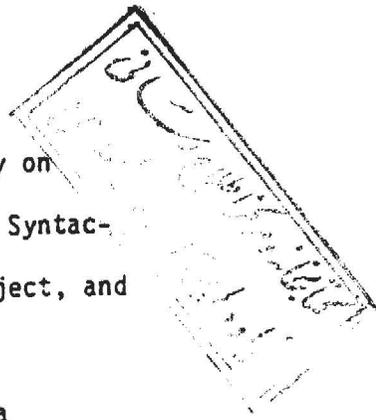


As seen in (5b), the MI(NP-subject) in IS₁ is coreferential with the MI(Ø-Pro subject) in IS₂.

In short, the most important issue in Arabic active-passive structure is that the active verb assigns its governee a case role, and case marker, while the passive verb has the ability to assign its governee a case marker of nominative and agreement because the NP-governee will inherit its case role from the active form. This issue, however, will be dealt with more exhaustively when we investigate the structure of transitives and intransitives, which is directly relevant to the operation of passive.

1.1. Transitive and Intransitive Process

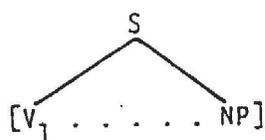
Transitivity represents an area of syntax and semantics that contributes greatly in understanding the operation of passivization. While the concept that transitive structures are somehow distinct from intransitive structures is a common phenomenon in language, their treatment in specific cases varies. Transitivity differs from language to language in its surface form and syntactic procedures, but it is somehow identical in its logical and semantic representations in all languages.



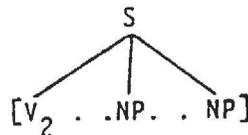
The traditional definition of transitivity is based entirely on syntax with little regard for semantic and logical explanation. Syntactically speaking, a transitive structure is one that takes an object, and an intransitive structure is one which does not take any object. According to Arab grammarians, a transitive structure or rather a transitive action is an action that is transmitted from an actor to something acted upon. Semantically, however, Ibn ya^Cī^Y classified the transitive verbs under two categories: the first category is called ʔal-^Cilāj which involves the use of body limbs and action, e.g., qatala 'killed,' daraba 'hit.' The second category is called non-ʔal-^Cilāj which involves the verbs that express emotion, thought, and communication, e.g., ḥazina 'got sad,' fahima 'understood,' ʔakara 'mentioned.'³

Arabic verbs can be classified into three categories, namely, transitive, intransitive, and transitive/intransitive (i.e., causative/inchoative, respectively). This kind of category can be analyzed from a new semantic perspective. Cook (1980) analyzed transitivity within the framework of case relations, bidirectional relations, and generative relations. According to these relations, the verb sequence can be classified according to the notions one-place, two-place, three-place, and four-place predicate as shown in (1).

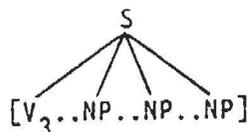
(1) a.



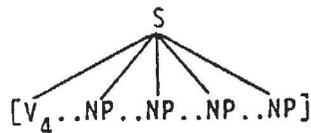
b.



c.



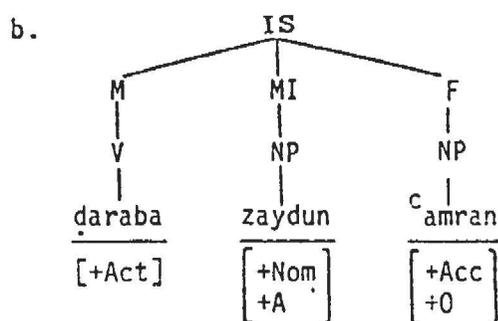
d.



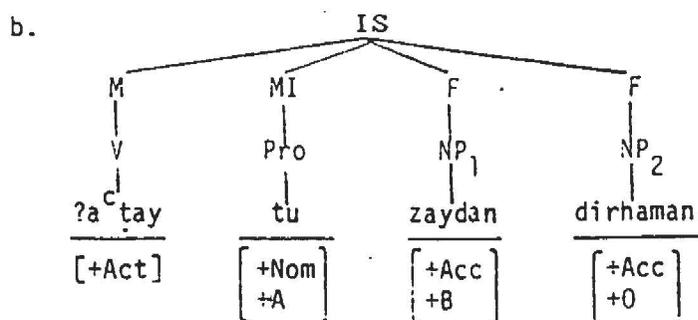
Transitive verbs are those verbs which can fall under the classifications two-, three-, or four-place predicate. (To account for the Arabic structure, I have extended Cook's model to handle four-place predicates, which might occur in Arabic as shown in (1d).)

Transitive verbs in Arabic are those verbs which take one direct object or two objects or sometimes three objects. Let us consider the following examples.

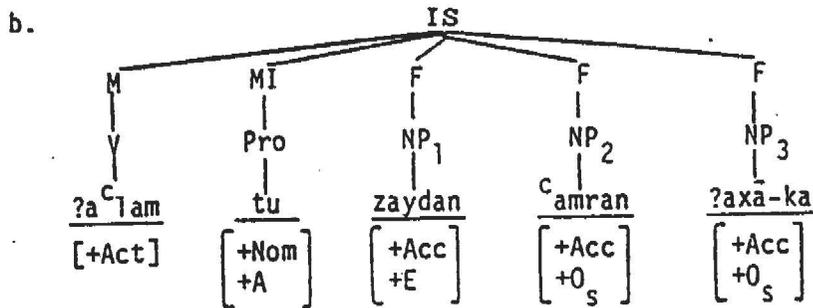
- (2) a. $\frac{\text{ḍaraba}}{\text{hit}} \quad \frac{\text{zaydun}}{\text{Zayd}} \quad \frac{\text{C amran}}{\text{C Amr}}$
 Zayd hit C Amr.



- (3) a. $\frac{?a^C \text{taytu}}{\text{gave I}} \quad \frac{\text{zaydan}}{\text{Zayd}} \quad \frac{\text{dirhaman}}{\text{dirham}}$
 I gave Zayd a dirham.



- (4) a. $\frac{?a^C \text{lāmtu}}{\text{told I}} \quad \frac{\text{zaydan}}{\text{Zayd}} \quad \frac{\text{C amran}}{\text{C Amr}} \quad \frac{?axā\text{-ka}}{\text{brother your}}$
 I told Zayd that C Amr is your brother.

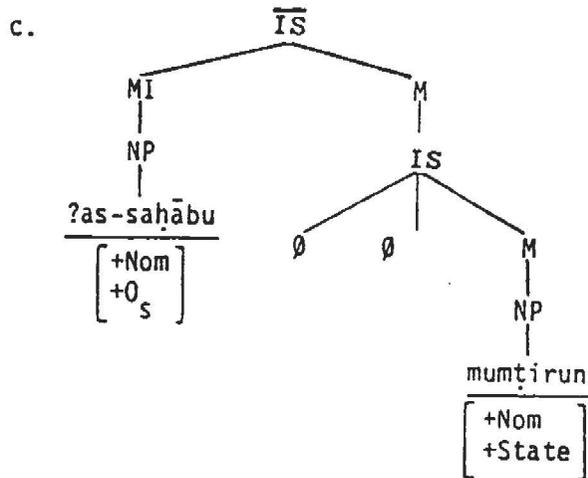


In the above examples, (2b) requires one direct object, (3b) requires two objects, one direct and the other indirect, and (4b) requires three objects, one direct and the other two indirect. From a semantic perspective, the indirect objects in (4b) are considered to form an embedded nominal existential structure. From a syntactic perspective, Arab grammarians considered them as indirect objects which are governed by the central governor, i.e., M(V). Arab grammarians divided the transitive objects into two categories: (a) objects which can form a grammatical structure by themselves and (b) objects which cannot form a grammatical structure by themselves.

(a) Objects which can form a grammatical structure by themselves can result in an existential sentence. The only change which takes place here is that the two objects must drop their accusative case marker and keep their case role. This process can be seen in the following examples:

(5) a. ḡanantu s - saḥāba mumṭiran
 thought I the cloud raining
 I thought the cloud is raining.

b. ?as - saḥābu mumṭirun
 the cloud raining
 The cloud is raining.



We notice that (5c) is a grammatical existential structure formed from the two objects in (5a). The changes which take place here are:

(6) $NP_S [+Acc] \longrightarrow NP_S [+Nom]$

(b) Objects which cannot form a grammatical structure by themselves are blocked by the selectional rules of transformational grammar.

This can be seen from the following examples:

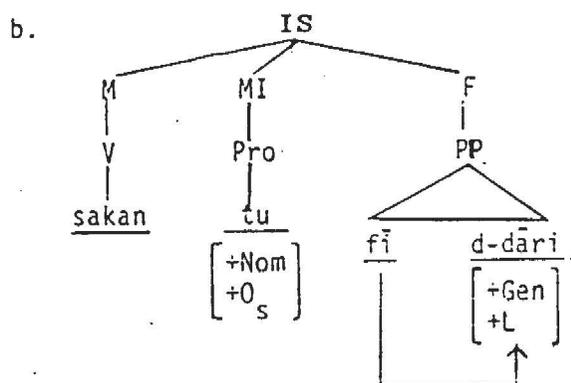
(7) a. $\frac{?a^C \dot{t}aytu}{gave\ I} \quad \frac{mayyan}{mayy} \quad \frac{jā?izatun}{present}$
 I gave Mayy a present.

b.* $\frac{mayyun}{mayy} \quad \frac{jā?izatun}{present}$

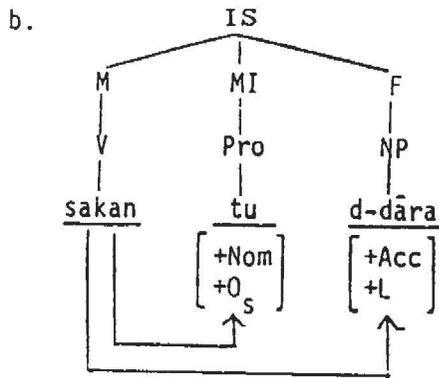
We notice that the F_1 (NP-benefactive) (Mayy) and the F_2 (NP-object) (jāʔizatan) cannot form an existential structure, because there is no logical and semantic connection which can relate the two NP_s . In fact, the distinction between these two categories of objects is extremely important to the passive construction, as we shall see in the next section.

Intransitive structures in Arabic are those which cannot take an object directly. However, in spite of this syntactic definition, some intransitive verbs have essentially transitive meanings. In order for these intransitive verbs to be transitive, they need to delete the helping prepositional particles; and in turn, the object of the preposition will-serve as a transitive object. This process can be seen in the following examples:

- (8) a. sakan-tu fī d - dāri
 lived I in the house
 I lived in the house.



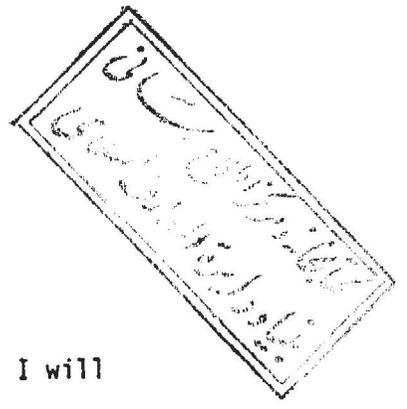
- (9) a. sakan-tu d - dāra
 lived I the house
 I lived (in) the house.



We notice that the $F(PP-NP)$ in (8b) is governed by the prepositional operator, but in (9b) it is governed by the verb operator. This kind of transitivity of the intransitive verbs is called in the Arabic theory ?an-naṣbu bi-naz^ci l-xāfiḍ, i.e., the accusative by virtue of the removal of the genitive governor. The most important operation of transitivity is that which occurs in the category of causativity and inchoativity, i.e., verbs which can be either transitive or intransitive.

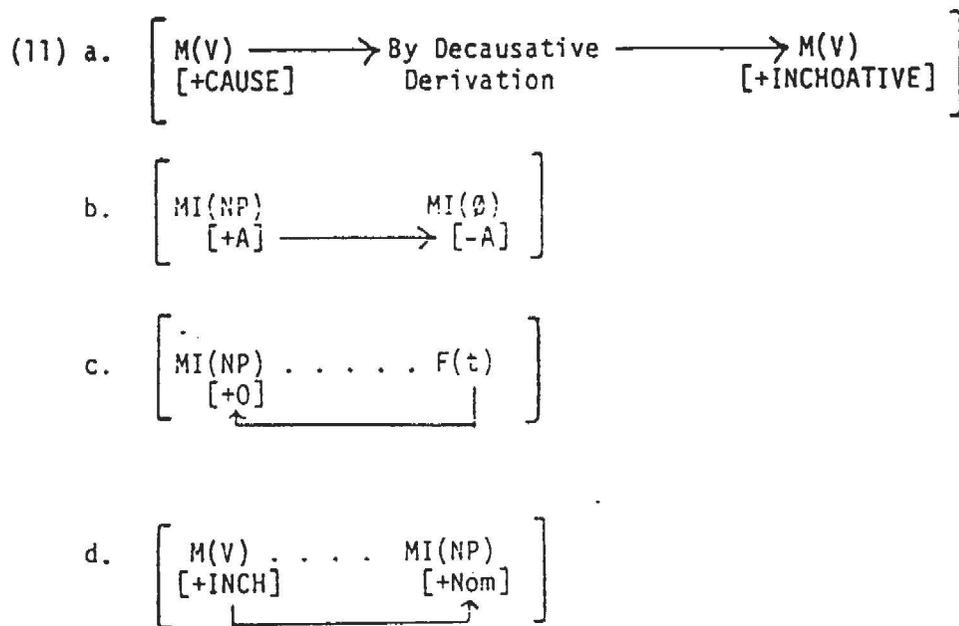
Although Arab grammarians categorized transitive and intransitive verbs according to their sequence requirements, the distinctions between these two types of verbs are not always clear-cut. Some verbs (with some morphological changes) can occur either with or without an object, and thus can be classified as intransitive and transitive. This means that such verbs have two logical representations which function within two semantic domains. The Arabic root KSR, for example, can have two semantic forms in its structure. This can be seen in the following examples:

- (10) a. kasara zaydun il-kaʔsa
 broke zayd the glass
 Zayd broke the glass.

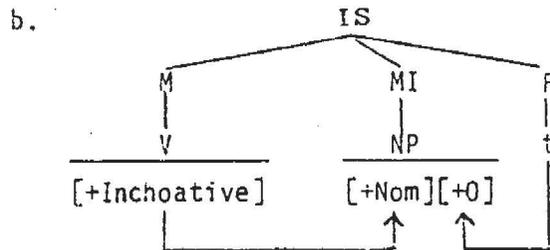
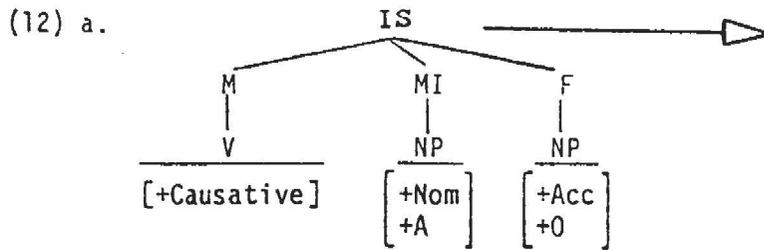


- b. ʔinkasara l-kaʔsu
 broke the glass
 The glass broke.

I shall propose here that a structure such as (10b) is passive. I will call it "inchoative passive," which involves two operations: one is semantic, the other syntactic. This kind of inchoative passive does not involve a phonological process. The argument for such a proposal is that these structures express the absence of the subject. The syntactic subject, i.e., ʔal-kaʔsu, does not actually perform the action of the verb because it is not assigned [+Agent], i.e., it is not the agent of the action from the point of view of case relations. I shall propose also that the transformational process from active form to passive form involves the following operations.



The underlying structures of causative and inchoative active-passive of (10a) and (10b) can be seen in (12a) and (12b).



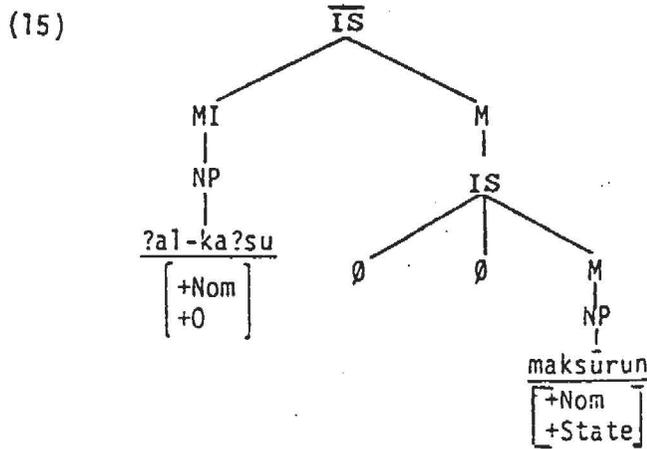
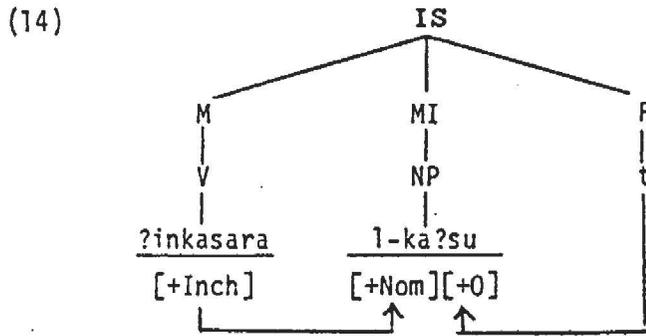
As we have seen, the only operations which take place here are syntactic and semantic but not phonological. In (12b), the M(V) becomes an inchoative passive which assigns the MI(NP-subject) a case marker of nominative, but not a case role, because the new NP-subject inherited its case role of object from its original position which is now a trace.

I shall propose also that the inchoative passive in turn can cause another passive by applying the bidirectional system. I will call it the stative passive. Once again, the stative passive involves syntactic and semantic operations but not phonological ones. This can be seen from the following examples:

(13) a. ?inkasara l-ka?su
 broke the glass
 The glass broke.

b. ?al-ka?su maksurun
 the glass broken
 The glass is broken.

Once again, the structure in (13b) expresses the absence of the NP-agent. The syntactic subject (i.e., ?a1-ka?su) does not actually perform the action of the verb. I shall assume here that the transformational process from the inchoative passive of (13a) to the stative passive of (13b) involved the following operations:



The stative passive is a structure which is related to a more general semantic system which can be explained adequately within the case grammar framework of Cook (1980).

Given a set of related state, process, and action forms from the same morphological root, we can analyze such structures from the point of view of a bidirectional system. According to Cook's semantic system, the lexical decomposition hypothesis suggests that the stative verb is the basic form, that the process form is composed of state + inchoative,

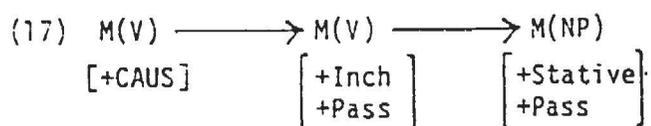
represented by the predicate COME ABOUT (CA), and that the action verb is composed of the process verb + causative, represented by the predicate CAUSE. The logical structures for the state process and action forms of the root XWF, for example, can be seen in the following examples:

(16) a. xawwafa zaydun ta?abbatašarran
 frightened zayd ta?abbatašarran
 Zayd frightened Ta?abbatašarran.

b. xāfa ta?abbatašarran
 feared ta?abbatašarran
 Ta?abbatašarran feared (Zayd).

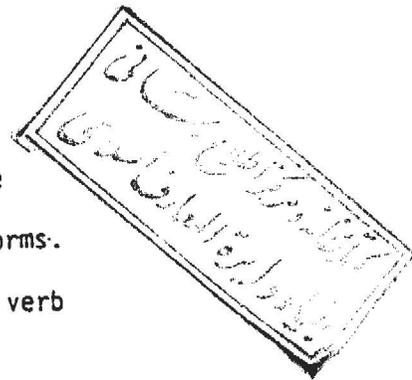
c. ta?abbatašarran xā?ifun
 ta?abbatašarran afraid
 Ta?abbatašarran is afraid.

The changes of the predicate from (16a) to (16b) and (16c) can be seen in (17).



According to Cook, the predicate CAUSE is a two-place predicate that relates an event to an event or an agent to an event as we have seen in (16a). COME ABOUT is a one-place predicate, as in (16b). The STATE predicate is also a one-place predicate as in (16c).

In fact, not all Arabic verbs are analyzed so neatly within such a semantic framework because some verbs have what Cook called "lexical"



and "semantic gaps." The Arabic predicate qaraʔa 'read' lacks the inchoative or process form, but it has the causative and stative forms. The lexicon of Arabic, however, provides sets of lexically related verb forms. These forms are semantically related by the bidirectional derivations, i.e., inchoative, resultative, causative, and decausative. Lexical gaps of some transitive/intransitive forms are filled by paraphrases or by new forms. Semantic gaps cannot be filled by a paraphrase. The following chart is a list of related verbs in Arabic and English which can show some of these lexical and semantic gaps in the stative, inchoative, and causative.

As seen in the chart following, lexical derivation is an important linguistic process because it shows different underlying semantic realities which have different logical structures. Thus the transitive/intransitive category can be perceived as state, process, and action verbs within the same domain. These verbs are often morphologically and semantically related to each other. The scope of four semantic derivational units, i.e., inchoative, resultative, causative, and decausative can describe these relations.

In short, Arabic expresses transitive and intransitive structures, while it also expressed transitive/intransitive structures. Transitive structures can have one, two, or three objects; intransitive structures, on the other hand, lack any object. Transitive/intransitive structures are semantically related by states, process, and action. I propose that statives and inchoatives within such a framework are passive structures which involve syntax and semantics but not phonology. The

(1)

(11)

(111)

| BE-State (adjective) | | BECOME-Process (intransitive) | | CAUSE-Action (transitive) | |
|----------------------|-------------|-------------------------------|-----------|---------------------------|---------|
| Eng | Arabic | English | Arabic | English | Arabic |
| (1) OPEN | Maftūḥ | OPEN | ?infataḥa | OPEN | fataḥa |
| (2) BROKEN | maksūr | BREAK | ?inkasara | Break | kasara |
| (3) ∅ | mutaḥarrrik | move | taharraka | move | ḥarraka |
| (4) deaf | ?ašamm | ∅ | ∅ | deafened | ?ašamma |
| (5) dead | mayyit | die | māta | kill | amāta |
| (6) healthy | muḥāfā | ∅ | taḥāfa | ∅ | ḥāfa |
| (7) washed | maḡsūl | wash | ?iḡtasala | wash | ḡasala |
| (8) rolled | mutadahrij | roll | tadahraja | roll | dahraja |
| (9) ∅ | munṣafiq | slam | ?inṣafaqa | slam | ṣafaqa |
| (10) protruded | mundallīḥ | protrude | dallaḥa | protruded | dallaḥa |
| (11) ignited | muḏāʔa | ignited | ?aḏāʔa | ignited | ?aḏāʔa |
| (12) lowered | ḥabīṭ | ∅ | habaṭa | lowered | habaṭa |
| (13) eclipsed | kaṣīf | eclipsed | kaṣafa | eclipsed | kaṣafa |
| (14) thin | naḥīf | thin | naḥufa | thin | ?anḥafa |
| (15) led | munsariḥ | ∅ | ?insarahā | led | sarahā |
| (16) crowded | muzdahim | crowd | ?izdahama | crowd | zahama |
| (17) ∅ | ∅ | sneeze | ḥaṭasa | ∅ | ḥaṭasa |
| (18) read | maqrūʔ | read | ∅ | read | qaraʔa |
| (19) blue | ?azraq | ∅ | ?izraqqa | ∅ | zarrāqa |

(continued)

(1)

(11)

(111)

| BE-State (adjective) | | BECOME-Process (Intransitive) | | CAUSE-Action (transitive) | |
|----------------------|----------------------|-------------------------------|------------------------|---------------------------|-------------------------|
| English | Arabic | English | Arabic | English | Arabic |
| (20) red | ʔahmar | redder | ʔihmarra | redder | hammara |
| (21) white | ʔabyaḏ | whiten | ʔibyayḏa | whiten | bayyayḏa |
| (22) black | ʔaswad | blacken | ʔiswadda | blacken | sawwada |
| (23) green | ʔaxḏar | green | ʔixḏarra | green | xayḏara |
| (24) yellow | ʔaṣfar | yellow | ʔiṣfarra | yellow | ṣaffara |
| (25) brown | bunniyy | brown | ∅ | brown | ∅ |
| (26) gray | ramādiyy | gray | ∅ | gray | ∅ |
| (27) raised | murtafi ^C | ∅ | ʔirtafa ^C a | raise | rafa ^C a |
| (28) afraid | xāʔif | feared | xāfa | frightened | xawwafa |
| (29) happy | farḥ | ∅ | fariḥa | ∅ | farraḥa |
| (30) ∅ | ḡālis | sat | ḡalasa | ∅ | ḡālasa |
| (31) ∅ | maḡin | walk | maḡa | walk | maḡṣa |
| (32) ∅ | ḡaḏir "here" | ∅ | ḡaḏara "C,A" | ∅ | ʔistahḏara "brought" |

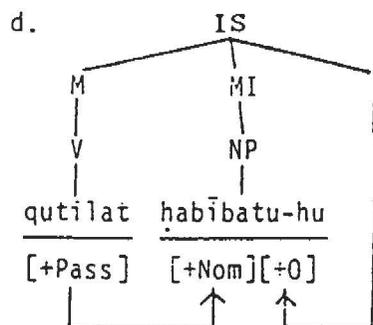
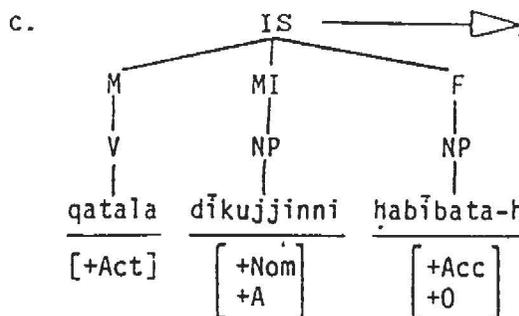
passive which involves syntax, semantics, and phonology is that of transitive and intransitive structures. This will be the topic of discussion in the next section.

1.1.1. The Passivization of Transitive Structures.

The passivization of transitive structures varies, depending on the number of objects which the transitive verb might require. Thus the passivization of a one-object transitive is different from the passivization of a two- or three-object transitive. In the case of a one-object transitive structure, the F(NP-object) will be moved to the MI(subject position) carrying with it its case role and leaving a trace behind. Since the NP-subject becomes \emptyset leaving nothing behind, the passive verb will govern the moved NP-object and assign it a case marker of nominative. Let us consider the following examples:

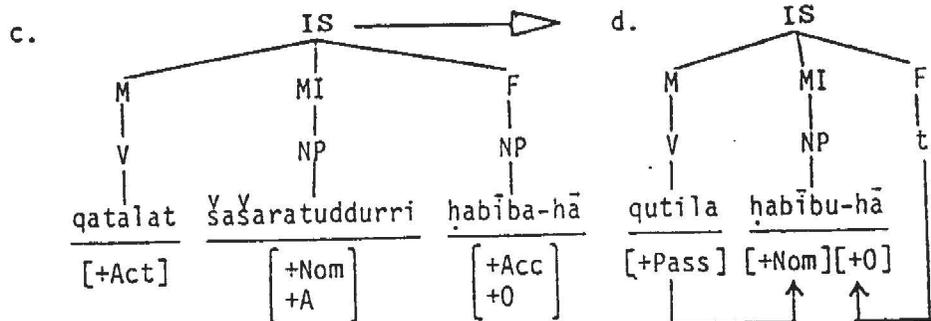
(1) a. qatala dīkujjinni ḥabībata - hu
 killed dīkujjinni lover his
 Dīkujjinni killed his lover.

b. qutilat ḥabībatu - hu
 was killed lover his
 His lover was killed.



(2) a. qatalat šašaratuddurri ḥabība - ḥā
 killed šašaratuddurri lover her
 šašaratuddurri killed her lover.

b. qutila ḥabību - ḥā t
 was killed lover her
 Her lover was killed.



We notice that in (1a) and (2a) the active verb agrees with its governee in number, gender, and person. But when the NP-object is moved to the MI(position) adjacent to the passive verb as in (1b) and (2b), it must agree with the passive verb. In addition, the passive verb assigns the moved NP-object a nominative case marker.

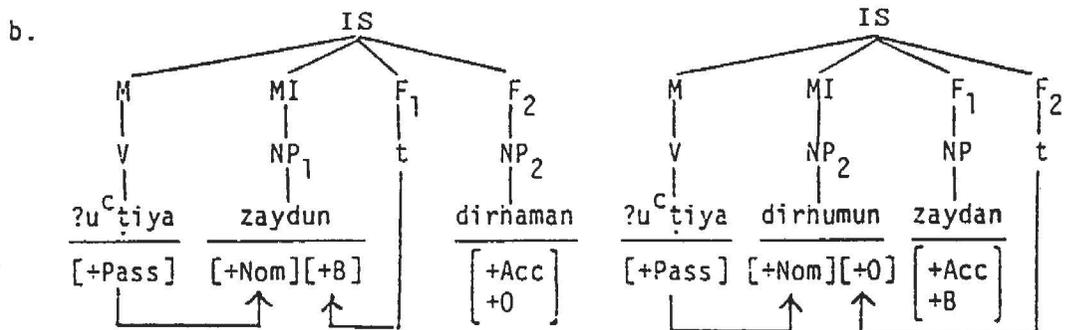
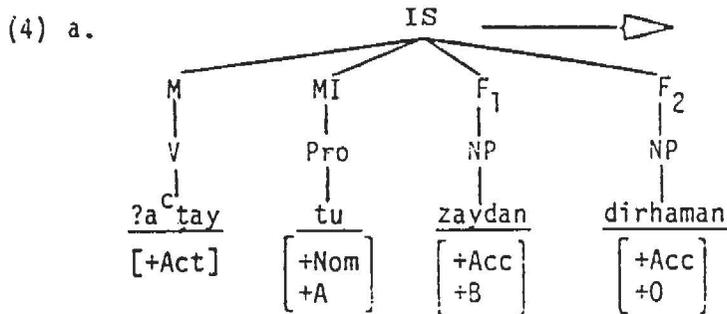
In fact, all transitive verbs of one object fall within the transformational process of (1c) and (2c). As far as the syntactic and semantic aspects are concerned, the most important process is that the NP-subject becomes \emptyset . The NP-object is moved from its F(position) to the deleted NP-subject, leaving a trace behind from which it inherits its case role of object. The passive verb will assign the MI(NP-object) a case marker of nominative.

Passivization in Arabic can operate on two object transitive structures, but there are certain constraints which must be met in order for a well-formed passive structure to be generated. As we have seen in the section on transitives and intransitives, some objects in the

transitive structures are blocked by the semantic selectional rules from forming a valid existential sentence. In such objects, the passive operation can operate on either object and move it to the subject position. Let us consider the following examples:

- (3) a. $\frac{?a^C \text{taytu}}{\text{gave I}} \frac{\text{zaydan}}{\text{zayd}} \frac{\text{dirhaman}}{\text{dirham}}$
I gave Zayd a dirham.
- b. $\frac{?u^C \text{tiya}}{\text{was given}} \frac{\text{zaydun}}{\text{zayd}} \frac{t}{\text{dirhaman}}$
Zayd was given a dirham.
- c. $\frac{?u^C \text{tiya}}{\text{was given}} \frac{\text{dirhamun}}{\text{dirham}} \frac{\text{zaydan}}{\text{zayd}} \frac{t}{\text{dirham}}$
A dirham was given to Zayd.

The transformational operations which occur in (3a-c) can be seen in the following underlying structures (4a) (4b), and (4c).



As seen in (4b) and (4c), either F_1 (NP-B) or F_2 (NP-object) can move to the MI(subject position) because they are blocked from forming a grammatical structure. This process, however, is different when the two objects can by themselves constitute a grammatical structure. Here the F_1 (NP-object) which is adjacent to the MI(NP-subject) must move to the subject position in the passive structure. The justification for such a constraint is that the second F_2 (NP-object) might be different categories such as PP, AdvP, existential sentence, or verbal structure. These categories when moving to the subject position will violate the selectional semantic rules. Let us consider the following examples:

(5) a. $\frac{\overset{x}{\text{Q}}\text{anan} - \text{tu}}{\text{thought I}} \quad \frac{\overset{F_1(\text{NP})}{\text{l} - \text{qitāia}}}{\text{the fighting}} \quad \frac{\overset{F_2(\text{AdvP})}{\text{qadan}}}{\text{tomorrow}}$
 I thought the fighting was tomorrow.

b. $\frac{\overset{x}{\text{Q}}\text{unna}}{\text{was thought}} \quad \frac{\text{l} - \text{qitālu}}{\text{the fighting}} \quad \frac{\overset{y}{\text{qadan}}}{\text{tomorrow}}$
 The fighting is thought to be tomorrow.

(6) a. $\frac{\overset{x}{\text{Q}}\text{anan-tu}}{\text{thought I}} \quad \frac{\overset{F_1(\text{NP})}{\text{zaydan}}}{\text{zayd}} \quad \frac{\overset{F_2(\text{PP})}{\text{fī l-bayti}}}{\text{at home}}$
 I thought that Zayd was at home.

b. $\frac{\overset{x}{\text{Q}}\text{unna}}{\text{was thought}} \quad \frac{\text{zaydun}}{\text{zayd}} \quad \frac{\text{fī l-bayti}}{\text{at home}}$
 Zayd was thought to be at home.

(7) a. $\frac{\overset{x}{\text{Q}}\text{anan-tu}}{\text{thought I}} \quad \frac{\overset{F_1(\text{NP})}{\text{zaydan}}}{\text{zayd}} \quad \frac{\overset{F_2(\text{verbal-S})}{\text{qāma } \emptyset\text{-Pro}}}{\text{stood up he}}$
 I thought that Zayd stood up.

- b. $\frac{\overset{x}{\text{Qunna}}}{\text{was thought}} \quad \frac{\text{zaydun}}{\text{zayd}} \quad \frac{\text{qāma}}{\text{stood up}} \quad \frac{\emptyset\text{-Pro}}{\text{he}}$
 Zayd was thought to stand up.

- (8) a. $\frac{\overset{x}{\text{Qanan-tu}}}{\text{thought I}} \quad \overbrace{\frac{\text{zaydan}}{\text{zayd}}}^{F_1(\text{NP})} \quad \overbrace{\frac{\text{qā?iman}}{\text{standing up}}}^{F_2(\text{NP})}$
 I thought that Zayd was standing up.

- b. $\frac{\overset{x}{\text{Qunna}}}{\text{was thought}} \quad \frac{\text{zaydun}}{\text{zayd}} \quad \frac{\text{qā?iman}}{\text{standing up}}$
 Zayd was thought to be standing up.

- (9) a. $\frac{\overset{x}{\text{Qanan-tu}}}{\text{thought I}} \quad \overbrace{\frac{\text{zaydan}}{\text{zayd}}}^{F_1(\text{NP})} \quad \overbrace{\frac{?abū - hu}{\text{father his}} \quad \frac{\text{qā?imun}}{\text{standing up}}}_{F_2(\text{existential-S})}$
 I thought that Zayd's father was standing up.

- b. $\frac{\overset{x}{\text{Qunna}}}{\text{was thought}} \quad \frac{\text{zaydun}}{\text{zayd}} \quad \frac{?abū - hu}{\text{father his}} \quad \frac{\text{qā?imun}}{\text{standing up}}$
 Zayd's father was thought to be standing up.

The second $F_2(\text{NP-object})$ in the above examples is of different syntactic categories. In (5a), it is AdvP-Time; in (6a), it is PP-Location; in (7a), it is a verbal structure; in (8a), it is an NP-manner; and in (9a), it is a nominal existential structure. These categories can form a grammatical structure with the first $F_1(\text{NP-object})$. Since these categories are considered to be predicates in the grammatical structure, it will be impossible to move to the subject position under the operation of passive because they will violate the selectional rules. That is why the first $F_1(\text{NP-object})$ must move to the subject position in the passive. The general rule which can capture the constraints imposed

on the passivized transitive structures with two objects, regardless of whether their objects can form a grammatical structure or not, can be formalized in (10)

(10) X[IS [...M(V).....MI(-).....Y.....Z]]X

In the domain of M-passive, either Y or Z can move to MI-position if and only if Y and Z cannot form a grammatical structure.

Y = NP

Z = NP, PP, AdvP, verbal-S, and existential-S.

The rule in (10) can capture the same phenomenon in three-object transitive structures. Once again the restriction here is semantic. The first F₁(object) must be moved to the MI(subject position) in the case of passive. Thus rule (10) can apply in the following examples:

- (11) a. $\frac{?a^C lam-tu}{told\ I}$ $\frac{zaydan}{zayd}$ $\frac{\overbrace{C_{amran} \quad qā?iman}^{existential-S}}{C_{amr} \quad standing\ up}$
 I told Zayd that C_{amr} is standing up.
- b. $\frac{?u^C lima}{was\ told}$ $\frac{zaydun}{zayd}$ $\frac{\overbrace{C_{amran} \quad qā?iman}^{existential-S}}{C_{amr} \quad standing\ up}$
 Zayd was told that C_{amr} is standing up.

As we have seen, the second and the third NP-object in (11a) is an existential structure from which we cannot move any constituent to subject position.

However, one can look at these transitive structures whose F(NP-objects) cannot move to MI(subject position) from the point of view of embedding. The embedding structure is assumed to form an internal

semantic and syntactic structure. So any extraction of one of its constituents from its structure will violate the semantic unity of the embedded structure. But when we move the first F_1 (NP-object) to the MI(subject position), we are preposing and postposing a constituent within one internal structure. Thus, to passivize in Arabic is to limit the operation in one single clause which does not affect the other clause, i.e., it is a clause-bound operation.

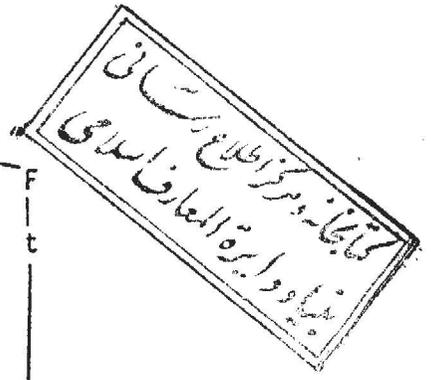
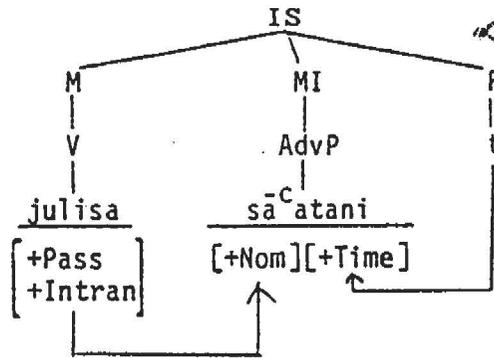
1.1.2. The Passivization of Intransitive Structures

Generally speaking, intransitive structures in Arabic cannot be passivized. There are, however, some intransitive structures which can be passivized when they meet certain conditions. The constraints imposed in the passivized intransitives, according to Ibn ya^Ciš (d. 1250)⁴, are that the syntactic categories which are in the subject position of MI must be PP, AdvP, or mašdar 'gerund' (i.e., a type of VN). There are other constraints which the above categories must meet in order to be allowed to occur in MI(subject position) in the passive structures.

Ibn Caqīl (d. 1376)⁵ stated the internal constraints of the categories which can occur in the subject position of the passive structure. The AdvP category must be inflected (i.e., it must show the case markers overtly), otherwise the passive structure will be ungrammatical. That is why (1) is grammatical, but (2) is not.

- (1) a. julisa sā^Catāni
 was sat two hours
 One sat for two hours.

b.



(2)* Julisa ^Cindaka
was sat near you

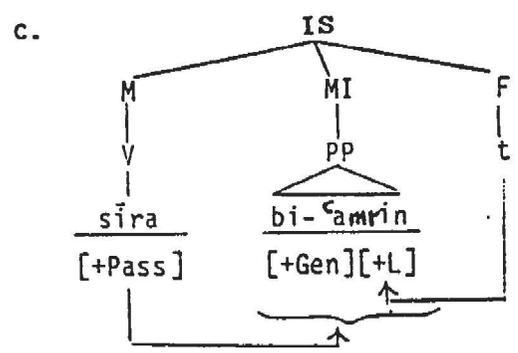
The constraints which are imposed on the PP and maṣḍar categories are the following:

- (3) a. The object of a preposition must have the feature of [+definite].
- b. The governing preposition must be able to govern different categories and not be specialized in governing one particular category.
- c. The preposition must not convey the role of cause or purpose.
- d. As for the maṣḍar, the only constraint which is imposed on it is that it must be conjugated, i.e., derived from other forms.

Let us consider the following examples of passivized intransitive structures where the above-mentioned constraints meet all the conditions stated by Ibn ya^Ciṣ and Ibn ^Caqīl.

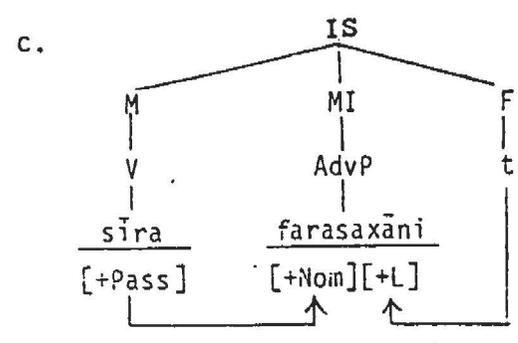
(4) a. sāra zaydun bi - ^Camrin
walked zayd with ^Camr
Zayd walked with ^Camr.

- b. sīra bi - ^Camrin
 walked with ^CAmr
 One walked with ^CAmr.



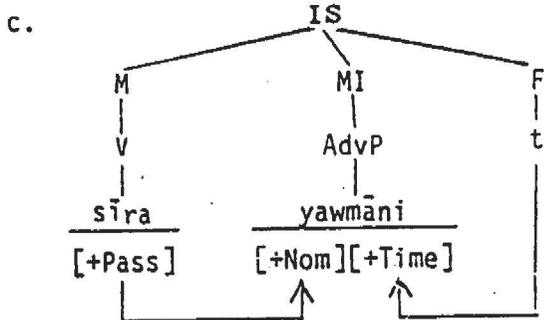
- (5) a. sāra zaydun farsaxayni
 walked Zayd two parasangs
 Zayd walked two parasangs.

- b. sīra farsaxāni
 walked two parasangs
 One walked two parasangs.



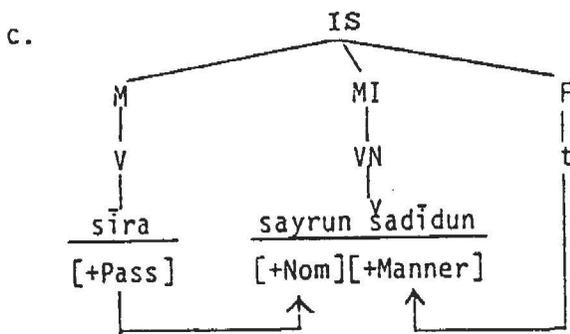
- (6) a. sāra zaydun yawmayni
 walked Zayd two days
 Zayd walked for two days.

- b. sīra yawmāni
 walked two days
 One walked for two days.



(7) a. $\frac{s\bar{i}ra}{walked}$ $\frac{zaydun}{Zayd}$ $\frac{sayran}{walking}$ $\frac{\overset{V}{\text{šadīdan}}}{strong}$
 Zayd walked hard.

b. $\frac{s\bar{i}ra}{walked}$ $\frac{sayrun}{walking}$ $\frac{\overset{V}{\text{šadīdun}}}{strong}$
 One walked hard.



In the examples above, the categories of F(PP), F(AdvP), and F(mašdar) moved from their original position to the subject position of MI in the passive structure. The argument for such movement is that the NP-subject will become \emptyset and the syntactic categories which occurred in the active form will move to replace the empty subject position. Note that in Arabic there is a very definite adverbial constituent ordering, namely [Mašdar (manner)-Location-Time] as in this sentence (8):

(8) $\frac{s\bar{i}ra}{V}$ $\frac{zaydun}{S}$ $\frac{bi-\overset{C}{amrin}}{PP(O)}$ $\frac{sayran}{Mašdar}$ $\frac{\overset{V}{\text{šadīdan}}}{Manner}$ $\frac{farsaxayni}{Location}$ $\frac{yawmayni}{Time}$

So if an adverb appears as in these sentences out of order at the beginning of the sentence adjacent to the verb, we can conclude that movement has taken place. In addition, the new or moved constituent will inherit its case role from its trace, i.e., from its active form, but it will be assigned a new case marker of nominative or genitive by the passive verb, or the preposition, respectively.

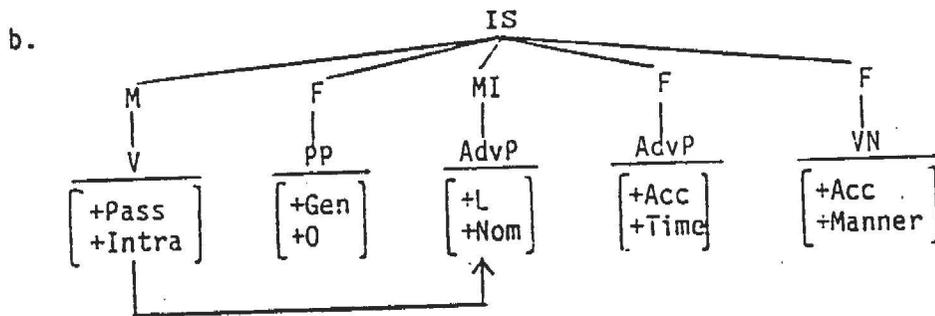
The most important issue is that the passivity of intransitive structures involve syntactic passive or transformational passive in addition to its semantic and phonological aspects. The argument is that the category of PP, AdvP, and maşdar moved via transformational rule to the subject position because these categories can occur in the active structure along with the NP-subject. But when the NP-subject in the category MI is deleted, the categories will move and take their positions, leaving a trace behind. But strong evidence for a transformation in such passive sentences comes from the fact that these categories will carry with them their case role which is assigned by the active construction but never by the passive construction. But for these categories to receive a case marker, they must move to the position adjacent to the passive verb. The procedures of the passive intransitive can be stated as follows:

- (9) a. The NP-subject must be deleted leaving nothing behind.
- b. The active intransitive verb will be changed to the passive intransitive verb undergoing certain phonological rules.

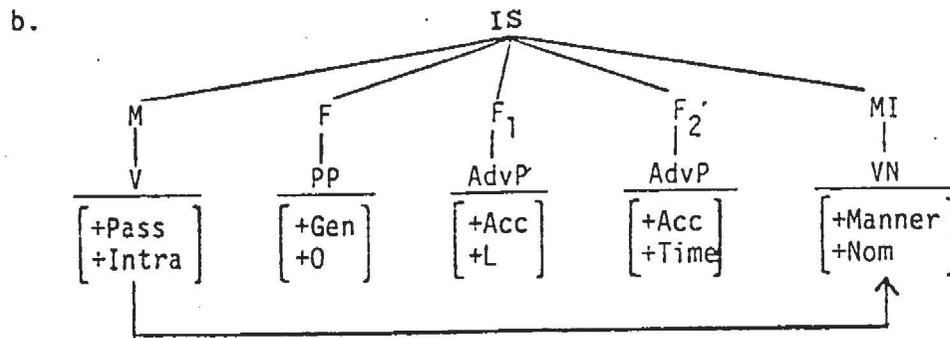
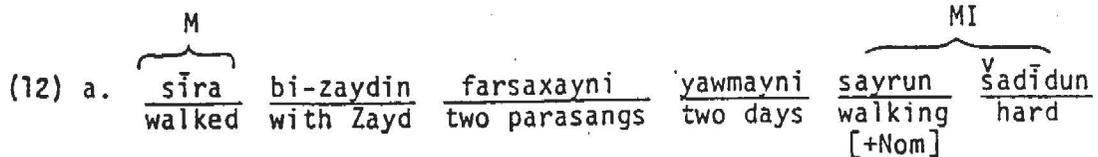
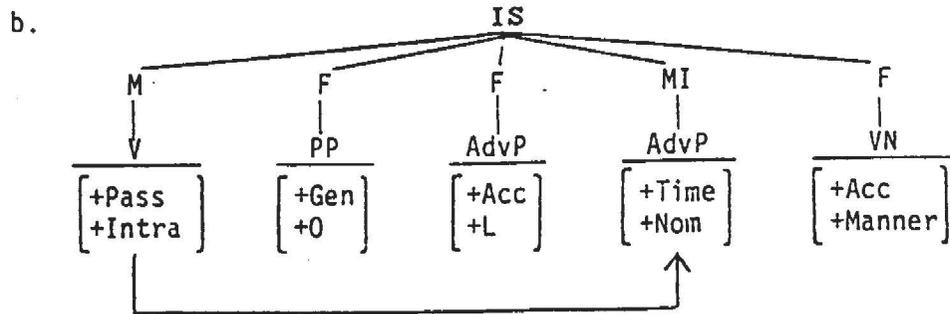
- c. The categories PP, AdvP, and maṣdar will move via transformation from their generated positions to the passive positions to receive a case marker, but not case role, since this is already inherited from the trace.

It seems that the crucial evidence for transformation in the passive intransitive structures come from the fact that the categories PP, AdvP, and maṣdar in certain intransitive structures will function as a subject. In such intransitive structures, which are different from the intransitive structures in (10-12) the passive operation involves "Transformation" - Let us consider some examples of the passive intransitive structures where transformation has no role at all.

- (10) a. $\overbrace{\text{sīra}}^{\text{M}}$ bi-zaydin $\overbrace{\text{farsaxāni}}^{\text{MI}}$ yawmayni sayran $\overset{\text{V}}{\text{ṣadīdan}}$
 walked with zayd two parasangs [+Nom] two days walking hard
 One walked hard with Zayd for two parasangs for two days.



- (11) a. $\overbrace{\text{sīra}}^{\text{M}}$ bi-zaydin farsaxayni $\overbrace{\text{yawmāni}}^{\text{MI}}$ sayran $\overset{\text{V}}{\text{ṣadīdan}}$
 walked with zayd two parasangs two days [+Nom] walking strong
 One walked hard with Zayd for two parasangs for two days.



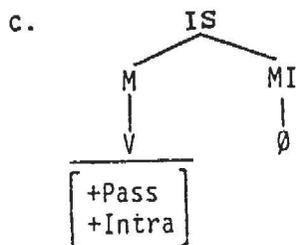
As we have seen in the above examples (10-12), there is no transformational operation in the passive structures; the passive structures here are generated in the base without the need of a transformational device. The only device needed here is case marker assignment of the passive verb. The passive verb is able in these structures to assign its MI(NP-subject) a case marker in whatever position it is generated, since the verb is central governor. The only constraint which is imposed on the MI(NP-subject) is that it must be generated to the right of the passive verb.

Arabic has, however, another kind of passivized intransitive structure which involves only passive morphology and excludes transformation. According to ʔaz-zajjāji, the well-known Arab grammarian sībawayhi licensed the passivization of some intransitive structures

without the involvement of PP, AdvP, and VN categories.⁶ This can be seen in the following examples:

(13) a. duḥika
 laughed
 The event of laughing occurred.

b. qu^cida
 sat
 The event of sitting occurred.



The assumption here is that the passive verb is operating on the abstract notion of VN (i.e., maṣḍar), which is an empty category.

?Al-?Istrābā'ī (d. 1289)⁷ and ?As-Suyūṭī (d. 1518)⁸ explained another type of passivized intransitive structure which supports the notion of "passive morphology." Arabic shows some passivized intransitive structures which have no corresponding active. This means that these passivized structures are generated in the base as passive structures without any syntactic movement. The base will generate the NP-object adjacent to the passive verb. The passive verb in turn will assign this NP-object a nominative case marker. These base-generated passives can be seen from the following examples:

(14) a. quqimat il-mar'atu
 was made barren the woman
 The woman was caused to be barren.

b. zūkima r - rajulu
 catch cold the man
 The man was caused to catch a cold.

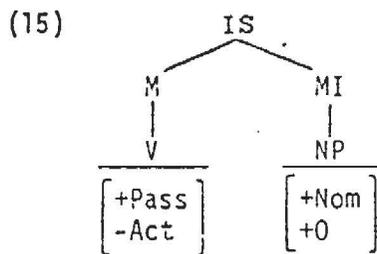
c. ʿunnisat il-jāriyatu
 old maid slave girl

The slave girl was caused to be an old maid.

d. junna zaydun
 became mad zayd

Zayd was caused to become mad.

In the above examples (14a-d), the passive verbs are generated in the base without any corresponding active verbs. The only process here is morphological. The underlying structure of (14) is presented in (15).



It is proposed in (15) that such passive verbs should be assigned the features of [+Pass] and [-Act] to be distinct from other passive intransitive verbs which have a corresponding active verb.

So far I have been trying to explain the syntactic and semantic aspects of the passivization in Arabic. We have seen that syntax and semantics are involved in all types of passive structure, i.e., transitive passive, intransitive passive, inchoative passive, stative passive, and other types of passive. In the next section, we shall see that passivization involves a crucial operational device which determines the character of the Arabic passive, namely, a phonological one.

2. The Phonological Aspects of Passivization

The structure of the Arabic phonology was investigated in some recent advanced research done by Brame (1970), McCarthy (1979), and others.

According to Brame (1970), the phonological process of the passive verb in Arabic involves switching the quality of the internal vowels. Thus the perfect triliteral stem CaCvC can be passivized by changing the first a to u and the stem vowel v to i. This gives the passive form of CuCiC. According to this pattern, the active verb ḍarab can be passivized as ḍurib. In the same way, the imperfect verb CVCCVC (prefix CV and stem CCVC) can be passivized by turning the prefix vowel v to u and the stem vowel v to a. Thus the active verb ya + ḍrib can be passivized as yu + ḍrab.

Brame also proposed that the feature [+Passive] is assigned to the active stems by the passive syntactic transformation. This rule will transform the active Cacvc to Cucic, as in (1).

(1) CaCvC $\xrightarrow{\quad}$ Cucic
 [+Act] [+Pass]

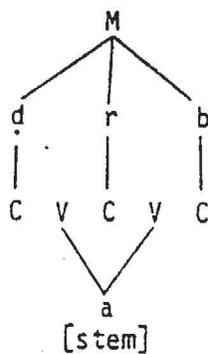
By several phonological rules developed in McCarthy (1979), the Arabic root undergoes a complex set of morphophonemic changes. McCarthy proposed that the morphological process of the Arabic active and passive verbs involve a reduplication of certain consonants and vowels. This morphological process can be explained under the general principles of autosegmental phonology proposed by Halle (1973).

According to autosegmental phonology, morphemes are controlled by the M-node, which consists of separate autosegmental tiers and a prosodic template. The Arabic verb will consist of a consonantal pattern, e.g., ḍrb 'hit' and a vocalic melody, e.g., a perfective active, which are mapped into a highly constrained set of prosodic templates, each template

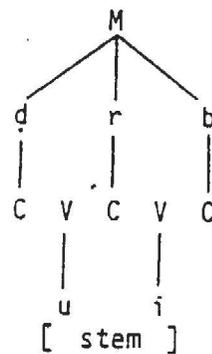
representing what is called in Arabic a bunyān 'pattern.' In each bunyān, the meaning of the verb stem is modified in some way.

Applying this autosegmental phonology to the active and passive forms, we can say that the first bunyān is ḍarib. In the same way, we can say that the first bunyān of the participle is ḍārib (active) and the second bunyān of the participle is ma + ḍrub (passive) (ma is X, i.e., prefix). The autosegmental system of the active-passive forms of Arabic can be seen in (2).

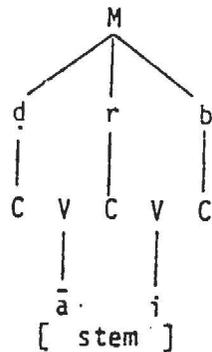
(2) a.



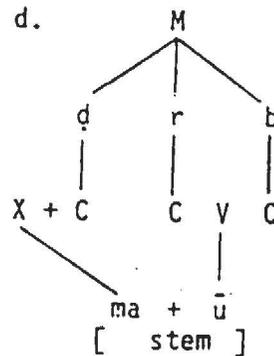
b.



c.



d.



In this respect, the autosegmental system is more capable than transformational rules of deriving Arabic morphology because it can reduce the transformational rules to one form, namely $A \longrightarrow B/X$, where A, B, and X are strings of elements. The autosegmental system can be collapsed under a more general morphological theory proposed by Ibn

(5) a. dahraja zaydun il-ḥajarata
 rolled down zayd the stone
 Zayd rolled the stone down.

b. duhrijat il-ḥajaratu
 was rolled down the stone
 The stone was rolled down.

(6) a. ?istaqbala zaydun iz - zā?ira
 received zayd the visitor
 Zayd received the visitor.

b. ?ustuqbila z - zā?iru
 was received the visitor
 The visitor was received.

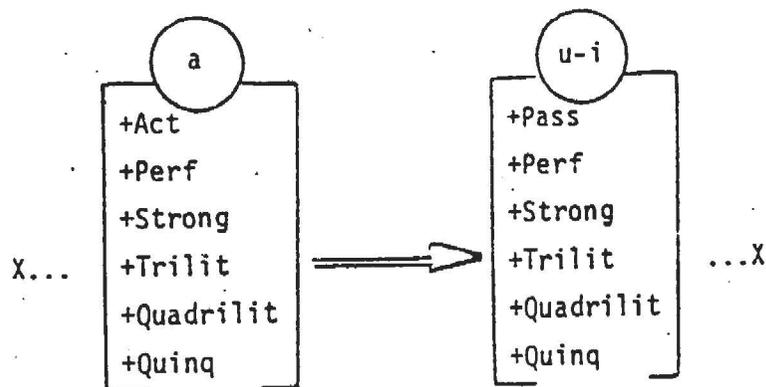
We notice in the above examples that all verbs passivized are perfective even though their stems are different. The stem in (4b) is trilateral, but in (5b) it is quadrilateral, whereas in (6b) it is, quinqueliteral. The phonological changes which took place in all perfective forms can be seen in (7).

(7)

| | Stem | Active | Passive |
|-------|----------------|---|---|
| (i) | trilateral | $\begin{array}{c} \text{CVCVC} \\ \vee \\ [\text{a}] \end{array}$ | $\begin{array}{c} \text{CVCVC} \\ \quad \\ [\text{u} \quad \text{i}] \end{array}$ |
| (ii) | quadrilateral | $\begin{array}{c} \text{CVCCVC} \\ \vee \\ [\text{a}] \end{array}$ | $\begin{array}{c} \text{CVCCVC} \\ \quad \\ [\text{u} \quad \text{i}] \end{array}$ |
| (iii) | quinqueliteral | $\begin{array}{c} \text{CVCCVCCVC} \\ \vee \\ [\text{a}] \end{array}$ | $\begin{array}{c} \text{CVCCVCCVC} \\ \quad \\ [\text{u} \quad \text{i}] \end{array}$ |

The main phonological change in (7) is that the stem vowel a becomes u-i. This phonological process from active to passive leads us to formalize a more general rule of the perfective active/passive form, as in (8).

(8)



The phonological process of the perfective forms in (8) has a different nature from the phonological process of the imperfective forms, as we shall see in the following examples:

(9) a. yadribu zaydun Camran
is hitting zayd ^Camr
Zayd is hitting ^Camr.

b. yudrabu Camrun
is hit ^Camr
^Camr is being hit.

(10) a. yudahriju zaydun hajaratan
is rolling down zayd stone
Zayd is rolling a stone down.

b. tudaharaju hajaratan
is rolled down stone
A stone is being rolled down.

(11) a. yastaqbilu zaydun iz - za'ira
is receiving zayd the visitor
Zayd is receiving the visitor.

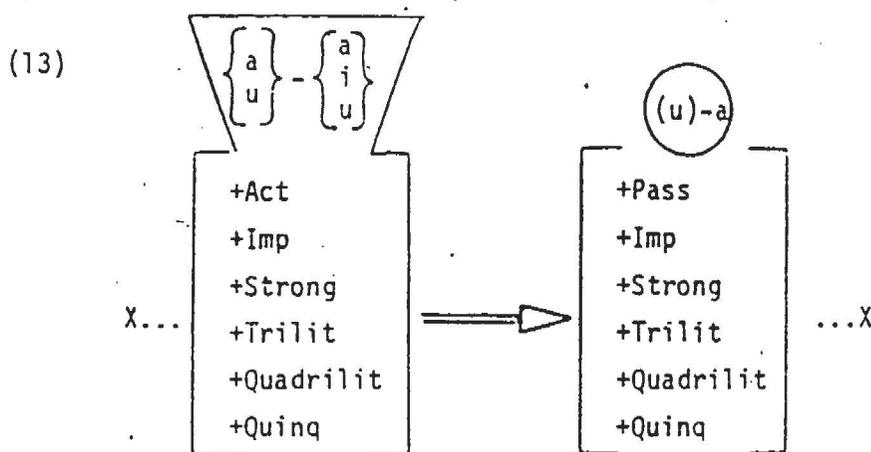
b. yustaqbalu z - za'iru
is received the visitor
The visitor is being received.

As we notice in the examples above, the imperfective forms undergo a different phonological process. Once again, the imperfective verb has different stems. The stem in (9b) is triconsonantal; in (10b), it is quadriconsonantal; whereas in (11b), it is quinqueconsonantal. The phonological process of these forms can be seen in (12).

(12)

| | Stem | Active | Passive |
|-------|----------------|---------------------|---------------------|
| (i) | triliteral | XV+CCVC [a i] | XV+CCVC [u a] |
| (ii) | quadriliteral | XV+CVCCVC [i] | XV+CVCCVC [a] |
| (iii) | quinqueliteral | XV+CCVCCVC [a i] | XV+CCVCCVC [u a] |

The main phonological change in (12) is that the prefix and stem vowels [a-i] become [u-a] in both triliteral and quinqueliteral, whereas the stem vowel [i] becomes [a] in the quadriliteral. Once again, here we can formalize a more general phonological rule which can account for all imperfective forms transforming from active to passive.



The autosegmental phonological system of the active/passive is capable of capturing all relevant morphological forms in Arabic. By the intricate relations between vocalic and consonantal within one particular root, the autosegmental system seems to generate all morphonemes needed for active and passive.

In short, Arabic passivity must be approached and analyzed by an abstract notion of phonological syntactic and semantic theory which is able to show the internal computational process of the interchangeability within a particular single root.

Wallāhu ʔa ^Clām

* * * * *

Footnotes

1. Ibn ya^Ciš, Šarḥ, ʔAl Mufaṣṣal, Vol. 2, ed. 1970, Beirut, p. 69.
2. Ibid.
3. Ibid, p. 14.
4. Ibid, pp, 72-73.
5. Ibn ^Caqīl, Šarḥ Ibn ^Caqīl, Vol. 2, ed. 1967, Eqypt, p. 119.
6. ʔAz-Zajjāji, ʔal-jumal, ed. 1957, Paris, pp. 88-91.
7. ʔAl-ʔIstrābā^Xī, Šarḥ ʔAš-^VŠāfiyah, ed. 1975, Beirut, p. 272.
8. ʔAs-Suyūṭi, ʔAl-ʔAšbāh wa n-na^Xāʔir, Vol. 2, ed. 1940, Ḥaydar ʔAbād, p. 433.
9. Ibn Jinni, ʔal-xaṣāʔiṣ, Vol. 2, ed. 1952, Beirut, p. 133.

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□ التوليد النحوي والدلالي للمبني للمجهول في اللغة العربية : معالجة لسانية – معلوماتية. (إنجليزي)

د. مازن الوعر

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By : Mazen Al-Waer, PH.D.