

The VP Structure and the Syntax-Lexicon Interface in Arabic

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Abstract

In this paper, I argue in favor of the view that a generative lexicon, as advanced in lexicalist theories, might not be needed to derive verbal's argument structure. Instead, I support the hypothesis that verbs' meaning emerges as a result of the syntactic structure in which they are merged and that the role of lexical items/roots reduces to their idiosyncratic encyclopedic content. These two assumptions are executed via adopting the proposal that splits the traditional VP structure into two main functional heads, namely VoiceP and vP, and via endorsing the architectural assumptions advanced in the framework of Distributed Morphology. The main empirical support to this claim comes from verbs that appear in syntactic structures that are not in consonance with their semantic-conceptual content, Arabic varieties that lost their vocalic melodies that otherwise encode thematic roles, and spray-load alternation. This paper concludes by exploring language-particular processes whose non-applicability goes beyond morphology, the analysis of which supports the role of the Encyclopedia.

Keywords: VP Structure; Minimalist Program; Distributed Morphology; Argument Structure; Standard Arabic; Moroccan Arabic; Unaccusative/Unergative Verbs; Roots; Encyclopedia.

1. Introduction

It has so often been observed that the gamut of a sentence revolves around the main verb. Each verb seems to require and demand a specific number of (verbal) arguments to be projected. In order to capture these properties and formalize them within a specific framework of analysis, two major competing theories have emerged. These are commonly referred to in the literature as the Projectionist/Lexicalist approach and the Constructionist/Syntactic approach. The former holds the view that the argument structure of a verb is determined on the basis of the verb's lexical meaning. In other words, it is the verb's lexical semantics that projects its syntactic structure. As such, a component, independent of syntax, is needed to encode such a property. This specialized component has been referred to as the lexicon. The lexicon is viewed as a generative component wherein morphology and the basic aspects of the argument structure are encoded. To establish a link between the lexicon and syntax, these approaches deploy the mechanisms that as varied as lexical entries, thematic roles, thematic hierarchies, proto-roles (Dowty, 1991), feature decomposition (Reinhart, 2002), and predicate decomposition (Dowty, 1979; Jackendoff, 1990; Pustejovsky, 2005; Levin & Rappaport Hovav, 1995, 1998), to mention but a few. One common denominator is that all these works require a linking system of some sort, as both syntax and the lexicon fall back on different sets of vocabulary and adhere to different sets of primitives and operations (Ramchand, 2008).

More recently, however, a new wave of interest has emerged, its main locus of interest being that verb meaning is encoded in the syntax proper. Accordingly, the widely assumed

primitive predicates that are responsible for compositionality and verb's event structure are now mediated by functional heads and abstract features. This line of research is commonly referred to as the constructionist/syntactic approach (Hale & Keyser, 1993; Harley, 1995; Von Stechow, 1996; Ritter & Rosen, 1998; Travis, 2000; Ramchand, 2008; Borer, 2005; Marantz, 1997; Harley, 1995, amongst others). In the framework of Distributed Morphology (DM), for example, the lexicon has been reduced to a storage house of roots, which are acategorical elements, and category-defining functional heads (Halle & Marantz, 1993, 1994; Marantz, 1997). Once selected, roots combine through the operation Merge with functional heads, the latter being responsible for, *inter alia*, assigning their label category, be it a verb, or a noun. Of interest to the present purposes is that if the generative lexicon is non-existent, the issue one should raise is how to capture the observed relationship between a verb's syntactic structure and its lexical-semantic representation (Grimshaw, 1990; Levin & Rappaport Hovav, 1995).

On this basis, the present paper attempts to contribute to this ongoing debate regarding the necessity of speculating a generative lexicon or that syntax is sufficient to absorb its properties. In particular, I show that there are basically four empirical arguments that defend the syntactic hypothesis: (1) verbs that appear in syntactic structures that are not in consonance with their semantic-conceptual content, (2) Arabic varieties that have lost their vocalic melodies that otherwise encode thematic roles and (3) unaccusative verbs that, unlike unergative ones, are unable to select a PP complement, and (4) spray-load alternation. The data presented here are drawn mainly from Standard Arabic (SA) and Moroccan Arabic (MA)¹.

This paper is organized as follows. Section 2 presents empirically challenging data to the Projectionist/Lexicalist approaches to verbal argument structure. Section 3 puts forward \ the enriched VP structure and the ontology of roots this study supports. Section 4, 5, and 6 show how the proposed split VP structure accounts for intransitives, spray-load alternation, and passive and anticausatives. Section 7 provides support to the ontology of roots presented in section 3, and this could be accounted for in the Encyclopedia. Section 8 concludes.

2. Empirically Challenging Data

As stated above, lexicalist approaches vividly assume that the syntactic behavior of verbs and the interpretation of their arguments are largely determined by the meanings of verbs (Levin & Rappaport Hovav, 1995, 1998; Grimshaw, 1990). However, some verbs are characterized by apparent flexibility. For instance, the verbs '*walk*' and '*keep*' in (1-2) seem to appear in a variety of contexts with apparently differing meanings or different event structures for that matter².

- (1)
a. John walks (every day).

¹ Unless otherwise indicated, this study draws the MA data from the urban variety spoken in Rabat-Sale (Coastal East, Central), a variety of which I am a native speaker.

² To model this behavior in some lexicalist theories, the different instantiations of the verbs '*walk*' and '*keep*' are accounted for if the lexicon contains separate lexical entries. See Borer (2005), Ramchand (2008), and Marantz (2013) for a discussion along these lines.

- b. John walks his dog (every day).
- c. John walked his way to slimmer self (this year).
- d. John walked his shoes ragged.

(from Marantz, 2013)

(2)

- a. Harry kept the dog in the cage.
- b. Susan kept the money.
- c. Sam kept the crowd happy.
- d. Let's keep the trip on a Saturday.

(from Jackendoff, 1996)

The different interpretations associated with a single verb, as the examples in (1-2) show, questions the validity of the thesis that verbs' meaning is responsible for the semantic interpretation of the structures. These examples also show that a verb's syntactic behavior cannot always be constrained by lexical entries. On the face of this, there are basically two ways to account for a verb's flexibility in the lexicon. The first analysis is to suggest that the argument-selecting behavior of verbs is a variable (Siddiqi, 2006: 70), which also suggests making the linking rules flexible, as assumed in Dowty (1990). Hence, the verb's flexibility can be straightforwardly accounted for.

Note, however, that there are a handful of verbs whose selectional properties are not as flexible as the examples in (1-2) above may suggest. Examples in (3) below, for example, demonstrate a class of verbs whose syntactic frames seem to be rigid. By way of illustration, the unergative verb '*smile*' in (3-a) merges solely with an agent, with no object. Conversely, the unaccusative verb '*arrive*' merges only with an object. Appearing in another environment thus render them ungrammatical.

(3)

- a. *John smiled the girl.
- b. *I put on the table.
- c. *I put the book.
- d. *The postman arrived the letters.
- e. Jamal gave Sofia a present
- f. Jamal gave a present to Sofia
- g. Karim whispered a secret to Jamal
- h. *Karim whispered Jamal a secret
- i. *John smiled the girl
- j. *The postman arrived the letters

Interestingly, the verbs '*put*' and '*whisper*', albeit classified as ditransitive verbs, dative alternation seems to be a property of the verb '*put*', but not '*whisper*'. This is another piece of

evidence that syntactic frames³ are not always as rigid or flexible as suggested. Furthermore, classifying arguments as to the semantic role they play in a situation described by the predicate does not seem to be a feasible program. There is a class of DPs, bolded in (4), that cannot readily fall into the pre-defined theta-roles, hence hard to characterize semantically⁴ (Levin, 1999)⁵.

- (4)
- a. ta-xayyal-a zamaal-un **bayta-hu**
imagined-3m Jamal-NOM house-ACC-his
'Jamal imagined his house'
 - b. ta-zaahal-a Zayd-un **l-bint-a**
ignored-3m Zayd-Nom the-girl-ACC
'Zayd ignored the girl'
 - c. haarab-a Zayd-un **l-ʕaduww-a**
fought-3m Zayd-NOM the-enemy-ACC
'Zayd fought the enemy'
 - d. ʔiltaq-aa Zayd-un **l-waziir-a**
met-3m Zayd-NOM the-minister-ACC
'Zayd met the minister'

Based on these facts, Dowty (1991) questions the validity of the theta theory. According to Dowty, there are only two (syntactically) relevant 'proto-roles: Proto-agent and Proto-patient⁶. Each of these proto-rules is associated with a number of semantically-relevant properties:

- (5)
- Proto-Agent:**
- a. Volitional involvement in the event or state
 - b. Sentience (and/or perception)
 - c. Causing an event or change of state in another participant
 - d. Movement (relative to the position of another participant)
 - e. Exists independently of the event named by the verb

³ Although the term frame is used in Åfarli (2007) in the sense of a template, which suggests, though by no means necessary, that these are pre-determined, hence their status as primitive objects, in this paper, however, frames are seen as being the outcome of the computational system. See Åfarli (2007), Borer (2005), and Bowers (1993) for a different conception of frames. Treating templates as either primitive objects or as derived elements is a purely empirical endeavor, a state of affairs about which I remain neutral at this point.

⁴ As El Abbas Benmamoun (personal communication) pointed out to me, these thematic relations may be captured using Van Valin's (1999) Generalized Semantic Roles. These are generalizations across thematic relations. For instance, the Actor is a generalization across agent, experiencer, instrument, and other roles, while the Undergoer is a generalization subsuming patient, theme, recipient, and other roles (Van Valin, 1999: 374).

⁵ Transcription and abbreviations: The IPA transcription is used. Emphatic consonants are represented using a capital letter. Gemination is transcribed by doubling the consonant. The following abbreviations are used: 1/2/3= First/Second/Third Person; ACC=accusative case; f=feminine; GEN=Genitive Case; m=male; MA=Moroccan Arabic; NEG=negation; NOM=nominative case; PASS=Passive; PF=Phonetic Form; SA=Standard Arabic

⁶ This is similar to Foley & Van Valin's (1984) macro-roles: Actor and Undergoer.

Proto-Patient:

- a. Undergoes change of state
- b. Incremental theme
- c. Causally affected by another participant
- d. Stationary relative to the movement of another participant
- e. Does not exist independently of the verb

The selection of each role is governed by the *Argument Selection Principle*, defined in (6), which states that the arguments of a verb are selected by the number of the semantic properties suggested in (5) above. For instance, an argument that satisfies the greatest number of semantic properties associated with the proto-agent is selected as a subject.

(6) Argument Selection Principle (Dowty 1991)

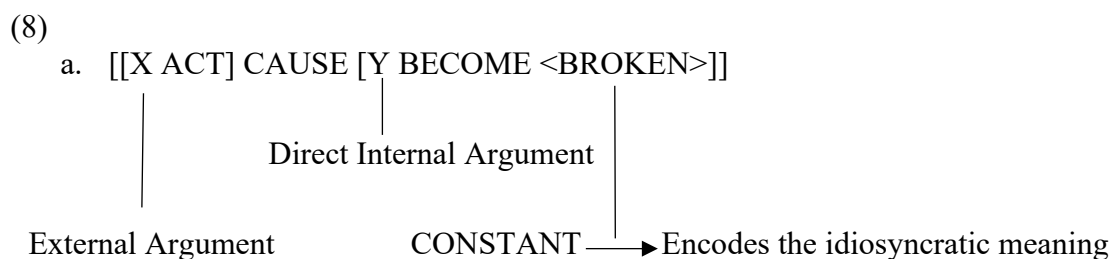
The argument of a predicate having the greatest number of Proto-agent properties entailed by the meaning of the predicate will, all else being equal, be lexicalized as the subject of the predicate; the argument having the greatest number of Proto-patient properties will, all else being equal, be lexicalized as the direct object of the predicate.

An alternative approach to the theta theory is the one grounded within the theory of lexical semantics. This theory contends that the meaning of verbs needs to be decomposed in the lexicon via primitive predicates that designate the verb's event structure (see Levin & Rappaport Hovav, 1995, 1998; Levin, 1999). The major claim defended in this theory is that the properties of verbs emerge when both the semantic and syntactic properties are assumed. That is, verbs' behavior is not only semantically determined but also syntactically represented (Levin & Rappaport Hovav, 1995: 21). In the lexicon, therefore, each verb is assumed to be associated with two lexical representations, the first of which is the lexical-semantic representation, and the second is a lexical syntactic representation. The former, on the one hand, also referred to as the *Conceptual Structure* (Jackendoff, 1983) and *Lexical Conceptual Structure* (Hale & Keyser, 1993), encodes the verb's semantic properties that are relevant to the syntax. This includes the identification of the different arguments of the verb, namely whether a given argument is internal (also includes a distinction between direct or indirect internal arguments) or external (see for example Williams, 1981). By way of illustration, the ditransitive (triadic) verb 'put' has the following argument structure:

(7) $e, x <_y, P_{loc} z >$

The variable x , in the case here outside the brackets, corresponds to the external argument⁷, whereas the variables inside the brackets express the internal arguments of the verb. As indicated, the precedence relation here suggests that the variable y is the direct internal argument, while z is the indirect one. The P_{loc} is taken to be the theta-role assigner of the argument z . Finally, e is the event. This has been the tradition assumed following Davidson (1967). This semantic decomposition coupled with the *Projection Principle* and *Theta criterion* ensures that the verb ‘*put*’ is syntactically represented as such⁸.

The latter, on the other hand, is the familiar argument structure of the verb (see for additional discussion in Levin & Rappaport Hovav, 1995). The decomposed lexical-semantic representation, then, is mapped onto syntax, thus deriving the verb’s syntactic behavior. To illustrate with a pertinent example, the agentive causative verb ‘*break*’ can be lexically and semantically decomposed as depicted in (8). This decomposition can be read as ‘*the action of X causes Y to become broken*’.



As shown in (8), the verb’s meaning is stated in terms of a fixed set of primitive predicates. Semantic roles are identified on the basis of the argument positions associated with these predicates. Additionally, the lexical-semantic representation assumes two basic primitives: primitive predicates and constants. On this conception of facts, the burden of argument licensing falls on atomic predicates such as CAUSE, BECOME, ACT, GO, etc. (Jackendoff, 1990; Levin & Rappaport Hovav, 1995, amongst others). To illustrate, the predicate decomposition of the anticausative version of the verb ‘*break*’ is as follows:

- (9)
- a. The window broke.
 - b. Anticausative break: $[y \text{ BECOME BROKEN}]$

⁷ In generative grammar, the representation of the external argument has usually been peculiar to the other arguments of the verb. For instance, Williams (1981) argues that external arguments must be underlined. In the case at hand, it is represented as occurring outside the brackets. This amounts to saying that in the syntax this argument is expressed external to the VP (see Koopman & Sportiche, 1991). I discuss this issue in more detail in section 3.1.

⁸ See Grimshaw (1990) for a different view, according to which argument structure and D-structure may not be the same.

(8) and (9-b) represent the lexical-semantic representation of the verb ‘*break*’. More precisely, they refer to a lexical semantic template. BECOME is the primitive while BREAK is the constant that expresses the state of an element is broken. In this approach, the semantic relation holding between a verb and its arguments is defined with respect to the subcomponents in the decomposition; thus, verbs of the same semantic type share substructures in their decompositions. For instance, all change of state verbs have the primitive BECOME in their substructures. Constants are elements representing entities in the world, distinguishing at the same time verbs of the same semantic types.

However, the assumption that the realization of the syntactic structure of a verb is projected from the lexical-semantic properties of the verbal predicate is far from being without glaring shortcomings. For instance, there is a class of verbs that appear in syntactic configurations that are not in consonance with their lexical or conceptual content. As discussed in Åfarli (2007)⁹, the Norwegian verb ‘*danse*’ appears in syntactic environments not predicated in its semantic-conceptual content. In particular, the verb ‘*dance*’ semantically implies one semantic role, i.e. the person performing the activity of dancing. As such, the lexical-semantic representation of the verb would expect the verb to project an intransitive structure, as in (10) below. As shown in (11), however, the verb appears in a variety of syntactic structures that are in no way compatible with its semantic-conceptual content.

- (10) Per dansa.
‘Per danced’

- (11) ***Transitive Frame***
a. Per dansa ein vals
‘Per dansa a waltz’
b. Per dansa Marit (som Marit aldri er blitt dansa før)
‘Per danced Marit (like Marit had never been danced before)’

Ditransitive Frame

- c. Per dansa Marit ein vals
Per dance Marit a waltz
‘Per danced a waltz for Marit’

⁹ Another piece of evidence Åfarli (2007) presented is proper names that function as a verb, as the following example illustrates:

(i) How to Russell a Frege-Church

To account for such data in lexicalist approaches, one is forced to provide all proper names with a double specification, a specification suggesting the possibility that such lexical items might appear in verbal constructions. In a theory that assumes the existence of frames, as in Åfarli’s (2007) system, however, such a possibility is expected rather than stipulated elsewhere.

Resultative Frame

- d. Per dansa valsen I ryggen på Ola
Per danced waltz-the in back-the on Ola
'Per danced the waltz into Ola's back'

Ditransitive-Resultative Frame

- e. Per dansa Ola valsen I ryggen.
Per danced Ola waltz-the in back-the
'Per danced the waltz into Ola's back'

(from Áfarli, 2007)

Another piece of evidence comes from the distribution of some intransitive verbs in SA. By way of illustration, the verb *ʒaaʔ* 'to come/to arrive' in SA is a one-place predicate requiring one participant in the event it denotes. This explains the ungrammaticality of (13) when the verb is merged in an agentive/causative construction.

(12)

- a. ʒaaʔ-a ʔaħmad-un
came-3ms Ahmad-NOM
'Ahmad came'
b. ʒaaʔ-a l-qiTaar-u
arrived-3ms the-train-NOM
'The train arrived'

This verb is a typical example of verbs that do not alternate in SA, in that it appears in none of the strategies of forming causativization in SA¹⁰.

(13)

- a. *ʒaaʔ-a ʔaħmad-un FaaTima-ta
came-3ms Ahmad-NOM Fatima-ACC
b. *ʒaʔal-a ʔaħmad-un ʕaliyy-an ya-ʒiiʔ-u
made-3ms Ahmad-NOM Ali-ACC come-3ms
c. *ʒaaʔ-a l-qiTaar-u n-naas-a
arrived-3ms the-train-NOM the-people
'*The train arrived the people'
d. *ʒaʔal-a l-qiTaar-u n-naas-a ya-ʒiiʔ-uu-na
made-3ms the-train-NOM the-people come-3p

However, the causative interpretation is achieved only when the verb *ʒaaʔ-a* selects a PP as its complement. In (14), for instance, the sentence expresses a causative event in which the Agent is 'ʔaħmad', and the patient is the complement of the PP, i.e. the DP 'ʕaliyy'.

- (14) ʒaaʔ-a ʔaħmad-un bi ʕaliyy-in
came-3ms Ahmad-NOM with Ali-OBL
'Ahmad made Ali come'

¹⁰ See Loutfi (2017, 2020 a,b) for the different strategies forming causatives in SA.

The Norwegian verb ‘*danse*’ and the verb *ʒaaʔ-a* in SA suggest that syntactic structures are generated independently of the verb’s inherent meaning. This mismatch between a verb’s meaning and the syntactic configurations it appears in poses an empirical challenge to theories assuming lexical semantics, such as the one surveyed above. Last but not least, the construction-based approach is strengthened by the fact that vocalic melodies in SA encode thematic roles. It is a well-established fact that Arabic verbs are structured around a discontinuous root consisting of consonants and vowels. Interestingly in this regard, Bahloul (2008) argues that each vowel in SA verbs carries its own semantic features. For Bahloul, the first vowel in the perfective forms in (15) encodes the aspect-tense properties. The second vowel describes the verb’s valance. As shown in (15), the vowel /a/ appears with transitive verbs (15-a), /u/ appears with passive verbs (15-b), and /i/ occurs with psychological predicates (15-c).

- (15)
- | | | |
|----|---------------|-------------------|
| a. | Da Rab | ‘to hit’ |
| | kassar | ‘to break’ |
| | katab | ‘to write’ |
| b. | kab ur | ‘to become big’ |
| | qa Sur | ‘to become short’ |
| | kar um | ‘to be noble’ |
| c. | fari h | ‘to become happy’ |
| | Dah ik | ‘to laugh’ |
| | kari h | ‘to hate’ |

Finally, the vowel that always appears as a suffix is considered to be an agreement morpheme (see Benmamoun, 2000 for a similar view). This is illustrated in the following examples:

- (16)
- | | | |
|----|-------------------|-------------|
| a. | katab- a | wrote-3ms |
| b. | katab- uu | wrote-3pm |
| c. | katab- naa | wrote-1pm/f |

On this analysis, then, thematic rules are associated with vowels. However, this assumption is not borne out, for the evident reason that in MA these stem vowels are not part of the stem. This is evident when we compare the same class of verbs in SA and MA.

(17)

<i>SA</i>	<i>MA</i>	
katab	ktəb	‘to write’
xaraʒ	xrəʒ	‘to go out’
Raħal	Rħəl	‘to move out’
harab	hRəb	‘to run away’
ʃarib	ʃRəb	‘to drink’

In all the MA verbs, the vowels encoding thematic relations, namely /a...a/, are absent. If one assumes that vowels encode such a semantic property, this would entail that their absence affects the argument structure of the verb, contrary to fact. This is another supporting piece of evidence that verbs may acquire their thematic relation from the syntactic structure in which they are embedded.

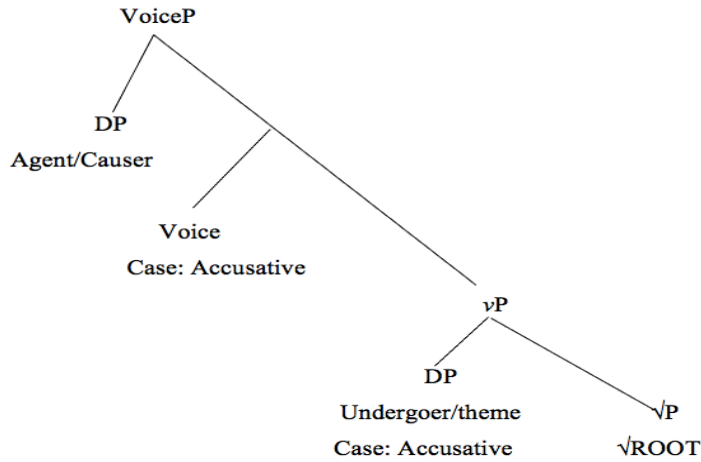
Summarizing thus far, this paper has presented evidence such as verb’s flexibility (or its lack thereof), verbs appearing in constructions that are not in consonance with their lexical conceptual semantics, and the lack of stem vowels encoding thematic roles in MA to argue against lexicalist approaches to verbal argument structure. The obvious question that arises at this conjecture is the role that the verb’s lexical semantics play in defining the conceptual meaning in the sentence. If one assumes that the verb’s argument structure is determined in the syntax, the prediction would be that verb’s conceptual content plays no role. If one assumes a rigid syntactic approach, where verb’s meaning is primarily dictated by the syntactic configuration/frame in which it appears, verb’s flexibility straightforwardly follows (see Marantz, 1997, 2001 and Borer, 2005 for this view). That is, this assumption makes verbs compatible with a variety, if not all, of syntactic frames. However, there is no denying the fact that verbs encode some semantic-conceptual and encyclopedic meanings that seem to affect the argument structures in which they appear (see section 7 on this). The challenge is how to account for these regularities circumventing the problems discussed above.

In fact, the approach with which this paper aligns itself attempts to reconcile these observations. As stated earlier, the approach adopted in this paper is referred to as the *Constructionist Approach* (with variants), with the core assumption being that the gamut of verb’s meaning is built in syntax and is reflected in the different syntactic structures for each type of verbs, the focus of the section that immediately follows.

3. Motivating the Proposed VP Structure

In this paper, the core functional structure that this paper is empirically supporting is the one in (18) below:

(18) Core Functional Structure



This syntactic structure consists of three basic heads, namely Voice, light v , and $\sqrt{\text{Root}}$ ¹¹. As supported in this paper, these heads are the building blocks of verbal meaning and word formation in Arabic (see Loutfi (2017) for a detailed study on this). Assuming a *Constructionist Approach*, arguments, both internal and external, are severed from the verb. Before proceeding to the analysis, it is deemed convenient to provide a background discussion on these three heads so as to delineate their basic functions and the debate that surrounds each.

3.1. The Voice Head and Flavors of v

The basic motivation for positing Voice as a head comes from insights first proposed in Marantz (1981) and Kratzer (1993), with the basic assumption being that external arguments are not licensed by the verb *per se*. Instead, they are licensed by the predicate VP. This stems from the fact that there is an asymmetry between the combination that holds between the subject and the verb and the combination that holds between the direct object and the verb. While the object-verb combination seems to trigger special interpretation, no comparable semantic effects exist in the subject-verb combination. For example, idiomatic interpretation is usually obtained when the verb combines with an object. For concreteness, consider the following examples:

¹¹ As discussed in detail in Acquaviva (2009) and Harley (2014), the status of $\sqrt{\text{Root}}$ as a head is hard to maintain, given that $\sqrt{\text{Root}}$ projects no category information; as such, there is no way roots can serve as syntactic labels, capable of licensing theta-roles (see also Alexiadou & Lohndal, 2013). Whether $\sqrt{\text{Root}}$ is computed as a pure syntactic head or as a modifier of their categorizer is, in essence, an empirical issue (see Harley, 2005, 2014), Acquaviva (2009), Embick (2010), van Craenenbroeck & De Belder (2015), Lohndal (2014), and Alexiadou *et al.* (2015). See section 3.2.

(19)

Kill a bug	=	cause the bug to croak
Kill a conversation	=	cause the conversation to end
Kill an evening	=	while away the time span of the evening
Kill a bottle	=	empty the bottle
Kill an audience	=	entertain the audience to an extreme degree

(from Marantz, 1981)

As presented in (19), different objects trigger different semantic/idiomatic interpretation. For instance, if ‘kill’ is merged with an object denoting an interval time, e.g. evening or morning, ‘the waste’ reading is derived. Likewise, as pointed out in Aoun *et al.* (2010) in MA, the subject triggers no special interpretation, in the way objects do. This is evident from the interpretation of the following idioms in MA, as illustrated in (20).

(20)

- a. Tar lih l-fræyyəx
flew-3ms to-him the-bird
‘He got crazy’
- b. ʃra S-SDaʃ l-ras-u
bought-3ms the-noise to-head-his
‘He brought problems to himself’
- c. Drəb-ha bæ-nʃsa
hit-her with-sleep
‘He slept’

On the basis of facts such as these, Kratzer (1996) suggests that the asymmetry between the external argument and the internal argument cannot be accounted for if the two are projected within a single syntactic head. Rather, she argues in favor of severing the external argument from the verb. This severance is accounted for if the external argument is licensed by a separate head in the syntax. In Kratzer’s (1996) system, this head is dubbed Voice. As a fully syntactic head, it is associated with voice phenomena such as passive, middle, and active, the assignment of the structural accusative case, and it semantically introduces the Agent/Causer of the event¹². According to Kratzer, the content of Voice is an element AG, as in (21):

(21) $AG = \lambda_e \lambda_s [Agent(x)(e)]$

Subsequent to Kratzer’s proposal, the assumption that the external argument is not an argument of the verb has become a standard assumption in the generative literature. In the

¹² Alexiadou *et al.* (2015) argue in favor of an approach where UG makes available an inventory of Voice heads: Voice_{AGENT}, Voice_{CAUSE}, Voice_{HOLDER}, and their passive counterparts.

literature, however, different authors propose different labels and different functions to this head. For example, it is referred to as little *v* in Chomsky (1995). In Marantz (1997), little *v* functions as a verbalizing head. Crucially, in this context, Chomsky (1995) argues that the agent-argument introducing head is light *v*, which later becomes a phase head. However, for Chomsky (1995) this head is not projected in unaccusative and passive constructions, as the two do not have an agent. This view is problematic for various reasons. For instance, as argued for in Alexiadou *et al.* (2006, 2015), passives have an implicit agent, as they are modified by by-phrase that identifies the logical subject (22-a), and license agent-oriented adverbs (22-c), a property not shared for instance by inchoatives (22-b-d):

- (22)
- a. The boat was sunk by the enemy.
 - b. *The boat sank by the enemy.
 - c. The boat was sunk on purpose.
 - d. *The boat sank on purpose.

If one assumes that passives do not have a light *v* head, this property cannot be captured. In Legate (2003), see also Marvin (2002), arguments in support of the phasehood of unaccusatives are provided on the basis of wh-reconstruction effects, quantifier raising, parasitic gaps, and stress assignment. Of interest to the present study, roots in DM acquire their lexical categories only when they are merged with a functional head. Therefore, all verbs are generated using the same mechanism, in which a root is attached to a verbalizing head *v*. Chomsky's (1995) claim, however, is not compatible with DM's core assumptions.

A question of considerable interest that has received various discussions in the literature (see Ramchand, 2008; Borer, 2005; Pytkkanen, 2008; Harley, 1995, 2013, amongst others), is whether or not light *v* head is, in fact, responsible for these distinct behaviors. Research on argument-structure alternations such as passivization, causativization, and anticausativization (see Pytkkanen, 2008; Alexiadou *et al.* 2015) and the references cited therein) provides ample support to the fact that Voice and light *v* are separate heads¹³. For Harley (1995), Cuervo (2003), and Folli & Harley (2004), light *v* is associated with eventive semantics; it has features relating to eventivity and stativity. Their account stands as a reaction to what Folli & Harley (2004) referred to as unconstrained constructionist positions such as the one proposed in Borer (2005), wherein a verbal alternation is explained on the basis of a root being freely inserted in a variety of syntactic frames. The gist of their arguments is that Borer's (2005) model suffers from overgeneration, namely syntactic flexibility with respect to certain alternating verbs (Folli

¹³ This point is further discussed in Loutfi (2017).

& Harley, 2004: 1). This stems from the cross-linguistic observation that not all verbs exhibit all alternation patterns freely, as shown in the examples below:

- (23)
- a. *The sea ate the beach.
 - b. *John collapsed Mary

As clearly shown in these examples, there are selectional restrictions on the semantic nature of the external argument, namely between animate and inanimate subjects. For Folli & Harley (2004), this alternation is contingent upon the different flavors of light *vs*, in that different light verbs place different restrictions on their subjects and complements. They posited two different types of light *vs*. These are *v_{DO}* and *v_{CAUSE}*, whose properties are defined in (48):

- (24)
- a. *v_{DO}*: needs an animate Agent subject; it takes an Incremental theme as its complement.
 - b. *v_{CAUSE}*: requires that the subject be a possible Cause; it takes a state as its complement, creating essentially a resultative structure.

In a parallel fashion, this paper assumes that the flavors of *v* are empirically motivated as they impose crucial constraints on verbal's flexibility, capturing the range of the different verbal constructions in MA and SA and, equally importantly, license particular events, hence their roles as event introducers. The proposed light *vs* are as follows:

- (25)
- a. *v_{CAUSE}*: this *v_{CAUSE}* expresses a causal relationship between the agent/causer/causing events and the resultant state
 - b. *v_{DO}*: This primitive introduces an activity and expresses a dynamic event. It appears with unergatives constructions
 - c. *v_{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 anticausatives (inchoatives).
 - d. *v_{BE}*: This primitive introduces stative events.

To sum up this section, the properties of the light *v* head are:

- (26)
- a. Event introducer.
 - b. Accusative Case Assigner.
 - c. Verbalizer for category-free roots.

3.2. $\sqrt{\text{Roots}}$

A major contribution of DM is the postulation of the $\sqrt{\text{Root}}$, not as a descriptive morphological category, as is standard in the literature of Semitic languages (see for example McCarthy, 1979, 1981, 1993), but as a syntactic primitive (see, among others, Marantz 1997; Borer, 2005; Harley, 2005; De Belder & Van Craenenbroeck, 2015). Central to DM is that roots bear no grammatical information whatsoever. Instead, categorization is achieved when the root merges with a category-assigning functional head, be it v , n , or a . On this conception, two assumptions follow from this theory. First, words, both simplex and complex, are not atomic but built from non-decomposable roots (Arad, 2003, 2005; Alexiadou & Lohndal, 2013; Levinson, 2014). Second, words are the result of the phonological realizations of complex syntactic structures.

This said, however, there are several problems related to the proper representation of this category. The issues raised herein is whether the root should be regarded as a syntactic head/terminal, on a par with the functional heads posited earlier. This means that the $\sqrt{\text{Root}}$ is able to select complements and project a phrasal category (see Marantz, 1997 and Harley, 2005 for this stand view), or simply as a modifier of their categories, as argued for in Alexiadou & Lohndal (2014) and Marantz (2013), amongst others. This debate is summed up in the following basic questions:

(27)

- a. Do roots have any syntactic (e.g., selection) or semantic properties that impact their syntactic environment?
- b. Are they possibly devoid of any syntactic properties altogether; if so, how do selectional properties emerge?

For Acedo-Matellan & Mateu (2014), roots are equipped with two sets of properties. These properties are phonological¹⁴ and conceptual. The latter are properties interpreted only at the C-I interface, hence their inability to affect the syntactic computation. In fact, the phonological properties are said to distinguish $[_{nP}[_n \sqrt{\text{CAT}}]$ from $[_{nP}[_n \sqrt{\text{DOG}}]$. The position adopted in this paper is that roots do not carry any syntactic features, nor do they project syntactic structures. As such, they do not select or pose any selectional demands or restrictions on the category of the functional structure that merges with it (Borer, 2005). Hence, they are syntactically accessible only as a modifier of their category (Alexiadou & Lohndal, 2013). This structural definition will prove very essential and will clearly circumvent the conceptual and empirical

¹⁴ In much the same way, Borer (2014) contends that roots are pure phonological indices, of the notation $\pi\sqrt{\text{ROOT}}$.

problems that lexicalist theories engender. For instance, it has been demonstrated that the intransitive verb ‘*ʒaaʔ-a*’ appears in causative constructions that are not in consonance with its lexical-semantic representation.

Since the basic assumption in this paper is that argument structure is a function of the combinatorial system rather than that of the verbs *per se*, roots have no inherent argument structure. All thematic relations of a particular root are structural, rather than inherent. As a result, for a root to appear in a causative event is something to be expected. Furthermore, the functional structure in which a root is merged determines not only its grammatical category but also its interpretation. Contra Borer (2005) and Marantz (1997), however, a relaxed version of this assumption is adopted here. For this reason, I follow Alexiadou *et al.* (2006) and Levinson (2014) that roots are classified according to their encyclopedic semantics. More precisely, the verbal root is assumed to function as an event modifier introducing the idiosyncratic aspect of the verb’s meaning. In this regard, Alexiadou *et al.* (2006) made a distinction between four basic ontological types of roots¹⁵:

- (28)
- a. $\sqrt{\text{agentive}}$ roots (murder, assassinate): $\sqrt{\text{Root}}_{\text{Agentive}}$
 - b. $\sqrt{\text{internally caused}}$ roots (blossom, wilt): $\sqrt{\text{Root}}_{\text{IC}}$
 - c. $\sqrt{\text{externally caused}}$ roots (destroy, kill): $\sqrt{\text{Root}}_{\text{EC}}$
 - d. $\sqrt{\text{cause unspecified}}$ roots (break, open): $\sqrt{\text{Root}}_{\text{CU}}$

Agentive roots are the type of roots that appear in events that are brought about by an animate agentive subject. Internally caused roots and externally caused roots correspond to Levin & Rappaport-Hovav’s (1995, 1998) classification, which suggests that the properties of the event being described are inherent to the internal argument undergoing change. As the name indicates, externally caused roots imply that the event is brought about by an external cause. Finally, the unspecified roots are roots whose specification is not determined. This includes the class of alternating verbs such as ‘*break*’ and ‘*open*’ in English. This classification will prove relevant as we progress, as it will rule out a number of constructions that violate the encyclopedic semantic selectional restriction of a given root.

With this background in mind, the remainder of this paper seeks to provide further support to the proposed core syntactic structure proposed in (18). The sections that follow attempt to investigate how this syntactic structure accounts for the distribution of the different verbs in SA and MA. In this context, furthermore, it is shown that there is a correlation between the

¹⁵ See also Levinson (2014) for an alternative theory capturing the same generalization.

meaning that a sentence encodes and the syntactic structure in which the core arguments appear.

4. The Unergative-Unaccusative Constructions¹⁶

4.1. Unergatives

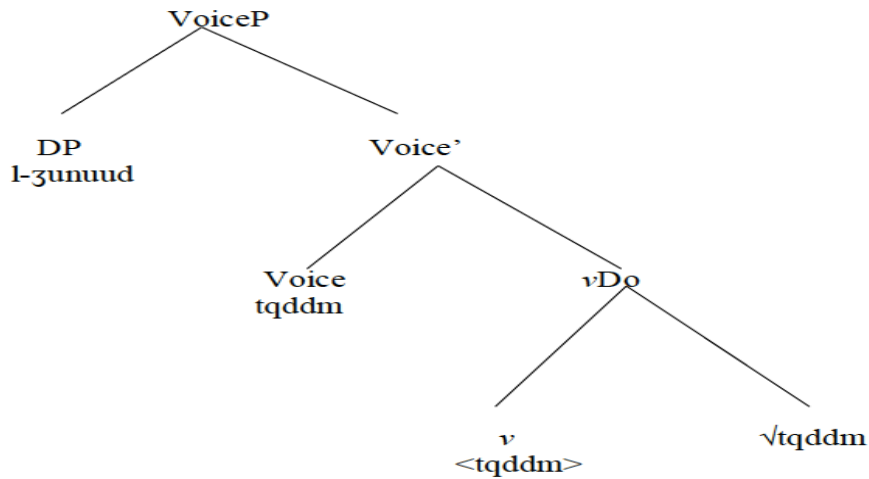
For the group of verbs that are subsumed under the heading of unergative verbs, I propose that these verbs project a full verbal structure, in which both VoiceP and vP are projected. To account for the fact that these verbs express volitional and activity events, I argue that the event-introducer light *v* is specified as vDO. On this view, unergative verbs arise when a single DP occupies [Spec, Voice], the syntactic position where agents, causers, and causing events are merged. The fact that the DP is merged in [Spec, Voice] suggests that the event is a self-initiating one. The class of motion of verbs in both SA and MA conforms to this description.

- (29) *MA*
- a. Hicham ʒra n-nhar kaməl
Hicham run-3ms the-day all
'Hicham ran the whole day'
 - b. ʒamal ʃTəħ
Jamal danced-3ms
'Jamal danced'
- (30) *SA*
- a. taqaddam-a l-ʒunuud-u
marched-3ms the-soldiers-NOM
'The soldiers marched'
 - b. sabaħ-a l-ʔaTfaal-u
swam-3ms the-children-NOM
'The children swam'

As has been noted earlier, all the external DPs in (29) and (30) are understood as volitionally and willingly initiating the activity described by the verb, a defining property of unergative verbs. This is attributed to the fact that they are merged in the specifier of VoiceP. The syntactic configuration accounting for this class of verbs is as follows:

¹⁶ In Loutfi (2017), transitive verbs have been shown that they bifurcate into two types. The first type includes transitives whose UNDERGOER expresses a caused changed process. The second type includes DPs that express mere activities. It is shown how this semantic subtlety is captured through proposing that the two project different light *vs*, with vCAUSE and vDO describing caused process transitives and activity transitive verbs, respectively.

(31)



As a matter of fact, the specification of the light v as vDO sets unergative verbs apart¹⁷ from transitive verbs, discussed in detail in Loutfi (2017), that are suggested to describe caused processes. Equally importantly, the assumption that this class of verbs does not project a specifier of vP sets them apart from the second class of transitive verbs.

4.2. Unaccusatives

Unlike unergative verbs, the subject of unaccusative verbs does not seem to be understood as a self-initiating agent. Instead, it is seen as a theme, undergoing or experiencing a change of state and/or location. Since these verbs do not express agentivity, the Voice head is not projected. Examples of these verbs are illustrated in (32) below:

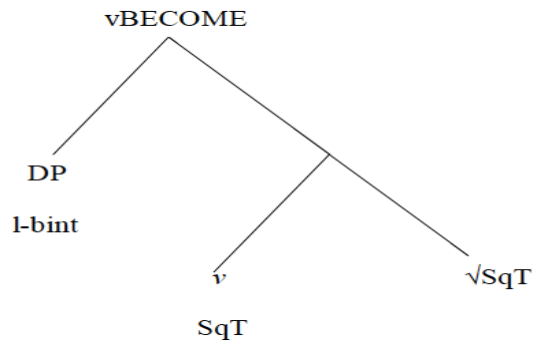
(32) *SA*

- a. φ ariq-a l-walad-u
drown-3ms the-boy
'The boy drowned'
- b. saqaT-ati l-bint-u
fell-3sf the-girl
'The girl fell'

Their subject being an UNDERGOER, I assume that it is merged in the [Spec, vP]. The light v that license this type of event is $vBECOME$. The syntactic structure that I propose is as follows:

¹⁷ Another property that sets unergative verbs from other transitive verbs that project the whole layered VP structure is the fact that the specifier of vP is not projected. On the basis of that, one would assume that this fact alone can account for unergatives. As has been argued in section 3.1, annotated light v s are required to constrain verbal flexibility.

(33)



One piece of evidence, discussed in section 2, supporting the syntactic configuration in (33), comes from the assumption that some intransitive verbs acquire causativity through combining with a PP complement. It has been argued here that the sole DP argument in unergative verbs appears in the specifier of VoiceP, wherein it is interpreted as the initiator of the action. Unaccusative verbs, on the other hand, do not project a VoiceP, since in these constructions the sole DP object is interpreted as a theme undergoing some change. This is further strengthened when a PP complement is added to these two types of intransitive verbs.

(34)

- a. ʒaaʔ-a Hichaam-un
came-3ms Hicham-NOM
'Hicham came'
- b. saafar-at Hind-un
travelled-3fs hind-NOM
'Hind travelled'
- c. saqaT-a ʒamaal-un
fell-3ms Jamal
'Jamal fell'
- d. ʔariq-a l-walad-u
drown-3ms the-boy
'The boy drowned'

(35)

- a. ʒaaʔ-a Hichaam-un bi xaalid-in
came-3ms Hicham-NOM by Khalid-GEN
'Hicham made Khalid come'
- b. saafar-at Hind-un bi FaaTimat-in
travelled-3fs hind-NOM by Fatima-GEN
'Hind made Faatima travel with her'
- c. *ʔariqa-ti s-safiinat-u bi l-walad-i
sank-3fs the-ship-NOM by the-boy-GEN
'The ship made the boy drown'

- d. *saqaT-a ʔaħmad-un bi xalid-in
 fell-3ms Ahmad-NOM by Khalid-GEN
 ‘Ahmad made the boy fall’

As shown in the above examples, when a PP complement is added to an unergative verb (34-a-b), causativity follows, as the examples in (35-a-b) demonstrate. This follows from the configuration in (33) above, in which a VoiceP is present. In the absence of VoiceP, however, such a possibility is not available. This explains why when a PP complement is added to unaccusative verbs ungrammaticality ensues. This further supports the fact that VoiceP, the locus of agentivity, is not projected in the syntactic frame of unaccusative verbs. Another piece of evidence that this class of verbs does not project a VoiceP comes from their inability to passivize, as indicated in (36):

- (36) **SA**
- a. saqaT-ati t-tuffaaħat-u ʕlaa l-ʔaRD-i
 fell-3fs the-apple-NOM on the-ground-GEN
 ‘The apple fell down on the ground’
- b. *suqiT-at ʕlaa l-ʔaRD-i
 feel-PASS-3fs on the-ground-GEN’
- c. wamaD-a l-barq-u fii l-layl-i
 flashed-3ms the-lightening-NOM in the-night-GEN
 ‘The lightening flashed at night’
- d. *wumiD-a fii l-layl-i
 flashed-PASS-3ns in the night-GEN

(Salih, 1985: 95-96)

As is argued in section 6, passive verbs select a Voice head. Since Voice is the locus of voice morphology (Pylkkänen, 2008; Alexiadou *et al.* 2015), its presence (or lack thereof) captures an interesting observation about verbs that can passivize.

5. Spray-load Alternation

Another challenge to the verb-based approaches to argument structure has been the so-called spray-load alternation, frequently referred to in the literature as the locative alternation. These constructions are exemplified in (37-38):

- (37)
- a. John sprayed paint on the wall.
 b. John sprayed the wall with paint.
- (38) **SA**
- a. raʃf-at Hind-un l-maaʔ-a ʕalaa l-haaʔiT-i
 sprayed-3fs Hind-NOM the-water-ACC on the-wall
 ‘Hind sprayed water on the wall’

- b. raʃʃ-at Hind-un l-ħaaʔiT-a bi-l-maaʔ-i
sprayed-3fs Hind-NOM the-wall-ACC with-the-water-GEN
'Hind sprayed the wall with water'

(39) **MA**

- a. l-fəllaħ ʃarʒ-a l-kamiyyu b t-tbən
the-farmer loaded-3ms the-truck with the-hay
'The farmer loaded the truck with hay'
- b. l-fəllaħ ʃarʒ-a t-tbən f l-kamiyyu
the-farmer loaded-3ms the-hay in the-truck
'The farmer loaded the hay on the truck'

This class of verbs shows alternation with respect to the direct object. The other argument is realized as either a goal, as '*l-kamiyyu*' in (39-a), or as a locatum, the object being moved, as '*t-tbən*' in (39-b). The difference between English, MA, and SA is reduced solely to the case marking associated with each internal argument. Of interest to the present study is the observation that, despite the fact that the same arguments are involved, the alternation implies different interpretations. The interpretation ranges from a *holistic interpretation*, in which the direct argument is understood to be wholly affected by the action described by the verbal predicate. In (39-a), the truck, realized as the direct object, is full, but not all the hay is loaded. Interestingly, in (39-b), it is understood that all the hay is loaded, but the truck is not necessarily full. The same analysis applies to the sentences in (37) and (38).

The fact that the alternation is exhibited by several languages alongside the fact that it is the same class of verbs that participate in this alternation suggests that this property can be predicated from the verb's lexical semantics. As argued in Mahmoud (1999), however, locative verbs do not constitute a homogeneous class¹⁸ in both English and Arabic, despite the fact that some verbs require the same number of arguments, as evidenced by the data in (40) and (41) (data from Mahmoud, 1999):

¹⁸ Pinker (1989) divided location verbs into two semantic classes. The first class is made up of content-oriented verbs. A characteristic of these verbs is that they obligatorily select for a locatum argument. Their location argument is, however, optional, as demonstrated in (i):

- (i)
 - a. He piled the books (on the shelf)
 - b. *He piled the shelf

The second class is referred to as the container-oriented verbs. This class of verbs obligatorily takes a location argument, but as opposed to content-oriented verbs, its locatum argument is optional.

- (ii)
 - a. He stuffed the turkey
 - b. *He stuffed the breadcrumbs.

(Pinker, 1989: 125)

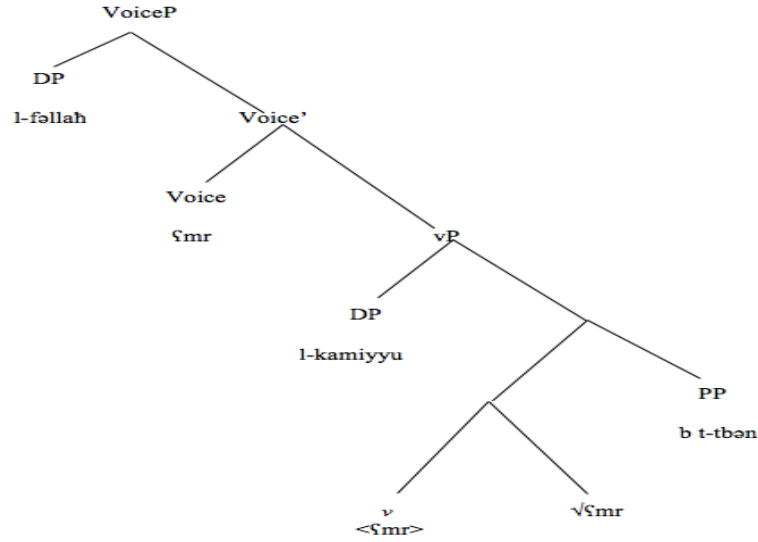
- (40) **SA**
- a. waDaʕ-a Yaasiin-un l-kutub-a ʕalaa r-raff-i
put-3ms Yassine-NOM the-books-ACC on the-shelf-GEN
'Yassine put the book on the shelf'
 - b. *waDaʕ-a Yaasiin-un r-raff-a bi l-kutub-i
put-3ms Yassine-NOM the-shelf with the-books-GEN
 - c. Sabb-a xaalid-un l-maaʔ-a fii l-kuub-i
poured-3ms Khalid-nom the-water in the-cup-GEN
'Khalid poured the water into the cup'
 - d. *Sabb-a Khaalid-un l-kuub-a bi-lmaaʔ-i
poured Khalid-NOM the-cup with-the-water-GEN
- (41)
- a. John place/put the books on the shelf.
 - b. *John placed/put the shelf with books.
 - c. John poured/dripped the water into the cup.
 - d. *John poured/dripped the cup with water.

Alternation of this kind poses a perplexing analytic challenge to theories advancing a verb-based approach to argument structure, in which the dominant assumption is that there is a correlation between the verb's lexical semantic properties and its argument structure¹⁹. In point of fact, cases such as locative alternation, or the spray-load alternation for that matter, can be used as a probe into the relationship between the syntactic structure and the meaning emerging from that structure. For this reason, these constructions further support the assumption that different syntactic structures encode/convey different meanings (see Levin and Rappaport Hovav, 1998 and Tenny, 1994). This follows from the paper's assumption that syntactic positions are associated with semantic interpretation (see Borer, 2005, Ramchand, 2008 for a similar view). Accordingly, the different interpretations associated with each variant emerge from the fact that the variants project different structures.

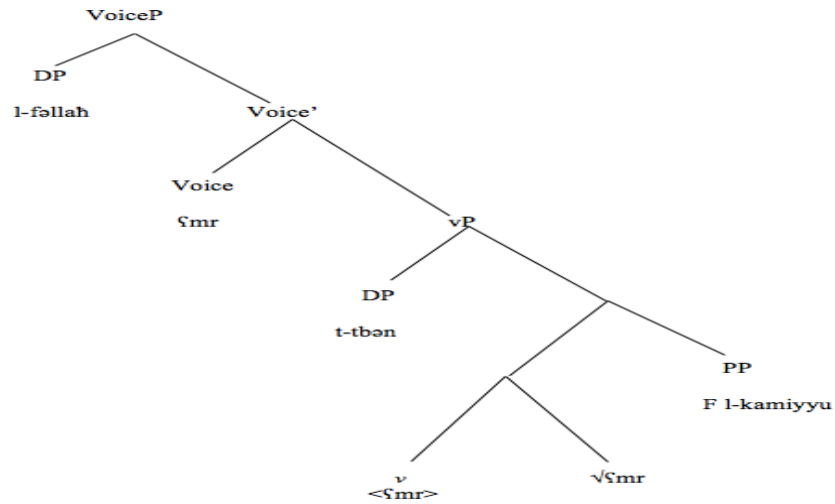
¹⁹ For instance, Levin & Rappaport Hovav (1988) argues that the two variants are associated with different argument structures at the *Predicate Argument Structure*, a level that specifies argument positions. For a review of the different accounts in the literature of locative alternation, see Arad (2006) and the references cited therein.

(42)

a.



b.



As shown in the two syntactic structures in (42), the arguments ‘*t-tbən*’ and ‘*l-kamiyyu*’ occupy different positions. For instance, in (42-a) the affected argument is ‘*l-kamiyyu*’. As such, it is merged in the [Spec, vP] where it is semantically interpreted as a theme. As a result, the interpretation that the truck is full, but not necessarily all the hay was loaded follows. In (42-b), on the other hand, it is understood that it is the hay that is affected by the action of the verb. This fact is accounted for if we assume that the argument ‘*t-tbən*’ is merged in [Spec, vP].

6. Passive-Anticausative Interaction

This section is primarily concerned with constructions involving thematic reduction. Two constructions are explored, principally passives and anticausatives (inchoatives). The passive and anticausative constructions have been the topic of much theoretical and typological

discussion in the linguistic literature (see Alexiadou *et al.* 2015 and the references cited therein). These constructions are characterized by the suppression of the thematic subject, the doer of the action, as illustrated in (43):

- (43)
- a. John broke the vase. (Causative)
 - b. The vase broke. (Anti-causatives)

Similar though these constructions may seem, the two differ as to the elements they license and the morphological marking associated with each construction, suggesting that the two emerge from different underlying syntactic configurations. To start with, in English passivization involves the promotion of the theme to become subject and the demotion of the agent to become an (optional) oblique phrase introduced by *by-phrase*. This is paired with the verb being morphologically marked, as demonstrated in (44).

- (44)
- a. The door was left open to let John in.
 - b. The window was broken by John.
 - c. The window was broken deliberately.

Syntactically, the morphology appears to absorb the valency of the verb, rendering the sentence with no grammatical object. In a similar vein, there is a general consensus that the agent, albeit being phonetically unrealized, is still semantically and syntactically present. This is evidenced by the fact that the agent can control purpose clauses and license agent-oriented adverbial phrases. This is coupled with the fact that the agent can be introduced by *by-phrase*. On the contrary, anticausatives cannot be modified by *by-phrase* or license agent-oriented adverbs, as the examples below indicate:

- (45)
- a. *The window broke by John.
 - b. *The window broke on purpose.

Another property in which anticausatives differ from passives is that not all verbs can form anticausatives, but virtually all verbs can be passivized.

- (46)
- a. The baker cut the bread.
 - b. The bread was cut by the baker.
 - c. *The bread cut.

(Alexiadou *et al.* 2006: 176)

Different accounts explaining these differences and similarities have been proposed, chiefly among which is the proposal that the difference boils down to the existence of an implicit external argument in the structure of passives, but absent in anticausatives. As argued

in Alexiadou *et al.* (2006, 2015), anticausatives in Greek and German do license PPs denoting agents, thus contradicting approaches postulating the existence (or lack thereof) of an implicit agent. Similarly, in SA both passives and anticausatives can be modified by PPs denoting agents, as (47) illustrates²⁰:

- (47)
- a. ta-lawwaθa-ti l-yurfat-u bi d-doxaan-i
Inch-polluted-3fs the-room-NOM from the-smoke-GEN
'The room was polluted with the smoke'
 - b. luwwiθa-ti l-yurfat-u bi d-doxaan-i
Pass-polluted-3fs the-room-NOM with the-smoke-GEN
'The room was polluted with the smoke'

The objectives of this section are two-fold. First, it provides an explanation of the passive morphology of the verb. An account as to why the agent is repressed, with agentivity is still encoded is given as well. Second, it shows how passives and anticausatives differ, although the two seem to syntactically repress the thematic subject. The basic claim underlying our analysis is that passives and anticausatives are the morphological realizations of Voice.

6.1. Standard Arabic

There are basically three changes that affect passive constructions in SA. First, the change is semantic, as the passive includes a change in the argument structure of the verb, in which the agent argument is deleted and the theme argument is realized as a syntactic subject. The second change concerns the agreement process, as in the passivization agreement is with the theme, realized in the object position²¹. Finally, passivization in SA is realized through internal modification, in which the vocalic pattern associated with the active voice, i.e. {*a-a*}, changes into {*u-i*} in the perfective and {*u-a*} in the imperfective. The following paradigm is illustrative:

(48) Passives in SA

Perfective		Imperfective		Gloss
Base	Derived Form	Base	Derived Form	
katab	kutib	ya-ktub	yu-ktab	'to write'
qatal	qutil	ya-qtul	yu-qtal	'to kill'
ʕallam	ʕullim	yu-ʕallim	yu-ʕallam	'to teach'
rasal	rusil	ya-rsil	yu-rsal	'to send'
dafiʕ	dufiʕ	ya-dfaʕ	yu-dfaʕ	'to push'

²⁰ This also shows that the event structure of anticausatives is as complex as their passive counterpart.

²¹ As expected, the position of the object, whether it is preverbal or postverbal, also observes positional asymmetry.

Anticausative verbs in SA are morphologically marked as well. Like morphologically-derived causatives (see Loutfi, 2016, 2020), there are various morphological strategies expressing anticausatives. Some of these strategies are illustrated in (37):

- (49)
- | | | | |
|----|------|-------------|-------------------|
| a. | √ksr | ʔi-n-kasara | ‘to break’ |
| | √fth | ʔi-n-fataha | ‘to open’ |
| b. | √ksr | ta-kassara | ‘to break’ |
| | √srb | ta-sarraba | ‘to leak’ |
| | √ʕDm | ta-ʕaDDam | ‘to become great’ |
| c. | √hmr | ʔi-hmarra | ‘to become red’ |
| | √zhr | ʔa-zharat | ‘to blossom’ |
| | √hlk | ʔi-hlawlak | ‘to become dark’ |

Similar to passives and unaccusatives, anticausatives appear only with one argument, namely the thematic roles undergoing a change of state. Another commonality that the three constructions share lies in the event expressed, in that they only express the resulting state of the event, with the thematic subject, the instigator of the action, being unexpressed. Coupled with the differences sketched above, passives in SA seem to license a PP complement expressing the thematic role of the instrument. This fact is not attested in anticausatives:

- (50)
- | | |
|----|--|
| a. | futih-a l-baab-u bi l-miftaah-i |
| | PASS-opened-3ms the-door-NOM with the-keys-GEN |
| | ‘The door was opened with the keys’ |
| b. | ʔʔʔi-n-fatah-a l-baab-u bi l-miftaah-i |
| | INCH-opened-3ms the-door-NOM with the-keys-GEN |

6.2. Moroccan Arabic

In MA, the process of realizing passive verbs is different, where vocalic patterns are lacking (Fassi Fehri, 2012). As a result, the morphological expression between the anticausative (inchoative) and the passive are expressed by the same morpheme²². In fact, this is a cross-linguistic tendency in which anticausatives have the same morphology as passives and reflexives (see Alexiadou *et al.* 2015). As such, passives in MA are morphologically derived from root stems by prefixing the morpheme {t-}. I follow Harley (2013) in assuming that external arguments are blocked by morphemes whose semantic content is similar to that of external arguments. Thus, the passive morpheme blocks the introduction of the external argument.

²² For convenience only, the morpheme {t-} is referred to as a passive morpheme.

- (51)
- a. l-bab t-ħərrəs
the-door PASS-broke-3ms
'The door broke'
 - b. l-bab t-ħal
the-door PASS-opened
'The door opened'

The passive morpheme {t-} seems to absorb the agentivity of the event, thereby semantically implicating the existence of the external argument. This is motivated by the fact that the morpheme appears only with agentive verbs. This accounts for the ungrammaticality of the sentences below:

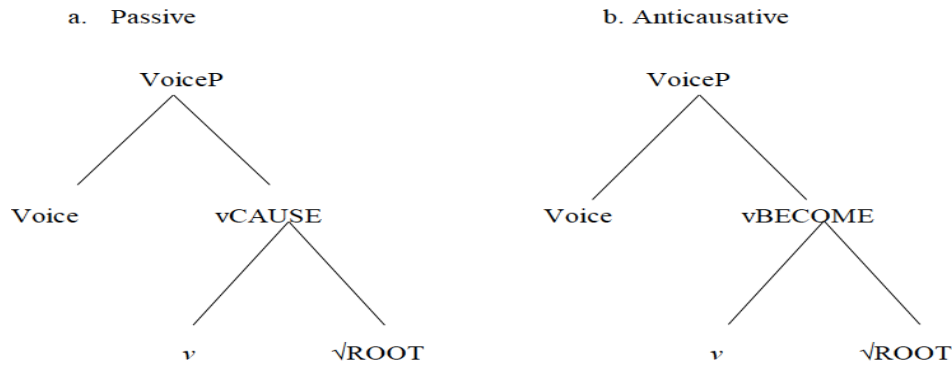
- (52)
- a. *Hicham t-huwwəd
Hicham PASS-descended
 - b. *ʔajjub t-mʃa
Ayoub PASS-walked

Another piece of evidence is that similar to SA passives, MA seems to license the introduction of an Instrument theta role via a PP-complement:

- (53) l-bab t-ħərrəs b-l-mTərqa.
the-door PASS-broken with-the-hammer
'The door was broken with the hammer'

Up to this point, it has been shown that passives and anticausatives differ in several aspects in both English and Arabic. The diagnostic tests this has fallen back on are as varied as the licensing of by-phrase, agent-oriented adverbs, and the theta assignment of the Instrument role. However, as argued in detail in Alexiadou *et al.* (2006, 2015), both passives and anticausatives seem to encode agentivity in their event structure. To implement this fact in our system, I argue that passives and anticausatives differ only in the type of little *v* they project. Therefore, the syntactic configurations associated with each construction are given in (54) below:

(54)



As shown in (54), both syntactic structures do not project a specifier, the syntactic position where Agent roles are merged. This explains why in the two constructions the subject is syntactically suppressed. However, the two structures differ as to the annotated little *v* they project. While passives project a *vCAUSE*, anticausatives project a *vBECOME*. This captures the fact that anticausatives cannot combine with by-phrases and agent-oriented adverbs. The fact that anticausatives combine with *vBECOME* is further corroborated by the examples in (51-52) in MA, in which only verbs expressing a change-of-state passivize. As stated earlier (see section 4), unaccusatives and unergatives appear with *vBECOME* and *vDO*, respectively.

7. Semantic Restrictions on Morphemes

There are semantic restrictions on the realization of morphemes. Examples of these are found cross-linguistically, as it is the case in MA (55), and Amazigh (56). These examples show cases where some verbs fail to undergo causativization (55-b, 56-b), and passivization (55-b). The examples in (57) present cases of semantic selection.

(55) *MA*

- a. **ʒamal qəttəl xalid*.
Jamal CAUS-killed Khalid
'Jamal caused Kahlid to die'
- b. ?? *l-waRəd t-dəbbəl*.
the-flowers PASS-CAUSE-wilted

(56) *Amazigh*

- a. *y-wt wrba iydi*
3msg-hit boy dog
'The boy hit the dog'
- b. **y-ss-wt-as wrayz iydi l wrba*
3msg-CAUS-hit-DAT man dog to boy
'The man made the boy hit the dog'
- (Alalou & Farrell, 1993: 165)

- (57) **SA**
- a. *ʔixtaal-a l-maTar-u l-waziir-a
assassinated-3m the-rain-NOM the-minister-ACC
'*The rain assassinated the minister'
 - b. qatal-a l-maTar-u l-waziir-a
killed-3m the-rain-NOM the-minister-GEN
'The rain killed the minister'

On the basis of this data, there are basically two questions that need to be asked:

- (58)
- a. Are these restrictions predictable?
 - b. Where (in the derivation) do these restrictions apply?

In the case at hand, the first question amounts to asking whether it is predictable to say that a verb like '*qatal*' will causativize or not. The second question, on the other hand, can be understood as providing the exact stage/level where such restrictions apply. For MA and Amazigh, the verbs that do not undergo causativization seem to be semantically characterizable (see Alalou & Farrell, 1993 for Amazigh). This class of verbs encompasses lexical causatives, verbs in which the meaning of causativity is inherently associated with them. Some representative examples of these verbs are given in (59):

- (59) **MA**
- | | | |
|------|---------|-------------|
| √DRb | *DəRRəb | 'hit' |
| √bna | *bənnə | 'build' |
| √xnq | *xənnəq | 'strangle' |
| √hfR | *ħəffəR | 'dig' |
| √slx | *səlləx | 'beat/skin' |

Since the model of grammar assumed herein takes words to be built in the syntax, it seems contradictory to argue that this type of restriction is either specified (in the lexicon) or that roots are equipped with a semantic feature that governs their distribution in the syntax. For one thing, specification contradicts the spirit of the syntactic approach advanced in DM. For another, roots are seen in DM as category-neutral elements and as such not syntactically capable of projecting a syntactic label. Therefore, the assumption that roots are equipped with a feature, be they morphosyntactic or semantic, crucially undermines the root-based hypothesis (see for example Acquaviva, 2009).

This study's analysis of these problems rests crucially on the ontologies of roots argued for in Alexiadou *et al.* (2006, 2015), and which I have introduced in section 3.2. Given these assumptions, roots impose demands on the syntactic structure with which they are composed. Therefore, explanations that go beyond morphology or syntax are attributed to these demands.

On this view, the failure of the application of causative morphology to lexical verbs, as in (55), (56), and (57), is ascribed to the fact that causative morphology is possible only when the root to which the causative morpheme is attached is not specified as externally caused root. Roots in (60) for instance all encode a causative event, as the following sentences illustrate:

- (60)
- a. Hicham bna D-Dar
Hicham built-3ms the-house
'Hicham built the house'
 - b. FaTima DəRbat xə-t-ha
Fatima hit-3fs sister-her
'Fatima hit her sister'

In much the same way, the ungrammaticality of the example in (62-b), in which the root \sqrt{dbl} fails to passivize, is attributed to the fact that internally caused roots ban the morphological realization of the morpheme {t-}, as the latter expresses agentivity. Internally caused roots express events wherein the properties of the event being described are inherently associated with the argument undergoing the change of state. As such, agentivity, the requirement that a given instigator instantiates the action, is not compatible with these roots. Finally, the sentences in (57) show another type of semantic selection. For example, the difference between the verb '*assassinate*', as opposed to the verb '*kill*', requires that the doer of the action is animate, capable of performing the action of assassination. The difference between '*Pirtaal*' and '*qatal*' is that the former is an agentive root, while the latter is an externally caused root.

These demands conspicuously show how the computational system interacts and interfaces with our encyclopedic knowledge, rendering the status of the latter an essential component of the grammar. These facts also show that although the root is grammatically unspecified, it is not an inert element, as it contributes to the well-formedness or ill-formedness of the sentence, supporting its status as an event modifier. As an answer to the question in (58-b) above, since these demands apply at a later stage in the derivation, i.e. Encyclopedia, there is reason to believe that these semantic demands are idiosyncratic, and thus the computational system is not sensitive to them. This motivated by the fact that in SA causative morphology applies to lexical causatives, as maintained in (61):

- (61) qattala f-furTiyy-u l-muzrim-a.
CAUS-killed-he the-cop-NOM the-criminal-ACC
'The cop caused the criminal to die'

The causative morphology on the lexical verb seems to encode an ‘intensive’ event, with a repetitive interpretation (see Fassi Fehri, 2012 for a discussion). The assumption that causative morphology applies to lexical causatives in SA, but not in MA, suggests that the ontologies of roots are language-specific and idiosyncratic to the root in question. Since these idiosyncratic properties are not visible to the computational system, they apply later in the derivation. The model of the grammar adopted in this study captures these restrictions in a principled and systematic way by postulating the Encyclopedia as a separate level.

8. Implication and Conclusion

This paper has been an attempt to argue in favor of a construction-based approach to verbal argument structure in SA and MA. To substantiate our claim, a number of verbal predicates have been investigated. These are unaccusatives, unergatives, locative alternation, and passive-anticausative constructions. In much the same spirit, intransitives also have been shown to be divided into two subgroups, namely unergatives and unaccusatives. I have argued that the difference between the two is reduced to two basic things. First, unaccusative verbs do not project a VoiceP and the corresponding light *v* is specified as *vBECOME*. Unergative verbs, on the other hand, project a full verbal structure, with light *v* being specified as *vDO*. This paper concludes with an investigation of cases where the ungrammaticality of some words goes beyond morphology. It has been argued that roots have semantic demands that are encoded as part of their encyclopedic entry.

The findings of the present paper are of both theoretical and empirical relevance. Theoretically, this study is a contribution to the ongoing debate in the literature concerning the status of the lexicon. More specifically, it has contributed to the debate about whether or not word formation and verbal argument structure should be treated in two separate components of the grammar, each with its set of primitives and processes, or the two can be accounted for using existing syntactic mechanisms. In this regard, it has been presented new evidence from SA and MA that favors the syntactic approach. If correct, such an approach is in line with the minimalist assumptions, in that no machinery is beyond what is needed has been posited (Chomsky, 2000). Under this approach, it is predicted that word structure and phrasal structure are derived using the same formal mechanisms. Another area to which this paper has contributed is the role of functional categories in determining grammatical processes. For example, it has explored the role that Voice and light *v* play in not only accounting for the distribution of semantic roles but also their role in determining the morphological realization

of passive and anti-causatives, with the roles of lexical items/roots being reduced to their idiosyncratic encyclopedic content.

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