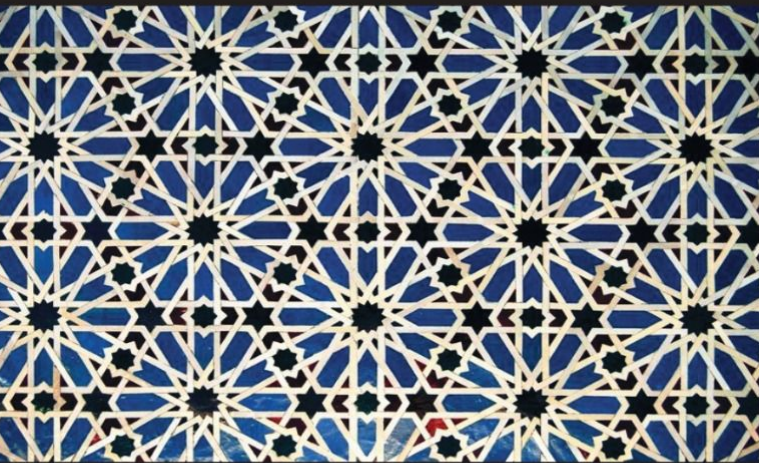


الفعل في العربية بين الصرف والدلالة والتركيب



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يتضمن هذا الكتاب وقائع الندوة الدولية التي نظمتها مختبر اللسانيات بكلية الآداب بنمسيك يومي 15 - 16 يونيو 2023. وقد تناول الباحثون في هذه الندوة الفعل في مختلف المستويات اللغوية، وطرخوا مجموعة من القضايا والإشكالات الوجيهة التي ترصد بنية الفعل في اللغة العربية، وتفتح لها مبادئ مفسرة.

موضوع الفعل مركزي في تاريخ البحث اللساني، وفي التنظير للغة. ويعلم الدارسون أن أغلب النظريات التي تقارب بنية اللغة وتسعى إلى تفسير تماسك القول اللغوي، تمنح الفعل الدور العلاقي الجامع والموزع والعمل.

والفعل بنية بالغة التعقيد، لا باعتباره مقولة ذات خصائص معينة، ولكن باعتباره، أساساً، نقطة تقاطع وجاهي. هذا لا يتيح منظورات متعددة للفعل فحسب، وإنما يساعد، زيادة على هذا، على استكشاف شبكة التقابلات والتفاعلات البي-وجاهية، بين الصوت والصرف والتركيب والدلالة.

الفعل نواة التركيب الجملي، ويوازي بناؤه بناءً تراكيبي أخرى، ويمكن أن تنجلي في وضعه العلائقي هذا الكثير من الخصائص البنوية للغة. ومن تجليات هذا الوضع العلائقي ارتباط الفعل بالعديد من المقولات الوظيفية، من تطابق وزمن، وجهة، ووجه، وبناء..

من شأن التناول الوجيهي، برصده للتعالقات والتوازيات والتناظرات، التي يجعلها الفعل في مختلف المستويات، تثير عدد من الخصائص النمطية التي تميز اللغة العربية مقارنة بلغات أخرى، ورصد ما يديه الفعل، وفق هذا، من سلوك متنوع صوتاً وصرفاً وتركيباً ودلالة. بهذا الوجه تتبدى خصائصه، وما يميزه من أبعاد وظيفية حاسمة في التركيب الجملي وفي بناء المعنى.

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The Distribution of Verbs and Argument Selection in Arabic: A Distributed Morphology Account

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Lexicalism is dead, deceased, demised, no more, passed on...
(Marantz, 1997:2)

Abstract

This paper attempts to argue in favor of a constructionist/syntactic approach to the derivation of verbs in both Modern Standard Arabic and Moroccan Arabic. Using the precepts of Distributed Morphology, I argue that the meaning of verbs derives from the syntactic structure in which they are merged. This argument is substantiated by proposing a syntactic decomposition of the traditional VP into three independently motivated heads, principally voice, light *v*, and the $\sqrt{\text{Root}}$. All other things being equal, the derivation of the different verbal constructions boils down to the featural content of the functional heads: voice and light *v*.

Keywords: Arabic verbs, Distributed Morphology, functional heads, lexicon, argument structure.

1. Introduction

Within the domain of generative linguistics, the interface between syntax and morphology has been a topic of ongoing debate and scrutiny. Various theoretical frameworks have emerged, each of which addresses the role of morphology within generative grammar. These perspectives range from asserting that morphology constitutes an autonomous module governed by its own set of rules, specifically Word Formation Rules, which operate independently from syntactic principles (Williams 1994; Selkirk 1982; Di Sciullo and Williams 1994; Chomsky 1995), to contending that word formation is inherently rooted in syntax (Baker 1988; Halle and Marantz 1993, 1994; Harley 1995; Marantz 1997, amongst others). Among the questions raised therein are as follows:

(1)

- a) What is the mechanism responsible for the derivation of words?
- b) Is this generative mechanism syntactic or morphological, where morphology is lexically construed?
- c) Is the need for a component (lexicon) that stores fully inflected words and derived words that are subsequently sent to syntax conceptually and empirically necessary?
- d) What are the atoms of syntax?

To answer these questions, the present paper explores how different types of verbs, i.e., transitives and intransitives, in Arabic are encoded in syntax. Using the precepts of the Minimalist Program (MP) and Distributed Morphology (DM), this paper investigates how the different types of verbs in Modern Standard Arabic (MSA) and Moroccan Arabic (MA) are structurally realized in a grammar that does not admit any additional machinery as the lexicon, the place where simplex and complex words are formed alongside their idiosyncratic meanings. These verbs include unaccusatives, unergatives, and transitives¹. In this respect, a split-VP architecture is motivated, in which the VP layer splits into three main heads, principally Voice, light *v*, and the $\sqrt{\text{Root}}$, with the light *v* and voice head hosting syntactically encoded primitives (CAUSE/DO, BECOME, and BE) and the syntactico-semantic feature [AG], respectively. The proposed primitives vary as the type of event described by the verb varies. Furthermore, it is demonstrated that these primitives introduce different events, notably statives (BE), agentive (CAUSE/DO), and inchoatives/anticausatives and passives (BECOME) (see Loutfi 2014, 2015, 2017, 2022) for analysis along these lines in MSA and MA). Under this light, the derivation of the different verbal constructions is then reduced to the featural content of Voice and light *v*.

This paper is structured as follows. The second section delves into the theoretical assumptions that form the foundation of our approach. This includes a thorough examination of the components of DM. This includes *Late Insertion*, *Underspecification*, and *Encyclopedia*. Following this theoretical groundwork, this paper dissects the proposed VP structure. Here, I examine the decomposition of the conventional VP into three distinct, independently motivated heads, namely voice and light *v*, and the $\sqrt{\text{Root}}$. Building on this structural framework, the subsequent section elucidates how verb phrases are derived. This section meticulously outlines the intricate interplay between the proposed VP structure and the featural composition of the functional heads: voice and light *v*, shedding light on the process of generating various verbal constructions. Finally, the paper concludes by summarizing the key findings and their broader implications, providing a cohesive understanding of the mechanisms governing the derivation of verbs in Arabic.

2. Theoretical Assumptions

As stated at the outset, the present study adheres to the fundamental tenets of DM. DM aims to investigate the internal structure of words, and how the latter relates to the rules of syntax (Embick & Noyer 2007). The theory was initiated by Halle and Marantz (1993, 1994,

¹ See Loutfi (2023b) for a different analysis of the syntactic representation of transitive verbs.

and related works). As a theory of linguistic analysis, DM is best conceived of as an anti-lexicalist approach to word formation, in that, the basic claim underlying the theory is that the lexicon, the component in which word formation rules, special meaning, and morphologically irregular forms are assumed to be stored, does not exist, and the derivation of complex objects is syntactic. Therefore, words and phrases are the outcome of a single generative component, i.e., syntax. According to this perspective, the attributes that were previously imputed to the lexicon in early morphological approaches (Chomsky 1970; Halle 1973) are now dispersed or partitioned across distinct components within the grammar. This rationale underpins the nomenclature "Distributed Morphology".

There are three distinguishing properties of DM: *Late Insertion*, *Underspecification*, and *Syntactic Hierarchical Structure All the Way Down* (Halle and Marantz 1994; Harley and Noyer 1999). These central features are summarized in the sub-section that immediately follows.

2.1. Late Insertion

Late Insertion holds the view that syntax does not manipulate fully formed and inflected words, i.e., lexical items such as nouns, verbs, and adjectives, but instead manipulates roots and morphosyntactic features to form syntactic structures. As opposed to other lexicalist approaches, the phonological content of the terminal nodes is the result of a post-syntactic process². In other words, syntactic rules and principles form abstract morphemes whose phonological content is determined by Vocabulary Items³ (VIs), through a process referred to as Spell-Out. This process applies after syntactic operations, such as movement, have been applied.

2.2. Underspecification

As the term indicates, underspecification refers to the claim that VIs enter syntax unspecified with respect to the node in which they should be inserted. More precisely, roots enter the derivation as category-free morphemes. These categories acquire their categorial features during the course of the derivation. For instance, a root, say, $\sqrt{\text{BOOK}}$, becomes either

² However, the model adopted in the present study is that of Embick and Noyer (2007), who argue that roots have phonological content, a point further discussed in Loutfi (2022).

³ A VI is described as a phonological string along with the information that dictates the position in which it should be inserted. For instance, the VI /-z/ in English has the following context of insertion, ignoring other context-sensitive phonological processes such as voice assimilation in this case:

$$/-z/ \leftarrow \rightarrow [+\text{plural}, \text{—}]$$

In DM, cases where the VI is devoid of information on insertion, a default "elsewhere" VI is invoked. See Loutfi (2024) for a discussion of how Late Insertion governs the distribution and realization of morphologically-derived causatives in Classical Arabic.

a verb if it is immediately c-commanded by a verbalizing head, little *v*, or a noun if it is c-commanded by a local nominalizing head, in this case, little *n*. The task of late insertion is to insert the most highly specified VIs whose features match the terminal node. In DM, this process is seen as a competition between different VIs, and the VI with the most matching features wins. The insertion process is governed by the *subset principle*. At its core, this principle states:

The phonological exponent of a Vocabulary item is inserted into a morpheme... if the item matches all or a subset of the grammatical features specified in the terminal [node]. Insertion does not take place if the Vocabulary item contains features not present in the morpheme. Where several Vocabulary items meet the conditions for insertion, the item matching the greatest number of features specified in the terminal morpheme must be chosen.

(from Halle 1997)

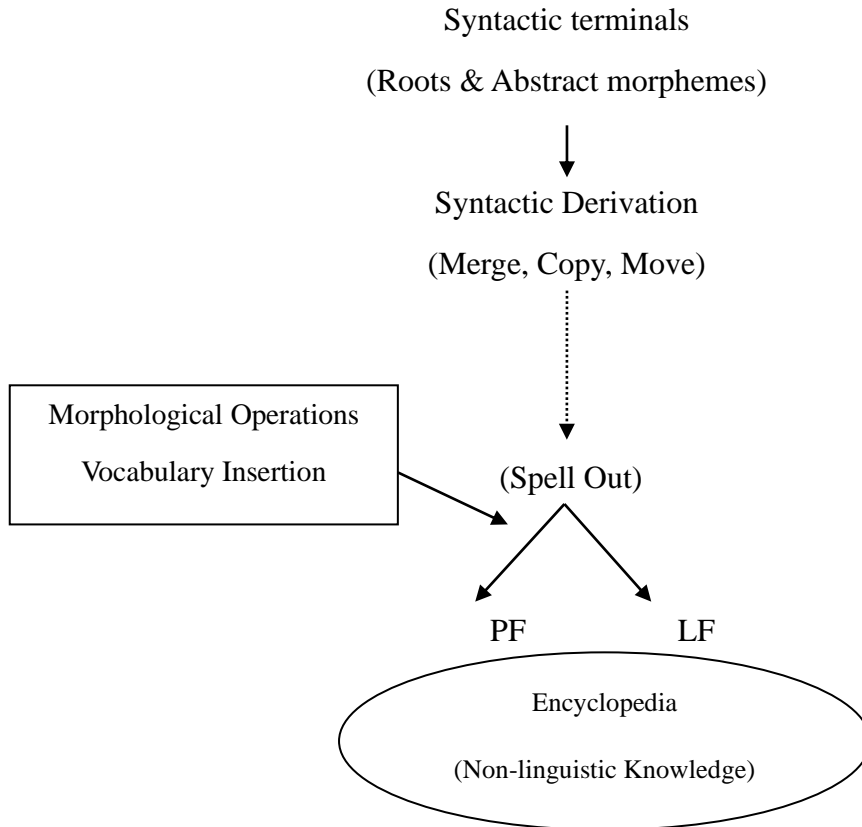
There are cases, however, where two VIs arrive at a tie. To resolve this tie, two approaches have been advanced, the first of which is the one proposed by Halle and Marantz (1993, 1994). They argue that the competition is extrinsically ordered; hence, the optimal/winning form is the one that comes first in the ordering. The second proposal is suggested by Noyer (1997), who argues that features are hierarchically organized such that the VI whose features are higher on the hierarchy is the winning form, the surface form. An example of the hierarchy of features is as follows, adopted from Harley and Noyer (1999: 5):

(2)

Fragment of the Hierarchy of Features
1 person > 2 person > dual > other features

For the Syntactic Hierarchical Structure All the Way Down, the same constituent hierarchical structures are visible to both syntax and morphology. Therefore, it naturally follows that syntactic and word structures follow and abide by the same general principles of syntax. The organization of the grammar adopted here is as follows:

(3) *The DM Grammar:*



As it stands, there is only one generative component whereby words and phrases are constructed, the syntax, which is subject to the word-building mechanisms, Merge and Move. The structure generated by syntax is subsequently subject to further PF operations whose ultimate task is to minimally modify and elaborate syntactic structures. These modifications are assumed to be language-specific PF requirements⁴. An example of these processes is the linear ordering of nodes. Because PF is the level that connects syntax with the articulatory/perceptual system, it is responsible for linearizing hierarchical structures (see Embick and Noyer 2007: 293; Embick 2007, 2010; Loutfi 2019)⁵.

2.3. Primitives of DM

The morphemes that serve as terminal nodes in syntactic structures are of two types: functional morphemes and roots. The former category corresponds to closed-class categories such as [Past] and [Plural], and they are assumed to be universal and universally present in all

⁴ Such an assumption clearly violates the Inclusiveness Principle (Chomsky, 1995, 2000). Note that PF is also a prosodic domain where some phonological processes, such as syllabification, and epenthesis, apply. To what extent should PF violate the Inclusiveness Principle and what motivates such violations are not germane to the present discussion as details like these will take the present study too far afield. As a working hypothesis, following Embick and Noyer (2007: 295), these violations are assumed to be motivated by external language requirements, particularly the PF level. See also Chomsky (2000) for the assumption that the Inclusiveness Principle applies only in narrow syntax.

⁵ For a related discussion, see Loutfi (2016, 2019, 2020).

languages; thus, their content is made available by Universal Grammar (UG). Roots, on the other hand, represent language-specific concepts (Arad 2005; Acquaviva 2009). In DM, their category specification is determined by their syntactic position. In DM, these types of morphemes are characterized by being category neutral. Therefore, roots should always appear with a c-commanded category-defining functional head (light *v* or light *n* for instance). This follows from the following principle:

(4)

Categorization Assumption

Roots cannot appear without being categorized; Roots are categorized by combining with category-defining functional heads.

(Embick and Noyer 2007: 296)

Note, however, that these roots have a phonological content in the syntactic derivation, whereas functional heads do not, their phonetic content being supplied by the end of the derivation. Accordingly, only abstract morphemes are subject to late insertion because roots have all their phonological features present in the derivation⁶.

2.4. Encyclopedia

Encyclopedia in DM plays a vital role in that it encodes the special meanings of particular roots, relative to the syntactic context of the roots, within local domains (Marantz, 1997: 3). More precisely, each root may have particular interpretations in particular environments. Thus, even words may have idiomatic meanings. In DM, idiomatic meaning is encoded in the encyclopedic entry with which each root is equipped. The task of each entry is to relate the root to its meaning⁷. It also encodes semantic information of both roots and complex objects such as idioms (e.g., *kick the bucket*). Note that the notion idiom here should be understood as a subpart of the encyclopedic entry for the root or roots (Harley and Noyer, 1999: 4). For instance, the encyclopedic entry for the verb ‘*kick*’ as in the idiomatic expression ‘*Kick the bucket*’ will identify the meaning of this expression as ‘*die*’ whenever the verb ‘*kick*’ selects for the direct object “*the bucket*”.

Equally important are cases in which grammar generates sentences, albeit well-formed, that are at odds with our world’s knowledge. Consider, for instance, the verbs ‘*eat*’ and ‘*drink*’. The two assign theta roles to the same number of arguments. Therefore, their syntactic

⁶ See Embick and Halle (2005) for more details on this issue.

⁷ The Encyclopedia should be contrasted with the interpretive component LF because the latter is primarily concerned with meaning-related structural relations as quantifier scope.

structures may be assumed to be the same. For illustration, consider the following examples, adapted from Borer (2005: 7):

- (5)
- a. ??Kim drank (up) the steak.
 - b. ??Pat ate the water.

The peculiarity of these sentences stems directly from their discordance with our common knowledge, given that substances suitable for consumption typically pertain to liquids, whereas steaks belong to the category of solids. The same analysis applies to the verb ‘*drink*’. In MP, for instance, no principle in the grammar may render these sentences ungrammatical because the selectional features of the verbs above are satisfied. In this context, the issue of meaning and structural coercion appears to pose a challenge for theories that do not incorporate an adjunct conceptual system beyond grammar (Borer 2005; Gleitman 1990, amongst others).

3. Proposed VP Structure

The syntactic analysis adopted here argues for both a split-VP architecture and a VoiceP-Internal Subject Hypothesis *à la* Kratzer (1996). First, the VoiceP-Internal Subject Hypothesis is similar to the VP-Internal Subject Hypothesis (Koopman and Sportiche 1991) in that the subject is base-generated VP-internally where it receives its theta role. The sole difference, however, lies in the fact that the external argument of a verb is not an argument of the verb, but an argument of the VoiceP, merging in the [Spec, VoiceP]⁸. The basic reason for this state of affairs resides in the interpretation of idiomatic expressions, where verbs do not seem to receive special interpretations when combined with subjects, but this is not the case with objects. In fact, the verb does not impose any selection restrictions on the subject. Thus, idiomatic interpretation can be obtained only in the Verb+Object combination and this combination forms a predicate. The subject, then, is an argument of the whole predicate, and not solely of the verb. For concreteness, consider the following examples, from Marantz (1984):

⁸ See Marantz (1984), Harley (1995), and Kratzer (1996) for several arguments in favor of the fact that external arguments are not base-generated in the [Spec, VP].

(6)

- a. Kill a bug = Kill someone
- b. Kill a conversation = End the conversation
- c. Kill an evening = Spend an enjoyable or productive time in the evening.
- d. Kill a bottle = Finish an entire bottle of alcohol in one sitting
- e. Kill an audience = Entertain the audience to an extreme degree

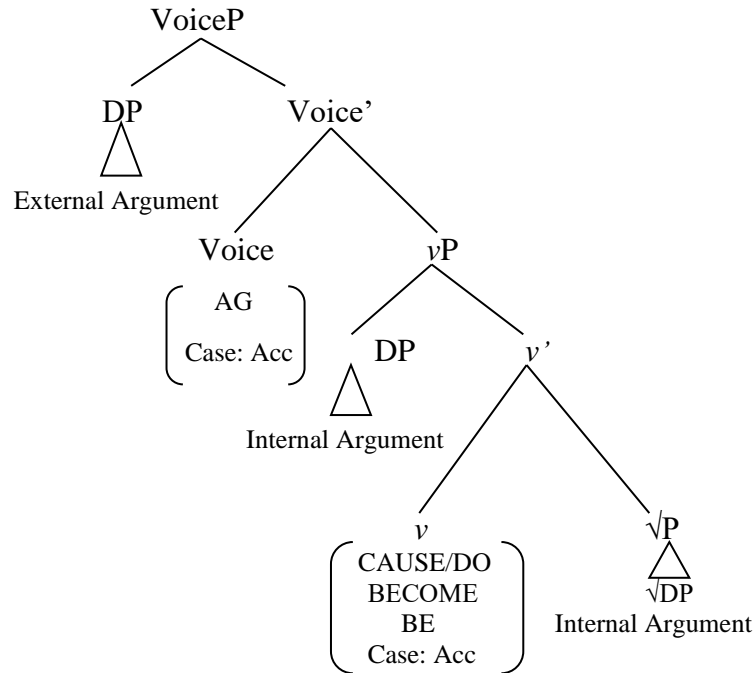
To account for this, two possibilities are conceivable, the first of which is to treat the different realizations of the verb ‘*kill*’ as homophonous, and the second is to argue that ‘*kill*’ has many semantic selection properties. Thus, a special reading is obtained when the verb is paired with a particular type of object (Kratzer 1996). For instance, if ‘*kill*’ is merged with the object that denotes an interval time, e.g., evening or morning, the ‘*waste*’ reading is chosen. In this light, the properties of the internal argument have a bearing on the interpretation of the verb, but no comparable semantic restrictions hold between the verb and the external argument (Marantz 1984; Kratzer 1996; Loutfi 2017, 2022).

Given these facts, Kratzer (1996) argues that to adequately capture these regularities, one should assume that the external argument is licensed by a separate head in the syntax, i.e., Voice. As a functional head, it should come as no surprise that it hosts several features. Of interest to the present purposes and the main hypothesis defended here, the agent or the doer, for that matter, of agentive/causatives and simple transitives in the language under investigation, appears in the specifier of VoiceP. Indeed, this functional head contains the syntactico-semantic feature [AG], a feature responsible for the agentivity/causativity interpretation, and the case feature, which checks the accusative case of the internal argument it immediately c-commands⁹. This head also selects as its complement the *v*P, which introduces the relevant event, stative, active, or inchoative. This is achieved by assuming that light *v* hosts syntactically encoded primitives. As assumed in the literature (Harley, 1995; Lin, 2004; Loutfi, 2014, 2017, 2022, to appear), these primitives are CAUSE, DO, BE, and BECOME, each expressing a specific type of event. As a head, light *v* takes a $\sqrt{\text{ROOT}}$ as its complement.

Note that the root in this context is not used as a descriptive generalization, as typically assumed in the literature on Semitic languages, but as a theoretical construct. As such, it is assumed to operate in both concatenative languages, of which English is an example, and non-concatenative languages. For concreteness, the structure above is the core structure proposed for transitives, causatives, passives, and unergatives in both MSA and MA:

⁹ This assumption straightforwardly accounts for double object constructions. MSA is a language that morphologically realizes the accusative case on its internal DPs. See Loutfi (2017, 2022) for an analysis.

(7)



As far as the VP layer is concerned, syntax distinguishes between three heads, notably Voice, light *v*, and the $\sqrt{\text{Root}}$, each of which has a specific function¹⁰. For the sake of clarity in our subsequent discussion, it is essential to emphasize that the theory under consideration rests upon the following assumptions and generalizations:

- a. Syntax is the only computational system responsible for word, phrase, and sentence information.
- b. Lexicon, as is customary in lexicalist theories, does not exist as such. Instead, its pertinent functions are dispersed across various linguistic components.
- c. The derivation begins with acategorical roots and morphosyntactic features. These roots acquire their grammatical properties by being c-commanded by an appropriate functional head, i.e., little *v*, *n*, or *a*.
- d. Voice is the locus of voice morphology. The different featural content of this functional head has an immediate bearing on the meaning and structural representations of each verbal construction. This head also has an interpretable case feature. This feature is checked only in double object constructions, in which there are two DP internal arguments. Another accusative case feature for objects is located under light *v*. What is of note about this type of feature is that it can go unchecked in constructions such as unergative and unaccusative sentences. Only the case feature on

¹⁰ Loutfi (2017) showed that the order of morphemes in MA and MSA directly follows the order of the syntactic structure in a fairly transparent way, as predicted by the Mirror Principle (Baker 1988). See Harley (2014) for similar results in Hiaki.

T and DPs is uninterpretable in this implementation. Thus, when unchecked/unvalued, the sentence is rendered ungrammatical.

- e. The meaning of a verb is constructed within the syntax and subsequently interpreted compositionally at the level of LF.

In addition, the meaning of the root is negotiated in the context of the relevant light *v*. Therefore, roots are classified differently according to their encyclopedic semantics. In this regard, Alexiadou, Anagnostopoulou, and Schäfer (2006) distinguish four different types of roots:

- a. $\sqrt{\text{agentive}}$ roots (murder, assassinate)
 - b. $\sqrt{\text{internally caused}}$ roots (blossom, wilt)
 - c. $\sqrt{\text{externally caused}}$ roots (destroy, kill)
 - d. $\sqrt{\text{cause unspecified}}$ roots (break, open).
- f. Light *v* head hosts syntactically encoded primitives. Each primitive introduces a specific type of event, hence its status as an event introducer. These primitives are as follows:
 - a. **CAUSE/DO**¹¹: These primitives introduce an activity and express, usually in the case of the primitive CAUSE, a causal relationship between the agent/causer/causing event and the resultant state. Thus, it introduces causative events. The primitive DO appears to be exclusively related to both unergative and causative constructions.
 - b. **BECOME**: This primitive introduces a change of state event and co-occurs only with change of state of predicates. It appears in constructions such as passives and anticausatives (inchoatives).
 - c. **BE**: This primitive introduces stative events.

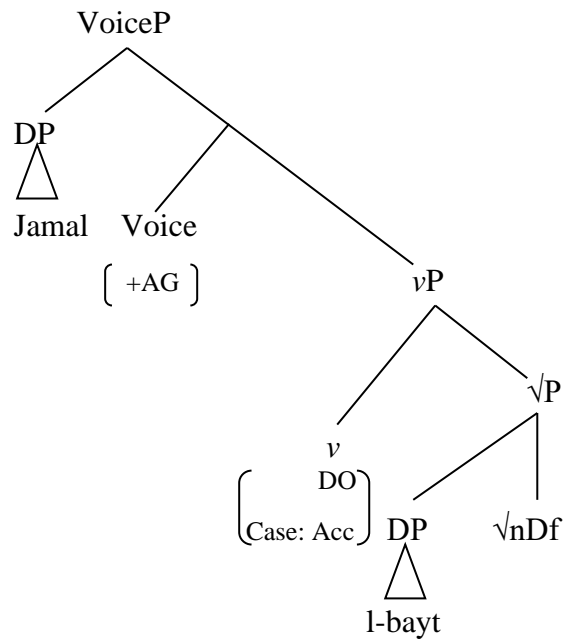
These primitives are assumed to be universal in all languages. What is noteworthy in these primitives is that they capture the range of the different verbal constructions in MA and MSA and, equally importantly, license particular events. The verbal root is assumed to be an event modifier because it introduces the idiosyncratic aspect of the verb's meaning. In this view, different positions have different meanings and result in syntactic ambiguity. The following example in MSA illustrates this point¹²:

- (8)
- a. naDDafa zamaal-u l-bayt-a
cleaned-3m Jamal-Nom the-house-Acc
“Jamal cleaned his house”

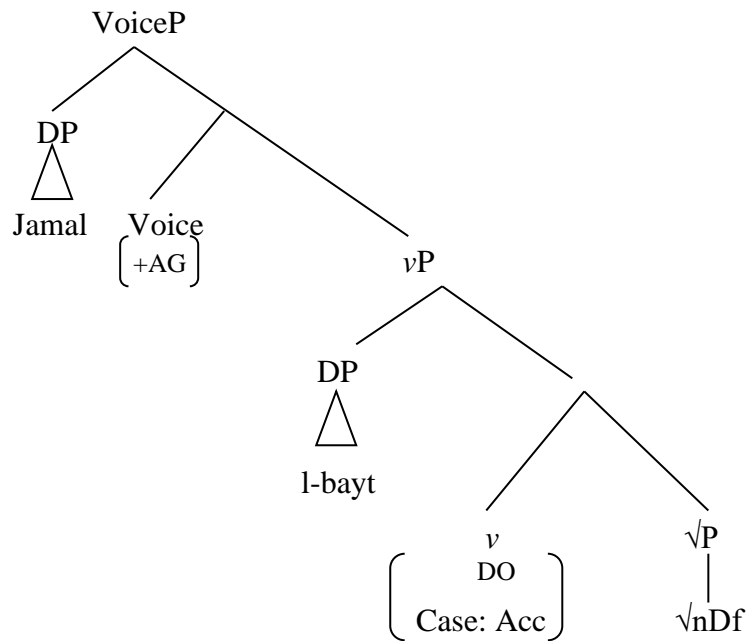
¹¹ An interesting possibility is to collapse the CAUSE and DO primitives into a single one, DO.

¹² IPA transcription is used, where emphatic consonants are denoted by the corresponding capital letter, and gemination is indicated by doubling the consonant.

b.



c.



In this sentence, two interpretations are possible. First, Jamal is involved in the cleaning of his house, and the result is that the house becomes clean. Second, Jamal is involved in the cleaning of his house, but the cleaning activity does not end in rendering the house clean; hence, a change in the intended state is not achieved. The first argument in the first interpretation is affected by the activity of cleaning, whereas in the second interpretation it is not. This can be captured straightforwardly if one assumes that the different interpretations result from different syntactic structures. The structure in (8-c) amounts to the first

interpretation, whereas the second interpretation is because the internal argument is not merged in the root projection. Using formal symbols, the two representations are as follows:

(9)

- a. $\exists e [\text{ARG}_{\text{ext}}(\text{Jamal})(e) \wedge \text{DO}([\text{activity cleaning}(\text{the house})])(e)]$.
- b. $\exists e [\text{ARG}_{\text{ext}}(\text{Jamal})(e) \wedge \text{AGR}_{\text{vP}}(\text{the house})(e) \wedge \text{DO}([\text{activity cleaning}]) (e)]$.

4. Deriving Verb Phrases

Transitive verb phrases entail the projection of two DPs within their verbal domain. The first DP typically represents an agent responsible for initiating the activity, while the second is construed as the DP undergoing the change, often termed the theme. As previously mentioned, the assignment of thematic roles to different argument structures is contingent upon their syntactic positions.

An external DP argument situated in [Spec, VoiceP] can be interpreted as either an agent or a causer. Conversely, the internal DP argument occurring in [Spec, vP] or [Spec, $\sqrt{\text{P}}$] is construed as the object undergoing a change of state. This characteristic is emblematic of unaccusatives and objects associated with transitive verbs.

In essence, the transitive version of the verb can be understood as "to cause/do V-intransitive." Functioning as two-place predicates, transitives encompass verbs that express activities, dynamic events, and causative constructions. Notably, verbs denoting activity include the following classes of roots found in both MA and MSA:

(10)

	<i>MA</i>		<i>MSA</i>	
fra	$\sqrt{\text{fra}}$	ftara	$\sqrt{\text{ftr}}$	‘to buy’
yərbal	$\sqrt{\text{yrbal}}$	yarbala	$\sqrt{\text{yrbal}}$	‘to sift’
frəb	$\sqrt{\text{frb}}$	fariba	$\sqrt{\text{frb}}$	‘to drink’
Sag	$\sqrt{\text{Sag}}$	qaada	$\sqrt{\text{qad}}$	‘to drive’
qtal	$\sqrt{\text{qtl}}$	qatala	$\sqrt{\text{qtl}}$	‘to kill’
qra	$\sqrt{\text{qra}}$	darasa	$\sqrt{\text{drs}}$	‘to study’
dfaʕ	$\sqrt{\text{dfʕ}}$	dafaʕa	$\sqrt{\text{dfʕ}}$	‘to push’

In Semitic languages in general and in Arabic in particular, a common core root appears in different environments (McCarthy 1979, 1981; Arad 2003). In this regard, different grammatical categories such as verbs, nouns, and adjectives, are formed on the basis of consonantal roots. Vowels are then inserted via morphological operations. However, the present study argues that some vowels are also part of the root. This is motivated by the

ungrammaticality of the sentence below, where the vowel /a/ in a form like ‘*mfa*’ is wrongly predicted to have a morphological value. This claim is not borne out, as is evidenced by the ungrammatical of (11-b):

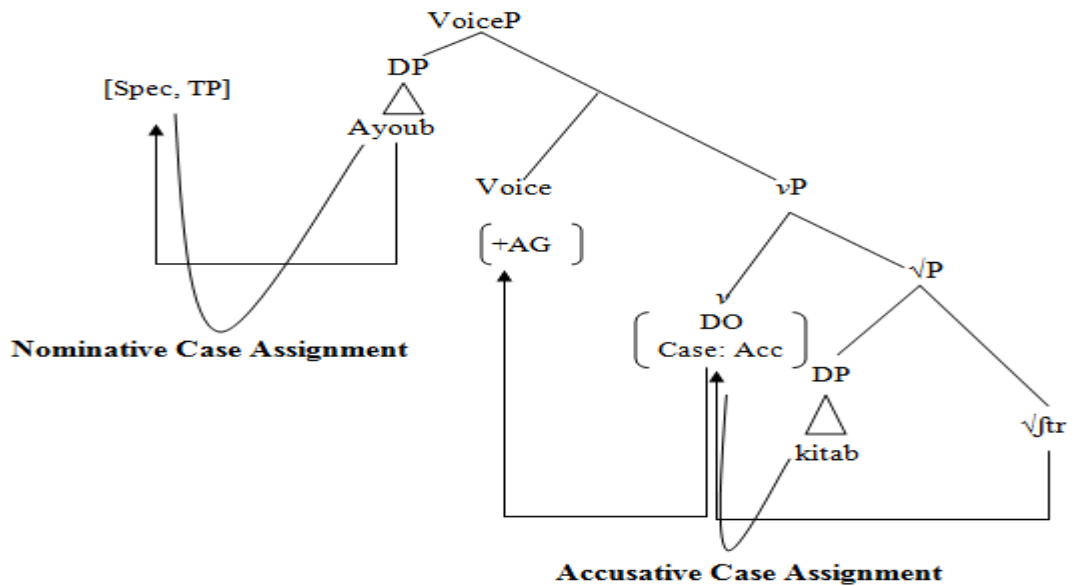
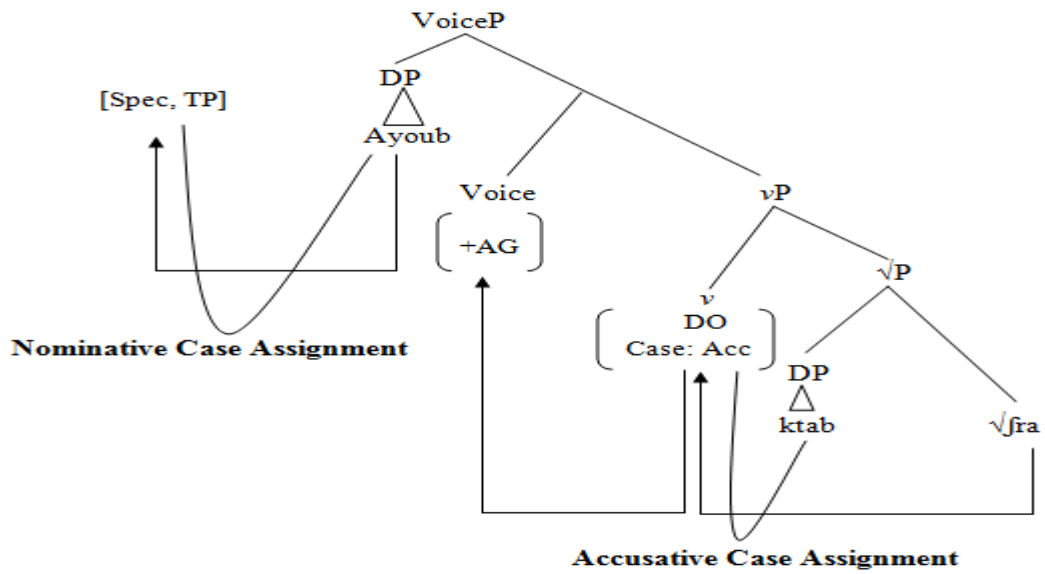
- (11)
- a. *ʒamal mfa*
Jamal gone-3ms
“Jamal has gone”
 - b. **ʒamal xraʒ-a*
Jamal went out-3ms

The ungrammaticality of sentence (11-b) is triggered by attaching the vowel /a/ to the stem. If we assume that the vowel is part of the inflectional morphology of the stem, the ungrammaticality of the sentence cannot be explained, and the word would be incorrectly predicted to be well-formed. Thus, the following sentences are illustrative of transitive verbs:

- (12)
- MA**
- a. *ʒra ʔayoub ktab.*
bought-3m Ayoub book
“Ayoub bought a book”
- MSA**
- b. *ʔi-ftaraa ʔayoub-u kitaab-an.*
bought-3m Ayoub-Nom book-Acc
“Ayoub bought a book”

The claim pursued here is that the verbal projection whose feature content is DO licenses events expressing activities and as such is compatible with roots that encode activities, the class of verbs in (10) being the case in question. The sentences (12-b-c) above can be roughly interpreted as an activity of buying, of which the DP ‘*Ayoub*’ is the agent. The phrase-structural representations of these sentences are as follows:

(13)



The formal representation of these sentences is as follows:

(14)

- a. $\exists e [\text{ARG}_{\text{ext}}(\text{Ayoub})(e) \wedge \text{DO}([\text{activity buying (a book)}])(e)].$

This representation formally captures Kartzer's implementation that the DP external argument is not an argument of the verb, but of the whole predicate. This is indicated by the label ARG_{ext} . In this view, the syntactic derivation of the two examples above proceeds from the following Numeration of the MSA sentence, which consists of a bundle of morphosyntactic features and a root:

(15)

{[_T +past, +NOM], [_{Asp} +Perfective], [_D +3rd Singular Masculine, u-Case], [_{Voice} +AG]
[_v DO, +ACC], [_D 3rd Singular, u-Case, √{tr}]}

The functional head *v* merges with the immediately *c*-commanded root √{tr}, with its DP internal argument merging within its projection. Acting as a category-free head, the root undergoes head movement to *v* to acquire its categorial feature, while obtaining the activity reading from the primitive DO located under *v*. This results in a syntactic complex adjunction structure with two terminal nodes [Root+*v* DO]. Subsequently, the resulting *v*P is merged with the functional head Voice, which introduces the DP external argument, which is known for introducing thematic roles such as agents, causers, or causing events.

In this view, the interpretation of thematic roles, particularly that of an agent, relies on being licensed by the functional head Voice, thus justifying the assignment of syntactico-semantic features such as AG, here valued as +AG. The internal argument is active by virtue of its u-case feature. At this stage, the light *v* serves as the highest head in the structure, remaining active owing to its unvalued \emptyset -features. It operates as a probe seeking an active local goal, locating 'l-ktab' within its *c*-command domain. This DP, 'l-ktab', features an unvalued case, subsequently valued as accusative.

The complex head [Root+*v* DO] undergoes head adjunction in a successive-cyclic fashion to Voice, where it acquires the agentive feature. This movement adheres to the Minimal Link Condition (MLC), ensuring a step-by-step derivation process as proposed by Chomsky (1995: 311).

K attracts α only if there is no β , β closer to K than α , such that K attracts β .

Upon the merger of T into the structure, it immediately assumes the role of a probe, leveraging its unvalued \emptyset -features. Functioning as such, T initiates a search for a local Goal and identifies the DP 'Ayoub' within its immediate domain, activated by its unvalued case feature. An Agree relation ensues, leading to the valuation of the unvalued \emptyset -features on T, consequently assigning the u-case feature on 'Ayoub' as nominative.

(17)

<i>MA</i>			<i>MSA</i>		
ʃtaḥ	√ʃth	‘to open’	rakaDa	√rkD	‘to run’
lʃab	√lʃb	‘to play’	ʒalasa	√ʒls	‘to sit’
Dḥak	√Dḥk	‘to laugh’	bakaa	√bka	‘to cry’
nʃas	√nʃs	‘to sleep’	waqafa	√wqf	‘to stand’
mʃa	√mʃa	‘to leave’	Daḥika	√Dḥk	‘to laugh’
glas	√gls	‘to sit’	sabaḥa	√sbḥ	‘to swim’
təxlaʃ	√txlʃ	‘to panic’	Saraxa	√Srx	‘to scream’

Illustrative sentences representing unergative verbs are as follows:

(18)

- MA*
- a. ʒamal mʃa l-məDraSa
Jamal went-3ms to-school
“Jamal went to the school”
- MSA*
- b. Daḥika xaalid-u
laughed-3ms Khalid-Nom
“Khalid laughed”

Intuitively, the two sentences can be understood as depicting an event of laughing in (18-b) and walking in (18-a), with 'Khalid' and 'Jamal' identified as the agents. Consequently, they are posited to project a VoiceP structure, wherein the external argument is licensed and selects a vP complement, whose primitive is DO. The formal representations of the sentences are as follows:

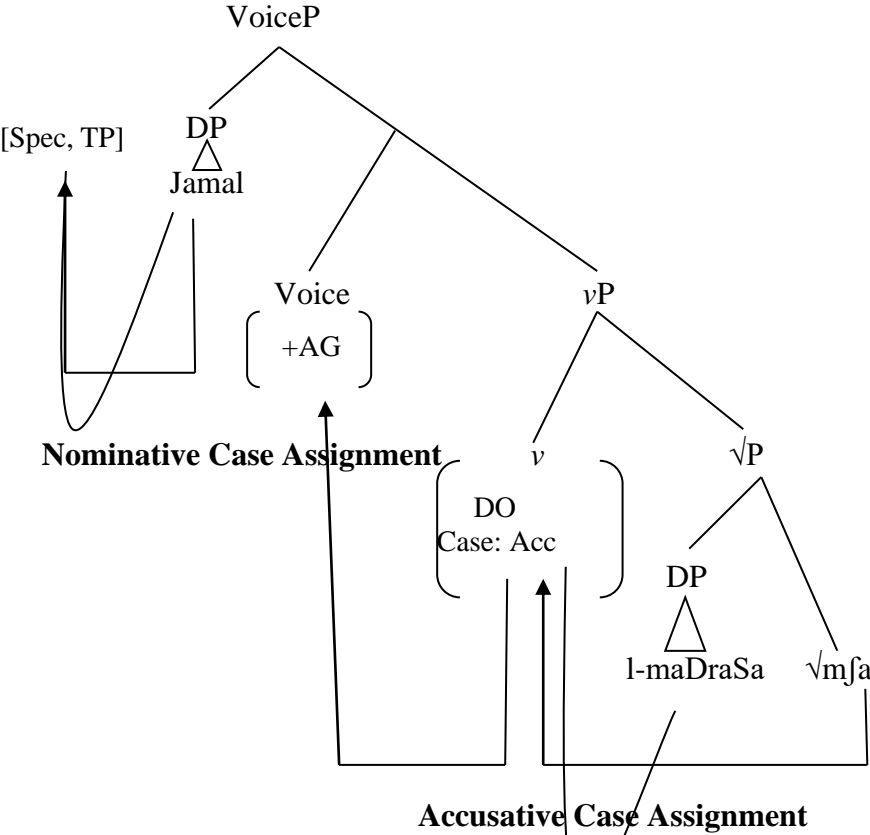
(19)

- a. $\exists e$ [ARG_{ext} (Jamal) (e) \wedge DO ([activity walking]) (e)].
- b. $\exists e$ [ARG_{ext} (Khalid) (e) \wedge DO ([activity laughing (the lesson)]) (e)].

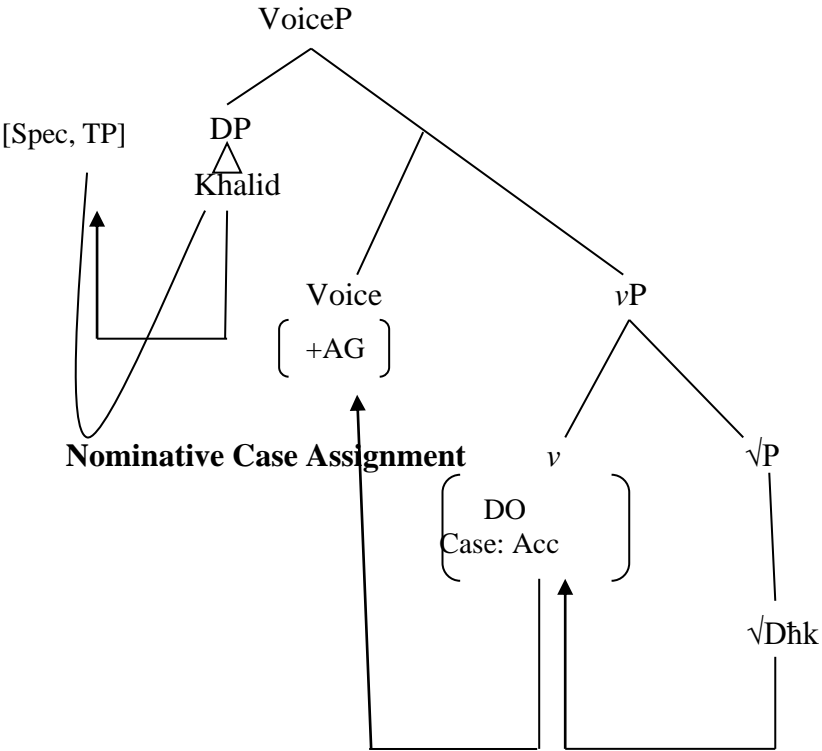
Their corresponding syntactic representations are as follows:

(20)

a.

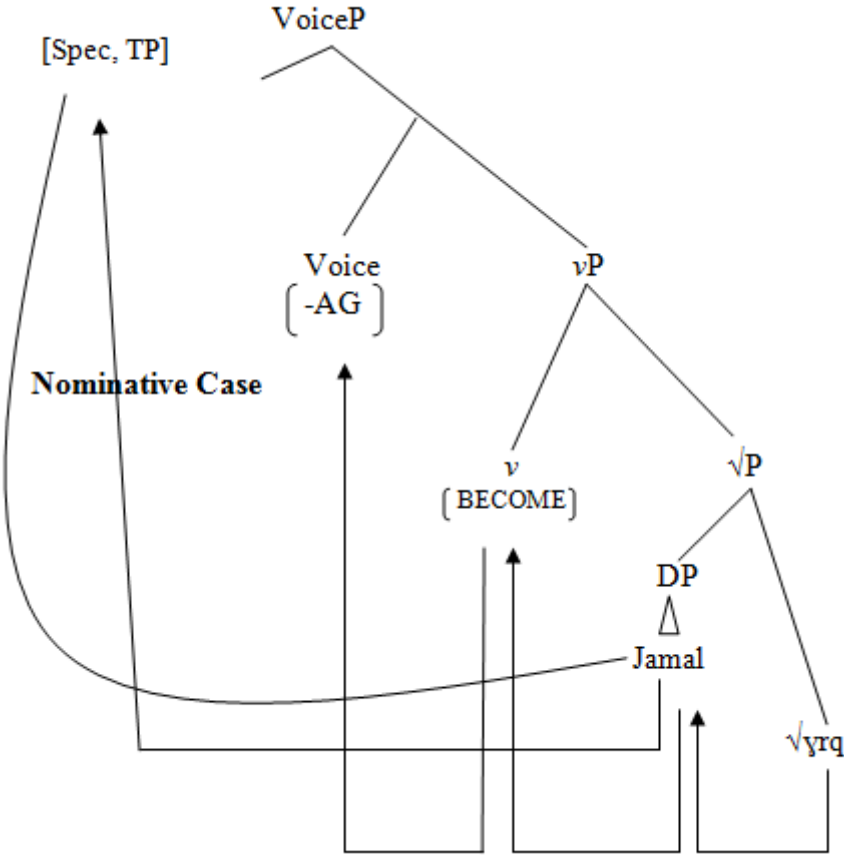


b.



A structural distinction should be made between intransitive verbs that involve a volitional agent initiating the action (unergatives) and verbs where the DP argument does not serve as the initiator of the action, as exemplified by 'yariqa' meaning 'drown' or 'za?a' meaning 'come'. According to Ramchand (2008), the former class of verbs is characterized by the fact that their volitional agents possess intentions and desires that prompt them to instigate dynamic events. In line with this proposal, the sentence in (21-a) below is represented structurally as follows, with the DP argument merged within the root projection:

- (21)
 a. yariqa zamal-u
 drowned-3ms Jamal-Nom
 “Jamal drowned”
 b.



As structure (21-b) suggests, non-volitional predicates differ from volitional ones in terms of two basic characteristics. First, the sole DP argument in the former class is merged in [Spec, VoiceP]. This accounts for why the external argument is interpreted as an agent/initiator of the action. For the latter class, where the DP argument is not directly involved in the instigation of the action, it is merged within the root projection. This gives the natural

interpretation that this argument is directly affected by the activity being described. For another, the syntactico-semantic feature AG is valued as [-AG], and the primitive that heads the functional head v is BECOME. Note also that the negative value of the [AG] feature precludes the agent argument from being projected in such constructions. This accounts for the ungrammaticality of sentence (22-b):

(22)

- a. The letter arrived.
- b. *John arrived the letter

With this picture in mind, a technical problem arises. As stated at the outset, this study assumes a phase-based approach to syntactic computation. Thus, the DP internal argument merged within the root projection is assumed to move to an upper position where it checks the strong EPP feature on T and thus derives the correct word order. This issue would seem puzzling if we assume that all movement operations are feature-driven and the PIC constraint:

(23)

Phase Impenetrability Condition (PIC):

In phase a with head H , the domain of H is not accessible to operations outside a , only H and its edge are accessible to such operations.

(Chomsky 2000: 108)

In compliance with PIC, sentence (21) above will be incorrectly ruled out, as there is nothing that would trigger the movement operation. This is motivated by the fact that the TP layer has not yet been formed. We assume with no further stipulation that the internal argument uses the edge of VoiceP as an escape hatch, as in Chomsky (2001, 2004).

5. Conclusion

The locus of interest of the present paper is to provide a unified morphosyntactic treatment for the verbal systems of both MSA and MA, which is explored within the framework of two contemporary generative linguistic theories: The Minimalist Program (Chomsky 1993, 1995, 2000, 2001, 2004, and subsequent works) and Distributed Morphology (Halle and Marantz 1993, 1994; Harley 1995; Marantz 1997, 2000, amongst others). The central focus of this study has been the persistent issue of argument structure. It is contended that thematic roles find their syntactic realization through encoded primitives such as CAUSE/DO, BECOME, and BE. A significant implication of the adopted grammatical framework is the reduction of various verbal constructions, including transitives, unaccusatives, and unergatives, to the featural content of the main functional heads voice and light v . This supports the notion of a

grammar that operates without the need for a generative lexicon. Furthermore, this organizational approach aligns with Chomsky's assertion that grammar should be constructed with "no machinery beyond what is needed" (Chomsky 2000: 112-113). Thus, this study not only advances our understanding of Arabic verbal systems but also contributes to the broader discourse on the optimal computational design of human language.

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