

Argument Structure in Arabic:

Lexicon or Syntax?

by

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ABSTRACT

A question that has driven much of the current research in formal syntax is whether it is the lexicon or the syntax that determines the argument structure of a verb. This dissertation attempts to answer this question with a focus on Arabic, a language that has received little attention in the literature of argument structure.

In this dissertation, argument structure realization is examined in relation to three different components, namely the root, the CV-skeleton and the structure around the verb. I argue that argument structure is not determined on a root level in Arabic. I also show that only few CV-skeletons (verb patterns) are associated with certain argument structures. Instead, the burden of determining argument structure lies on elements around the structure of VP.

The determinants of inner aspect in Arabic and the relation between eventuality types and argument structure are also examined. A cartographic model is provided to show how elements around the VP play a role in determining the inner aspect. This model also represents a relationship between argument structure and eventuality types.

The question of what determines argument structure is further addressed through the investigation of the causative/inchoative alternation in Arabic in light of recent semantic and syntactic accounts. I argue that most Arabic verbs that undergo the alternation are non-agentive change-of-state verbs. Although certain lexical characteristics may account for which verbs alternate and which do not, exceptions within a language and/or across languages do exist. I point to a range of phenomena that can be only explained from syntactic points of view.

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ABBREVIATIONS

Abbreviations Used in Glosses

2	second person
3	third person
ACC	accusative
ASP	aspect
COMP	complementizer
F	feminine
FUT	future
GEN	genitive
INDF	indefinite
INTR	intransitive
IPFV	imperfective
M	masculine
NEG	negative
NOM	nominative
PFV	perfective
PL	plural
PREP	preposition
PST	past
S	singular

Other Abbreviations

Adj	adjective
CA	Classical Arabic
CP	complementizer phrase
D	determiner
DM	Distributed Morphology
ECM	Exceptional Case Marking
ES	event structure
H&K	Hale & Keyser
i-F	interpretable features
IP	inflectional phrase
L&RH	Levin & Rappaport Hovav
LCS	Lexical Conceptual Structure
MP	Minimalist Program
MSA	Modern Standard Arabic
NP	noun phrase
PP	prepositional phrase
P-STEM	prefix-stem
s.o.	someone
Spec	specifier
SSA	Saudi Spoken Arabic
S-STEM	suffix-stem

SVO	subject verb object
T	tense
TAV	tense aspect voice
TP	tense phrase
u-F	uninterpretable features
UG	Universal Grammar
VI	vocabulary item
VP	verb phrase
VSO	verb subject object

Chapter 1

INTRODUCTION

This chapter introduces the object of study in this dissertation and the research questions. It provides background information on the language investigated in the study, i.e. Modern Standard Arabic. A roadmap for the remainder of the dissertation and a summary of the main findings are provided towards the end of this chapter.

1.1 Argument Structure: the Problem

One of the crucial questions to linguistic theories, which has received considerable attention in the literature over the last four decades, is how arguments project from the lexicon to the syntactic structure (i.e. how the system assigns participants in the event to roles such as subject, object, and oblique). The traditional view of the lexicalist approach, under the framework of Government and Binding (GB), assumes that the argument structure is determined by information or lexical properties encoded in the verb itself as set by the Projection Principle (Chomsky 1981; 1986). For example, the lexical entry for the verb *break* implies two participants (or theta roles) under the concept BREAK. One participant is the one who breaks (Agent) and the other is the one that is broken (Theme/Patient). The Agent role is an external role that would project to the subject position, whereas the Theme or Patient role is an internal role that would project to the object position.

The other view of argument structure is the constructionist view. Under this view, the argument structure is determined by the syntax or event structure in which the verb is inserted, and not by information encoded in the verb itself. The relationship between syntactic positions and event roles is reversed under the constructionist approach as opposed to the lexicalist one, because the interpretation of an argument or the assignment of a role is determined by the legitimate relations between syntactic specifiers, heads, and complements. Ramchand (2008) lists the examples in (1) to show that a verb can appear with different arguments and the behavior of the verb cannot be always constrained by the information specified in the lexical entries.

- (1) a. John ate the apple.
b. John ate at the apple.
c. The sea ate into the coastline.
d. John ate me out of house and home
e. John ate.
f. John ate his way into history

Ramchand (2008: 21)

We will see later in the next chapter how Ramchand (2008) and other constructionist researchers propose different syntactic models or event structures

that can capture the flexible behavior of verbs and their arguments. We will also see how much of syntax or lexicon is involved in each account.

1.2.1 Scope of Research

One objective of this dissertation is to explore the nature of the relationship between syntax and lexicon. The lexicalist and the constructionist approaches of argument structure will be discussed and evaluated.

Vendler's (1967) four-way classification of verbs (i.e. activity, state, accomplishment, and achievement) is an important issue in investigating the interface between syntax and semantics. This classification has been very useful in investigating a number of syntactic phenomena. For example, the description and syntactic representation of grammatical aspect appear to be connected to inner aspect (van Gelderen 2012). More importantly, this type of classification has formed the basis for theories of argument structure over the last four decades (for both lexicalist and constructionist approaches), and contributed to solving the problem of linking arguments into syntactic positions. Researchers, such as Dowty (1991), Ritter & Rosen (2001), Borer (2005), Harley (2005), Ramchand (2008), and van Gelderen (2012) have proposed different accounts to capture elements that may play a role in determining inner aspect of verbs.

Grammatical aspect (i.e. the difference between perfective and imperfective) in Arabic has received considerable attention in the literature; however, there is a lack of literature investigating the inner aspect in Arabic and its relationship to other syntactic phenomena. One of the main questions

addressed in this dissertation is how much we attribute to the morphosyntactic properties of the verb and how much to the syntax (or functional heads) in determining inner aspect and argument structure in Arabic? This dissertation seeks to propose a model of the Verb Phrase (VP) that captures the relationship between inner aspect and argument structure in Arabic.

The VP layer is very crucial in this dissertation. It is responsible for introducing event and argument structure. Therefore, a considerable effort will be put into tracing some important articulations of that layer. Another key objective of this dissertation is to propose a syntactic model that accommodates Arabic verbs and shows how patterns are derived from the consonantal roots. Compared to English, Arabic verbs are morphologically more complex. In Arabic, verbs can be inflected for *voice*, and arguably for *tense* and *aspect*. I will address the question of whether Arabic verbs are inflected for tense and/or aspect. Also, I will propose a syntactic model that represents the distribution of different morphemes and the nature of pattern selection.

Researchers working on argument structure focus on verbal transitivity alternations (where verbs undergo a change in their transitivity in terms of number and realization of arguments, e.g., psych verbs, the locative alternation, and the causative/inchoative alternation) in order to reveal the complex interplay between syntax and semantics. The causative/inchoative alternation, in particular, has received considerable attention for two main reasons. First, this type of alternation raises the question of how one argument can be mapped into different positions as shown in the following sentences.

- (2) a. John broke the window.
b. The window broke.

In both sentences, the object has the same thematic role, that of an affected patient/theme. However, the object is mapped into object position in the first sentence and into subject position in the second one.

The second reason why this type of alternation is of interest to researchers investigating the semantics-syntax interface is the fact that not all verbs can participate in this type of alternation as shown in (3) below.

- (3) a. The boy hit the window with a ball.
b. #The window hit.

(Levin & Rappaport Hovav 2005: 1)

Researchers investigating argument structure are interested in understanding why, for example, verbs like *break* and *hit* shown above have divergent behaviors and different syntactic expressions. It will be interesting to see how far the lexicalist hypothesis can go in attributing the syntactic behavior of verbs to meaning components found in different verb classes. It will be also interesting to see how constructionists deal with such phenomena, especially with verbs that cannot participate in the alternation (e.g., #the bus *arrived* the boys).

In addition to discussing the causative/inchoative alternation and the challenges it poses to both the lexicalist and the constructionist approaches, I will discuss the causative/inchoative alternation in Arabic. I will examine Arabic causatives and inchoatives against the background of some current assumptions in the syntactic and lexical theory. One key question is, are there any lexical/semantic properties that determine which verbs (or a class of verbs) are dis/allowed to participate in the causative/inchoative alternation in Arabic?

The argument made by the traditional Arab grammarians and some recent scholars that causatives are derived from inchoative or vice versa will be discussed, and a unified account for the derivation of both types will be proposed based on my findings.

1.3 Language Investigated

The language investigated in this dissertation is Modern Standard Arabic (MSA). Arabic descends from the Semitic branch of the Afro-Asiatic (also known as Hamito-Semitic) family of languages. It is the native language of more than two hundred million people living in different areas of the Middle East and North Africa (Gordon 2005). Researchers distinguish between Classical Arabic (CA) and MSA. We may think of CA as an early standard version of Arabic that evolved from the standardization of the language of Qur'an and early Islamic literature (7th to 9th centuries). Versteegh (1984) points out that Arabic, like any other natural language, has evolved since the 7th century, but CA has remained unchanged for almost thirteen centuries. No change has occurred to CA due to the

dominating belief that the language is immune to change because it is so intimately connected with Islam. Medieval Arab grammarians have extensively investigated the syntax and morphology of Arabic. It was not until the twentieth century that a number of Arab grammarians started to apply Western techniques and approaches to linguistics to investigate Arabic grammar. Now researchers and grammarians, without questioning the sanctity of CA, agree that varieties of Arabic have developed, and that CA has gone through changes and evolution.

In 1973, El-Said Badawi, combining his extensive knowledge of traditional literature on Arabic grammar with his knowledge of modern linguistic principles, introduced contemporary Arabic from a new perspective. Investigating the linguistic situation in Egypt, he distinguishes between five sociolinguistic levels. One of these levels is what he calls *fusha al-asr* (Modern Standard Arabic, the modern literary language).¹ Badawi's introduction to Modern Standard Arabic is what matters here. Although the history and nature of relation between CA and other dialects, including MSA, is still subject to considerable debate, many subsequent researchers now agree that there exists a variety of Arabic that can be called MSA.

Generally speaking, MSA is defined as the formal variety of Arabic that is written and spoken throughout the contemporary Arab world. It is the language of communication for broadcasting and it is the only form of Arabic taught in schools in all Arab countries. It is used in almost all printed material, including books, magazines, newspapers and official documents. In this dissertation, the terms 'Arabic' and MSA are interchangeably used.

¹ See Hary (1996) for a summary of Badawi's study (in English).

1.4 Sources and Methodology

Arabic verbs are characterized by their root-and-pattern system. To investigate the syntactic and semantic distributions of verbal patterns and their consonantal roots, I will provide a list of the most common patterns used in modern standard Arabic. Although my investigation will be focused on the most common verbal patterns used nowadays, I will still utilize some traditional grammar and morphology texts (e.g., Al-hamlawil 1957, Ibn-Aqeel 1966), especially when investigating the syntax and semantics of verbal patterns. In addition, I will refer mostly to some recent texts, such as the ones listed in the bibliography.

To investigate the aspectual classification of verbs in Arabic, I will utilize some Arabic corpora that focus on formal speeches or texts.² I will also use examples that I identify as grammatical or ungrammatical based on my own judgment as a native speaker of Arabic from Saudi and the judgments of some other native speakers of Arabic from the same country. Most of the examples I provide can be found in the traditional books of Arabic grammar. It is only the addition of the adverbials (*in an hour/for an hour*) that makes them innovative.

To examine possible semantic interpretations and syntactic structures for each verbal pattern under investigation, I rely on one of the most extensive and most recent dictionaries of Arabic: *Muhit Al-muhit* by Al-bustani (1977). There are other authoritative dictionaries in Arabic (e.g., *Lisan Al-arab*, by Ibn-Mandhor); however, my selection for this particular dictionary is based on several

² See http://www.comp.leeds.ac.uk/eric/latifa/arabic_corpora.htm for a list of available corpora in modern Arabic.

factors as follows:

- It is the most recent dictionary with the highest number of entries.
- It is one of the materials/references used in colleges nowadays.
- It contains recent and borrowed words from other languages.
- It is based on previous authoritative dictionaries.
- Each entry includes all possible derivations.
- Each entry or derivation is put in a simple sentence.
- It is the first dictionary that attempted to avoid archaic words.
- It pinpoints any colloquial use under each entry.

A quick note about how entries in this dictionary and some other common authentic Arabic dictionaries are arranged is worth mentioning. This dictionary arranges entries alphabetically according to the consonantal root of the lexical unit. For example, a verb like *استخرج* *es-taxraj* 'extract', is listed under the root entry of *خ ر ج* [k-r-j]. Under that entry, the dictionary lists all possible derivations/patterns for that root and gives a definition of each derivation. The average number of pages containing details about each entry is two pages. This method of sorting entries makes it easier and more efficient to ensure that, for example, all possible patterns and alternates of each verb are not to be missed.

1.5. Theoretical Framework

I use generative grammar, the cartographic approach, and Distributed Morphology as the main theoretical frameworks for my syntactic account of argument structure and other syntactic issues discussed in this dissertation.

1.5.1 Generative Grammar

Generative grammar, as first developed by Chomsky (1955; 1957), has gone through several changes over the last five decades. The Minimalist Program (MP) (Chomsky 1995; 2004; 2008), developed after the Principle and Parameters theory of the 1980s, is Chomsky's latest framework. The MP is based on a strict bottom-up derivational architecture of grammar.

According to the MP, all parameters are encoded in the lexicon and the derivation starts by picking items from the lexical array called *numeration* (Chomsky 1995: 225). These items are combined by the operations *Move* and *Merge* before they are mapped into the LF (Logical Form) and the PF (Phonological Form) interface. According to Chomsky (2005: 230), the lexical items have three sets of features, i.e. semantic, phonological, and formal (syntactic) features. The formal features include intrinsic and optional features. The intrinsic features include categorial features, Case assigning features of verbs, and person and gender features in nouns. The optional features are added during the numeration process. They include Case and Number features with nouns, and tense and agreement features with verbs.

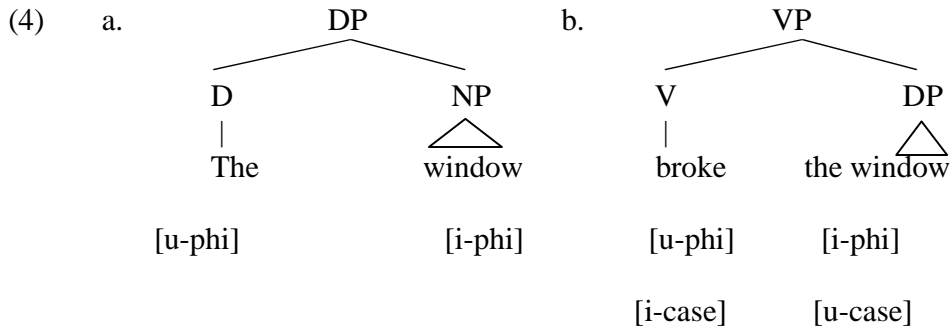
An important component of MP is the operation of *features checking*. There are interpretable and un-interpretable features. Interpretable features have a semantic content, while uninterpretable features are void of semantic content. Uninterpretable features, labeled as [uF], need to be valued/checked as they match and *Agree* with interpretable features, labeled as [iF], before they get deleted. Phi-features (number, person, and gender) are interpretable in nouns and pronouns,

while phi-features are un-interpretable in T, D and v. Case features are interpretable in v but un-interpretable in nouns and pronouns. The following table provides the types of features associated with a noun like *airplane* and a verb like *build*.

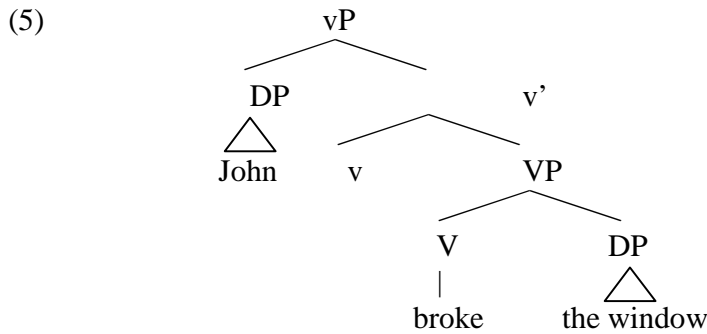
Table 1.1
Features of airplane and build (van Gelderen 2012: 23)

<i>Airplane</i>		<i>build</i>	
semantic: e.g. [artifact]		e.g. [action]	
phonological: e.g. [begins with a vowel; two syllables]		e.g. [one syllable]	
formal:			
intrinsic	optional	intrinsic	optional
[nominal]	[number]	[verbal]	[phi]
[3 person]	[Case]	[assign accusative]	[tense]
[non-human]			

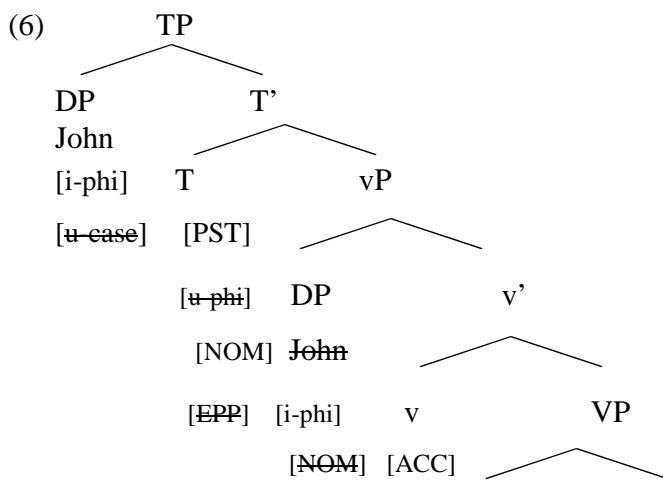
The phrase structure is initiated from the lexicon by an operation called *Select*, which picks items from the lexical array to construct a derivation. A lexical array could be {broke, window, the, John}. *Merge* as a Minimalist operation, following *Select*, combines two items from the lexicon using an *external merge* as in (4a&b).

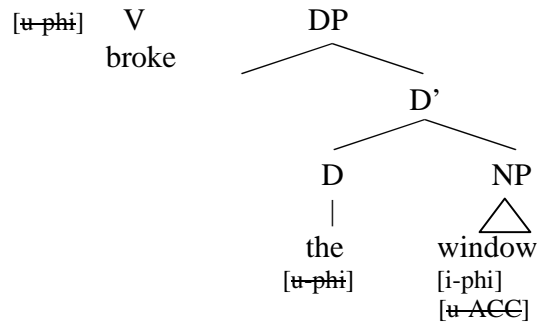


After adding the small v as in (5), the external subject *John* is then merged.



Then, the functional categories T and C are merged to vP. The final structure should look like (6) below.





In this structure, T, v and D as probes (which have un-interpretable features marked by ‘strike through’) find (active) goals with interpretable phi-features in their c-command domains to value their un-interpretable features. The probe-goal checking system in the c-command domain, proposed in Chomsky (1998), is an alternative to the previous Spec-head agreement. *Agree* ensures that there is an agreement between the un-interpretable features on v/T and the interpretable features of a noun they c-command. In this case, the v is valued by *window*, whereas T is valued by its goal *John*.

In addition to *external merge*, there exists what Chomsky (2001) calls *internal merge* or *Move*. An element of a structure formed by external merge moves internally into a c-commanding position. For example, the subject *John* originates internally in Spec vP, and then internally moves to Spec TP to satisfy the Extended Projection Principle (EPP) features in SVO languages. Chomsky (1982) introduces EPP because he argues that there is a requirement that goes beyond the Projection Principle. By moving to Spec TP, the DP checks and deletes its un-interpretable Case features and also the u-f of T.

In the end, the derivation reaches the interface (i.e. Sensorimotor ‘SM’ and Conceptual-Intentional ‘CI’) through the interfaces PHON and SEM.

1.5.2 Cartography

Cartography is a syntactic approach that assigns each functional category a specific position in the grammatical architecture. Cartographic accounts have evolved since some researchers (e.g., Larson 1988, Rizzi 1997, and Cinque 1999) started to split up layers to accommodate different functional categories in a hierarchical order.

The VP shell, as introduced by Larson (1988), accommodate verbs with multiple complements (VP articulation will be discussed more thoroughly in chapter 2) served as a foundation for many cartographic accounts of the VP layer. Splitting up the VP layer into vP and VP has led to further developments in the syntactic representation of event structure or Aktionsart (also called inner aspect) as we will see in Chapter 2 (e.g., Ramchand 2008; Travis 2010).

When Cartography is mentioned, the work of Rizzi (1997) on clausal hierarchy, and that of Cinque (1999) on adverbial universal hierarchy always come to mind. Rizzi (1997), for example, argues that the CP layer consists of a *force* projection, a *finiteness* projection, and it may include *topic* and *focus* projections as shown in the following functional hierarchy.

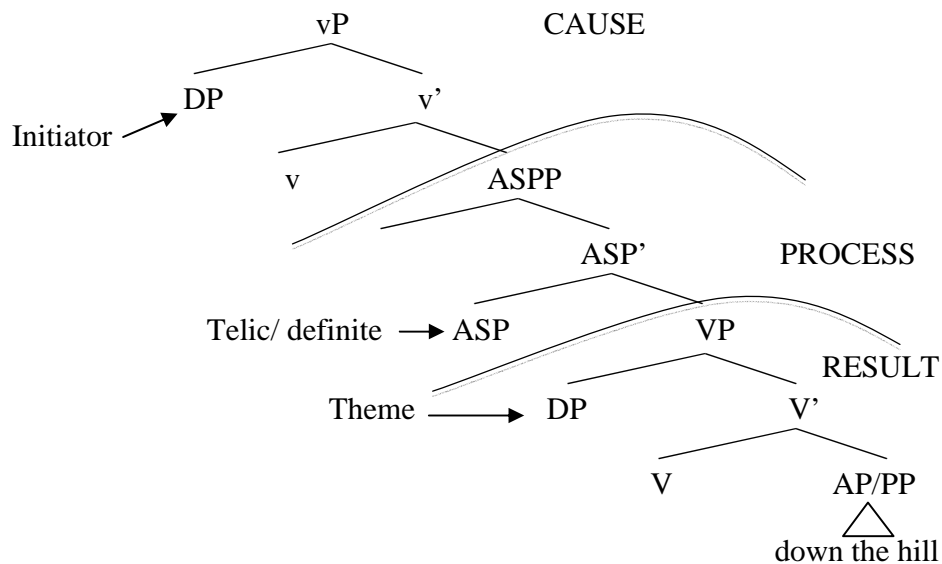
(7) ...Force...(Topic)...(Focus)...Fin IP

(Rizzi 1997: 288)

The focus in this dissertation will be on the lexical layer, i.e. the VP layer, which is responsible for assigning theta roles and argument structure. There does not

seem to be one specific cartographic structure for the VP that can accommodate any VP layer cross-linguistically. Over the last two decades, constructionists have provided different cartographic accounts of the VP layer in English (as we should see in Chapter 2). One common technique used by the proponents of the constructionist approach is to split the VP layer into functional heads that represent Aspect Phrase (AspP) and vP features. A VP shell structure can represent the number of sub-events and the difference between a simple eventuality (with no process involved) and a complex eventuality (involving a process and/or a terminal point). The tree in (8) is provided to show how a complex event can be represented syntactically in a VP shell structure.

(8) She rolled the balls down the hill.



(Adapted from van Gelderen 2012: 103)

This VP structure is divided into three layers that represent a complex event, which has three functional heads: a causer (vP), a process (AspP), and a result

(VP). A structure like this reduces the computational complexity as it uses only one structure for both argument structure and inner aspect instead of using two separate structures. It also reflects the direct relation between inner aspect and argument structure which may enable us to derive the argument structure from the aspect or vice versa. I will adopt this structure to represent the inner aspect of predicates in MSA.

1.5.3 Distributed Morphology

Many theories in the tradition of Government and Binding Theory (Chomsky 1981) assume that word-formation is determined by lexical rules independent of the syntax. The syntax, according to the lexical models, is only responsible for larger elements, (i.e. sentences and phrases).³

Some recent researchers have challenged the lexicalist approach and the theory that word-formation is performed in the lexicon. According to those researchers, the lexical structure does not contain “lists” of arguments or already set theta-roles. Among the very influential works are Baker’s (1988) on noun incorporation as head movement, Harley’s (1995) analysis of little *v* and its ability to determine argument structure, and Hale & Keyser’s (1998) work on argument structure and the syntactic analysis of ‘lexical items’.

A more recent view of minimalist theory taken by Distributed Morphology (henceforth DM, cf. Halle and Marantz 1993; Marantz 1997; Harley & Noyer 2000; Harley to appear a) provides a model that relates morphology to syntactic

³ For more details and arguments against Lexicalist theories cf. Marantz (1997) and Siddiqi (2009).

and phonological components of the grammar. According to DM, word-formation is a syntactic process manipulated by syntactic rules similar to the ones used for constructing phrases and sentences. Some properties of DM are given below.

(9) Properties of DM.

- Syntactic word-formation: all computation of non-atomic elements is performed by the syntax.
- Separation and Late insertion: the syntax manipulates abstract features. Phonological exponents of these features are inserted post-syntactically.
- The Root Hypothesis: all actual “words”- nouns, verbs etc. - are made from (abstract) roots.

(Arad 2005: 8)

The functions ascribed to the lexicon in the Lexical models are distributed among various components of grammar in DM. The framework of DM assumes that syntax is the only component of generative grammar, and the machinery used for sentence structure is similar to that used for the morphology. To show how DM works, it is important to discuss the main components of DM that distinguish this framework from other models of Universal Grammar (UG). These key components of DM, as described by Harley & Noyer (1999: 3), are *Late Insertion*, *Underspecification*, and *Syntactic Hierarchical Structure All the Way Down*.

In DM, syntactic structures are generated by abstract morphemes or formal

features and not by completely formed words. DM differentiates between morphemes and Vocabulary Items (VI). Morphemes, which consist of morphosyntactic features, are distributed among terminal nodes and they are void of phonological content. There are two types of morphemes: Roots, constituting categories that are determined according to the syntactic environment they appear in, and abstract features (such as tense [PRESENT] and number [PLURAL]). The different contexts in which a Root appears are listed in the *Encyclopedia*, i.e. a component of the grammar that interfaces with the knowledge of the world.

Vocabulary Items, on the other hand, have both morphosyntactic features and phonological content. They are inserted post-syntactically at PF to provide a phonological spell-out of morphemes. Morphemes may either carry all the features that match a VI or only a subset of the features. The most specific VI, which has the maximal subset of features, is selected if there are two VIs that qualify for insertion.

Underspecification is another component of DM ensuring that morphemes and VIs are not required to be fully specified for their assigned syntactic positions. In the absence of a more specific form, any VI with certain specifications is allowed to be inserted into a node that satisfies these specifications. For example, as explained by Siddiqi(2009: 10), the English copula *are* “can appear in 1st person plural present tense, 2nd singular present, 2nd plural present, and 3rd plural present The distribution of the VI, *are*, is attributable to the fact that its specification –just the feature [PRESENT] – is a subset of all four environments.”

I will show in Chapter 3 how DM can help explain certain properties of the Arabic verbal system (e.g., pattern selection and derivation of denominal verbs). I will propose a model for Arabic morphosyntax based on some fundamental tenets of DM (e.g., the Root Hypothesis, Fission, and Late Insertion). The DM account I will propose provides evidence that the argument structure cannot be determined by the lexical entry. The Root is associated with a common meaning; however, it may be derived into patterns that display relatively different meanings. A firm semantic interpretation is given to the verb after the Root merges with a verbal pattern. Therefore, we cannot always anticipate the argument structure of a given verb from the Root alone.

1.6. Organization of the Thesis

There are six chapters in this dissertation. In Chapter 2, ^١ I provide a chronological literature review of theories of argument structure over the last four decades. I start by discussing some major lexical models that started in the early 1980s. I shed light on some problems and difficulties that those theories face based on thematic roles and thematic hierarchy. Before discussing some recent alternative constructionist approaches I outline some important developments in the articulation of VP that have led to a breakthrough in incorporating semantic aspects in syntactic structures. A significant theme of Chapter 2 is that the inner aspect of verbs is sensitive to the structure inside and around the VP. Another important issue in that chapter is the relationship between the inner aspect of the verb (i.e. Vendler's 1967 four-way classification of verbs) and argument

structure. Syntactic factors that play a role in determining the inner aspect (e.g., definiteness, quantity, and PPs) are also discussed in that chapter.

In Chapter 3, I introduce some syntactic and morphosyntactic issues related to argument structure in Arabic. First, I discuss the word order in Arabic and review some major accounts of the subject-verb asymmetry in Arabic. After that, I discuss Case-marking in Arabic and its relationship with word order. I argue that word order in Arabic is free to a great extent due to extensive Case-marking. However, in some cases when arguments cannot be overtly case-marked, the freedom of word order is constrained and only two word orders are allowed, i.e. SVO or VSO. I highlight some syntactic and semantic differences between the two word orders, and I argue that the default word order of Arabic is SVO (verb > Subject > Indirect Object > Direct Object). I also discuss unaccusative and unergative verbs in Arabic, providing some syntactic tests to distinguish between the two types. Accordingly, I suggest different syntactic representations for the three different constructions in Arabic (i.e. casusative/transitive, unergative, and unaccusative). One other objective of classifying Arabic verbs into unaccusatives and unergatives is to examine their syntactic behavior as opposed to their English counterparts in terms of their (in)ability to enter into the causative/inchoative alternation, a topic to be discussed in Chapter 5.

Also, in Chapter 3, I investigate the verb system in Arabic and the morphosyntax of verbs to determine if patterns alone, as traditionally assumed, always encode enough information about the argument structure. I list the most

common verbal patterns used in MSA and show that verbal patterns are non-transparent as they are not associated with one specific semantic or syntactic function. As for the view that certain patterns are assigned specific argument structures, I argue that this is not always the case as there exist some patterns that may display variant argument structures. One important finding from this chapter is that theories that concentrate on the lexicon (verb) alone in determining the argument structure appear to be too coarse-grained. It is now uncontroversial that the verb and its arguments are important factors in determining the argument structure.

I close Chapter 3 by proposing a morphosyntactic model for the Arabic verbs based on an innovative proposal for the Semitic verbs put forth by Arad (2003; 2005) within the framework of DM. One advantage of this model is that it shows how different morphemes are distributed in the syntax. It also supports my argument that the Root in Arabic cannot always determine the argument structure and that the selective nature of roots to certain patterns is arbitrary. This account also offers a very convincing explanation for how denominal verbs are derived. Finally, I investigate the formation of Arabic denominal verbs and assume a semantic relation between denominal verbs and the original nouns from which they are derived.

In Chapter 4, I focus on one important temporal dimension of the VP in Arabic related to argument structure, i.e. inner aspect. I begin this chapter by defining the notion of aspect. I shed light on the long-standing debate over the nature of tense and aspect in Arabic and briefly overview some major views on

grammatical aspect (i.e. perfective vs. imperfective). I develop a novel analysis of the type of aspect used with perfective and imperfective forms in Arabic. More specifically, I challenge Comrie's (1976: 79) view that "the difference between the Arabic Perfective and Imperfective cannot be purely one of aspect," 'view also shared by Aoun et al. 2010'. I argue that isolated verbs (by default) can determine tense and aspect; however, a verb can occur with certain syntactic markers that specify the tense of the clause. More importantly, I reject the argument held by several researchers, such as Comrie (1976) and Aoun et al. (2010) that the perfective and imperfective forms do not attribute specific aspectual interpretations. I argue that these two forms cannot be used interchangeably to denote the same interpretation. I propose that a more subtle difference between the two forms does not lie in the traditional type of aspect (perfective vs. imperfective), but in the internal event structure, defined by Smith (1991) as "Situational" aspect.

I investigate the inner aspect of VPs in Arabic and propose a novel analysis of a number of lexical and syntactic factors that play a role in determining inner aspect. I show that there exists a relation between grammatical aspect and inner aspect. I address the question of whether a single verb pattern can determine inner aspect, and whether we can establish a direct relationship between an event type and a certain argument structure. I argue that only very few patterns in MSA can fully determine inner aspect, and there are other components inside and outside the VP that play a major role in determining inner aspect.

Some aspects in the traditional books of Arabic grammar (e.g., *al-bada' al-bidil* 'Substitut', the quantifier *kulla* 'all' كل and أفعال الشروع *afaal al-shourua* 'verbs of approximation/continuousness') are viewed from a new perspective and analyzed as aspectual markers either inside or outside the VP. I argue that there exists a relationship between inner aspect and argument structure. A syntactic structure that reflects the correspondence between aspectual classes and argument structures in Arabic is represented throughout the discussion. Key to this chapter is the argument that both factors (the syntax and the lexicon) are important in determining the grammatical/inner aspect and the argument structure in Arabic.

In Chapter 5, I investigate the causative/inchoative alternation in relation to the argument structure. The causative/inchoative alternation in English and some other languages has received a considerable amount of literature in the past two decades. However, little attention in the literature is devoted to investigating this type of alternation in Arabic.

A major issue in that chapter is concerned with factors that determine which verbs can or cannot undergo the alternation. After reviewing major lexicalist studies that investigate such a phenomenon, I outline the main lexical semantic restrictions that govern the participation of English verbs in the alternation. I argue that the same semantic restrictions also apply to Arabic non-agentive change-of-state verbs. Also, internally caused verbs and agentive verbs in general behave similarly in both languages. Only a subset of unergative verbs in Arabic can undergo the alternation. I provide possible answers for the question

of why there is variation between the two languages and also within a language in terms of the verbs that can participate in the alternation.

One important part of Chapter 5 covers the issue of the direction of derivation: whether causative verbs are derived from their inchoative variants or vice versa. I examine the criteria used by the proponents of the derivational analyses to support their arguments and provide examples from Arabic that violate such criteria. Accordingly, I argue that Arabic verbs are derived from category-neutral roots. I propose a morphosyntactic structure to show how a root merges with a pattern to form causative or inchoative verbs in Arabic. I emphasize again that the syntax is also important in accounting for the alternation, especially when a single pattern can host causative and inchoative verbs.

Finally, Chapter 6 presents conclusions and suggestions for future studies.

Chapter 2

ARGUMENT STRUCTURE: FROM THE LEXICON TO SYNTAX

According to traditional generative grammar (e.g., Chomsky 1981), argument structure information (i.e. the number and types of arguments) is specified in the lexicon. This approach is generally known as the lexicalist approach. Starting in the early 1990s and continuing to the present, researchers, on the other hand, have shown that the structure around the verb also plays a role in determining the argument structure. Proponents of such an approach are called constructionists.

In this chapter, I trace some major developments in analyzing the argument structure (from early 1980s to the present). The literature on argument structure is very large and growing, and it is impossible to survey all of it in this dissertation. However, the discussion and evaluation will be focused on some major works that have been very influential from different approaches. Tracing the main points in the history of argument structure should help us see a clearer picture of the interface between syntax and semantics. It should also help us understand how recent constructionists incorporate semantics into syntactic structures.

2.1 Lexicalism vs. Constructionism

Researchers interested in argument structure agree that there is a strong correlation between the lexical-semantic properties of predicates and their syntactic structures. However, the nature and volume of this correlation differ

significantly from one theory to another. Even those researchers, who belong to one camp, differ in their accounts of how lexical semantic representations or the syntactic structure of predicates should look.

There is a vast body of literature devoted to solving the problem of linking arguments into syntactic positions. Generally speaking, researchers concerned with the argument structure and syntax-semantics interface can be classified as belonging to either the lexicalist/projectionist approach or to the constructionist approach. Proponents of the lexicalist approach (e.g., Grimshaw 1990; Levin & Rappaport Hovav 1995) argue that the syntactic behavior of a verb is determined by its lexical semantics. They look at the lexicon as an independent module that, with its own rules and lexicon-internal processes, can determine the argument structure of a predicate. In other words, the meaning of a verb contains something that requires the arguments to be realized in a certain way. Reinhart summes up the lexicalist approach in the following quote:

Linguistic practice is guided by the principle of Lexicon Uniformity, which states that each verb-concept corresponds to one lexical entry with one thematic structure, and entails that the various thematic forms of a given verb are derived by lexicon-operations from one thematic structure. (Reinhart 2002: 284)

The other main approach that substantially differs from the lexicalist approach is the constructionist approach. Proponents of this approach reject the idea that the lexicon is an independent module that alone can determine argument structure. The extreme or radical constructionists such as Borer (1998, 2005) and

Marantz (1997) completely reject any role for the lexicon; instead, they rely entirely on the syntax in determining the argument structure of a verb.

Researchers (e.g., Travis 2000, Kratzer 1996, van Hout 1996, and Ritter & Rosen 1998, among others) attribute argument structure realization to the aspectual properties and event structure of the verb phrase that can be read off the syntactic structure itself. These researchers argue that other elements in the sentence such as adverbials and semantics/quantity of the object factor in determining the argument structure of a predicate. In their views, verbs are combined with functional categories to represent event-based meanings that distinguish one structure from another.

More recently, researchers such as Folli & Harley (2005) and Ramchand (2005; 2008) have represented a constructionist approach that doesn't entirely deny the role of the lexicon. This approach tolerates the presence of lexical specification that puts constraints on how lexical items are associated with structural positions. The next section presents the key developments in the research of argument structure and reviews significant works from different camps.

2.2 Early Approaches to Argument Structure

Generative grammar as introduced by Chomsky (1955) has gone through some changes that have had a significant impact on researchers investigating argument structure. Early studies of lexical semantic representation, which stem from the Government and Binding Theory (GB), propose a set of semantic roles

mapped to certain syntactic positions. The classic approach of argument realization relies on the notion of *thematic relations*, a term introduced by Gruber (1965) to refer to the interpretation of NP arguments such as *agent*, *theme*, *instrument*, and *goal*. Fillmore's (1967) Case Grammar elucidates the idea of semantic roles or thematic relations by suggesting that each verb takes certain semantic roles as its *case frame*. For example, the verb *hit* takes an agent and a theme/patient, while the verb *frighten* takes an experiencer and a stimulus.

Earlier studies of argument structure assume that the syntax of a sentence is projected from the lexical properties of the words in that sentence. Those studies investigate the relation between syntax and lexical semantics within the context of the Unaccusative Hypothesis (Perlmutter 1978). This hypothesis has paved the way for researchers to explore the relationship between argument roles and syntactic positions. The Unaccusative Hypothesis shows that intransitive verbs are divided into unergatives and unaccusatives. Each type is associated with a distinct underlying syntactic configuration where unergative verbs take a D-structure subject and no object while unaccusative verbs take a D-structure object and no subject. As for the thematic roles, unergative verbs have Agent arguments as opposed to Patient/Theme arguments for unaccusatives. This hypothesis claims that knowing the thematic roles of a certain verb allows us to predict the syntactic structure in which verbs can appear. In other words, a sentence is said to be unergative, unaccusative or transitive, depending on the realization of thematic roles associated with the verb.

Chomsky's (1981) *Projection Principle* and *Theta-Criterion* is another example that articulates the relationship between the semantics and the syntax of predicates based on the lexical properties of those predicates. The lexical entry of a predicate, according to Chomsky (1981), consists of a thematic grid that lists the theta-roles assigned by a verb. The Projection Principle accounts for the direct relation between the syntactic structure of a sentence and the lexical properties of the verbal entry. The Projection Principle ensures that the properties of lexical items are preserved while deriving a syntactic structure. It also ensures that only subcategorized elements are assigned a theta-role. Theta-Criterion, on the other hand, ensures a one-on-one relationship wherein every argument is assigned a theta-role, and every theta-role is assigned to one argument.

2.2.2 Theta-roles and Thematic Hierarchy

The basic idea that the syntactic structure is projected from the lexical properties of a verb is developed in a number of works. Perlmutter and Postal's (1984:97) *Universal Alignment Hypothesis* (UAH) and Baker's (1988) *Uniformity of Theta Assignment Hypothesis* (UTAH) support the basic idea of the Projection Principle by providing a linking system that relies heavily on the lexicon in determining argument structure.

According to this framework, the predicate's lexical identity is capable of determining argument structure, and the licensing of an argument is based on its individual relationship with a certain lexical predicate in the syntax. It is worth mentioning that according to Baker's (1988) UTAH, the linking between theta

roles and syntactic structure is maintained in an absolute way. In other words, any argument bearing a particular thematic role will always be mapped into the same syntactic position (e.g., an agent will map onto a subject position). Baker (1988) states that "Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure" (Baker 1988: 46).

Still, other researchers have developed another type of mapping that is based on a relative and less absolute thematic hierarchy. Unlike UTAH, this type of mapping relies on a set order of thematic hierarchy rather than requiring identical positions for identical arguments. These researchers aim at overcoming the limitations of traditional thematic roles by providing linguistic generalizations that apply to AS, i.e. choice of subject and object. Instead of referring directly to arguments by thematic roles, thematic hierarchy is set to allow for reference to the arguments according to their relative ranking. Levin (2006), inspired by Fillmore (1968), provides the thematic hierarchy in (1) and subject-selection rule (2) to account for the grammaticality of patterns in (3).

- (1) Agent > Instrument > Theme/Patient
- (2) The argument of a verb bearing the highest-ranked semantic role is its subject.
- (3) a. The door opened.
b. Dana opened the door.
c. The chisel opened the door.

- d. Dana opened the door with a chisel.
- e. #The door opened by Dana.
- f. #The chisel opened the door by Dana.

Levin (2006: 1)

To account for the different structures that appear with the verb *open*, Fillmore (1968) points out that "if there is an A [=Agent], it becomes the subject; otherwise, if there is an I [=Instrument], it becomes the subject; otherwise, the subject is the O [=Objective]" (Fillmore, 1968: 33).

As was the case with thematic roles, there doesn't seem to be a consensus on a certain thematic hierarchy or how many thematic roles are necessary. The only point of agreement among researchers proposing thematic hierarchies is that the agent role should be the highest-ranking role. However, the ordering of the other roles differs from one researcher to another. Therefore, theta hierarchies have proven to be an incomplete solution to the problem of argument linking. Examples of differences in thematic hierarchies among the proponents of thematic hierarchies are illustrated in (4).

(4) Differences in Thematic Hierarchies

L= Location, S=Source, G=Goal, Man=Manner

No mention of goal and location:

Belletti & Rizzi 1988: Agt > Exp > Th

Fillmore 1968: Agt > Inst > Pat

Goal and location ranked above theme/patient:

Grimshaw 1990: Agt > Exp > G/S/L > Th

Jackendoff 1972: Agt G/S/L > Th

Van Valin 1990 : Agt > Eff > Exp > L > Th > Pat

Goal and location ranked below theme/patient:

Baker 1989: Agt > Inst > Th/Pat > G/L

Baker 1997: Agt > Th/Pat > G/P/L Th/Pat > G/L

Carrier-Duncan 1985: Agt > Th > G/S/L

Jackendoff 1990: Act > Pat/Ben > Th > G/S/L

Goal above patient/theme; location ranked below theme/patient:

Bresnan & Kanerva 1989: Agt > Ben > Rec/Exp > Inst > Th/Pat > L

(Adapted from Levin 2006: 4)

Theories based on thematic roles or thematic hierarchies have been subject to considerable criticism. As Rappaport Hovav and Levin (1988) and Jackendoff (1987) point out, the criteria for distinguishing different thematic roles are vague, and thematic roles seem to represent various properties rather than unique entities. Alternating verbs, for example, represent one major challenge for these theories. Another challenge is the phenomenon of psych-verbs, raised by Belletti & Rizzi (1988). Examples of these types of verbs are given in (5).

- (5) a. Jim loaded hay on the wagon.
b. Jim laded the wagon with hay.
c. That worried me.
d. He was worried about that.

Sentences (5a&b) show that the same argument for the locative verb *load* may be mapped into different positions in the two alternates. The Theme theta-role is higher than the Location in (5a) (Theme > Location), but lower in (5b). Similarly, sentences (5c&d) show that psych-verbs may occur with a Theme theta-role preceding the Experiencer as in (5c) or vice versa as in (5d).

2.2.3 The Proto-Role Approach

The lack of consensus among theories of thematic roles and thematic hierarchies led Dowty (1991) to abandon such subjective theories and to offer a more flexible argument linking theory. He argues that thematic role types are not discrete categories, and the relevant semantic properties needed for argument linking are associated with semantic properties entailed by the proto-roles, namely Proto-Agent and Proto-Patient. In other words, the thematic roles Agent and Patient are the only two roles relevant for argument realization. The semantic properties of the proto-roles are listed in (6).

(6) Dowty's (1991: 572) proto-roles

Contributing properties for the Agent Proto-Role:

- 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. referent exists independent of action of verb

Contributing properties for the Patient Proto-Role:

- a. undergoes change of state
- b. incremental theme
- c. causally affected by another participant
- d. stationary relative to movement of another participant
- e. does not exist independent of the event, or not at all

Given these proto-role entailments, Dowty explains how argument structure is realized by providing the following Argument Selection Principle, as follows:

In predicates with grammatical subject and object, the argument for which the predicate entails the greatest number of Proto-Agent properties will be lexicalized as the subject of the predicate; the argument having the greatest number of Proto-Patient entailments will be lexicalized as the direct object. (Dowty, 1991: 576)

Dowty's proposal of proto-roles provides a generalization about argument structure realization. Although this proposal seems able to overcome major challenges faced by traditional thematic role and thematic hierarchy approaches, it is not free from criticism. As pointed out by Levin (2006), Dowty's argument selection principle presupposes transitivity, which is inadequate because it cannot account for variation across languages as to what constitutes the transitive verb class. Levin further argues that Dowty's proposal assumes no priorities among the different proto-role entailments in argument realization, contradicted with empirical evidence.⁴

2.2.4 Feature Decomposition Approach

In an attempt to solve the problems faced by theories relying on semantic role lists, some lexicalists (e.g., Reinhart 2002; Ostler 1979; Marelj 2002) suggest an encoding system of the traditional semantic roles based on small sets of semantic features. One advantage of this approach is that a certain set may contain features shared by more than one semantic role. Reinhart (2002) encodes theta roles in clusters consisting of binary features, i.e. [c] for "cause change" and [m] for "mental state".

The following Table 2.1 shows all possible semantic roles encoded by combination of features with values [-/+].

⁴ See Croft (1998) for detailed criticism.

Table 2.1
Reinhart's Feature Clusters

Specified roles		Unspecified roles	
[+c,+m]	agent	[+c]	cause
[-c,+m]	experiencer	[+m]	sentient ⁵
[+c,-m]	instrument	[-c]	goal
[-c,-m]	theme	[-m]	subject matter

Verbs such as *eat*, *drink*, and *build* can be coded by the specified role [+c,+m] because they always require an agent, while verbs such as *open*, *cut* and *break* would pick the unspecified role [+c] because they can appear with agent or instrument or causer as represented in (7).

- (7) a. John/#the pump/#the wind drank the water.
 b. John/the scissors/the heat cut the rope.

This approach seems promising; however, it has been subject to criticism. Levin and Rappaport Hovav (2005) indicate that such an approach doesn't precisely define the nature of semantic roles that can be associated with an individual verb. van Gelderen (2012) finds the mapping system applied by Reinhart (2002) to be stipulative. For example, it is not clear why a verb such as *worry* cannot pick [-m] and [+c] in a sentence like *#The wind worried the house*.

⁵ According to Reinhart (2002), this role is distinguished from the **experiencer** role based on syntactic realization (linking) "It always merges externally, unlike the standard **experiencer**, which has varying realizations... Other candidates for bearing this cluster are arguments of verbs like *laugh*, *cry*, and *sleep*. These verbs require an animate argument, but do not involve necessarily agency or a causal relation with this argument" (Reinhart 2002:10).

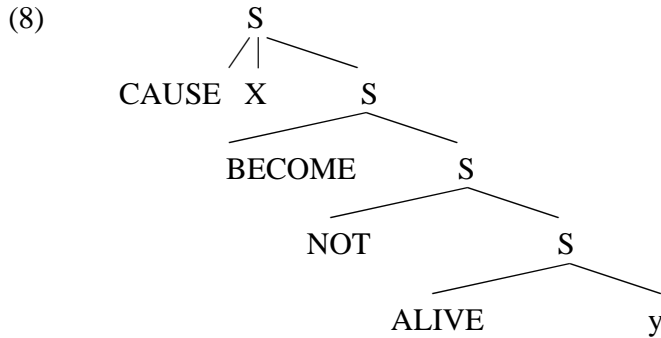
2.3. Predicate Decomposition

Realizing the shortcomings of theories based on thematic roles and/or thematic hierarchies for determining argument structure, some semanticists have resorted to predicate decomposition instead of decomposing thematic-roles. Verb's meanings are decomposed and formulated in terms of primitive predicates (e.g., CAUSE, GO, BE, STAY, TO) in order to capture components recurring across different types of verbs or events.

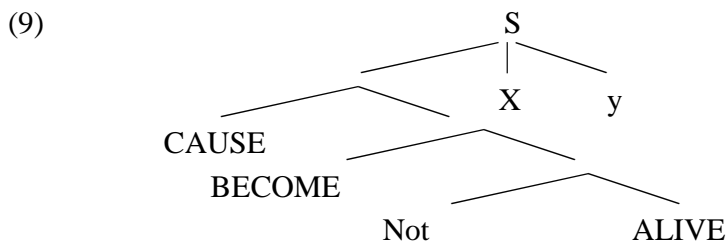
The decompositional representation of predicates has been tackled under different approaches. Generally speaking, it departs from Generative Semantics to pure semantics and then to a syntactic account of event structure (Travis 2010: 94). The purpose of this sub-section is twofold: first, to introduce and evaluate some significant works based on predicate-decomposition approach. Second, to trace some key developments that led to incorporating semantics and event structure into syntactic structure.

McCawley

Initiating from the Generative Semantics tradition, McCawley (1968) suggests that the verb *kill* be analyzed and represented with primitives CAUSE, BECOME, NOT and ALIVE as illustrated in (8). The tree represents the underlying structure *X kills Y*.



After Predicate Raising, in which lexical primitives such as CAUSE, BECOME, NOT, and ALIVE are attached to the predicate of the next higher sentence, the representation of the verb *kill* looks like (9).



This representation shows larger semantic elements applied in the predicate raising before the final stage where a lexical word such as *kill* is inserted replacing these elements. It is worth mentioning that McCawley's representation is based on Transformational Grammar, according to which the Deep Structure directly encodes meaning. However, some syntacticians have argued that this representation, which deals with components and primitives of verb meaning, is more semantics than syntax.

Dowty

Dowty (1979) introduces a significant refinement of Vendler's aspectual classification that finds echo in subsequent works.⁶ He discusses several problems with Vendler's account, including the nature of the distinction between different types of events. Drawing on observations made by Generative Semanticists such as Lakoff (1968: 1977) and McCawley (1968), Dowty uses particular atomic predicates (DO, CAUSE, and BECOME) to decompose events as illustrated in (10).

- (10) a. *States* $\pi_n(\alpha_1, \dots, \alpha_n)$. e.g. *John knows the answer.*
b. *Activities* DO $(\alpha_1, [\pi_n(\alpha_1, \dots, \alpha_n)])$. e.g. *John is walking.*
c. *Accomplishments* DO $(\alpha_1, [\pi_n(\alpha_1, \dots, \alpha_n)])$ CAUSE [BECOME $\rho_m(\beta_1, \dots, \beta_n)$]]. e.g. *John broke the window.*
d. *Achievements* BECOME $[\pi_n(\alpha_1, \dots, \alpha_n)]$. e.g. *John discovered the solution.*

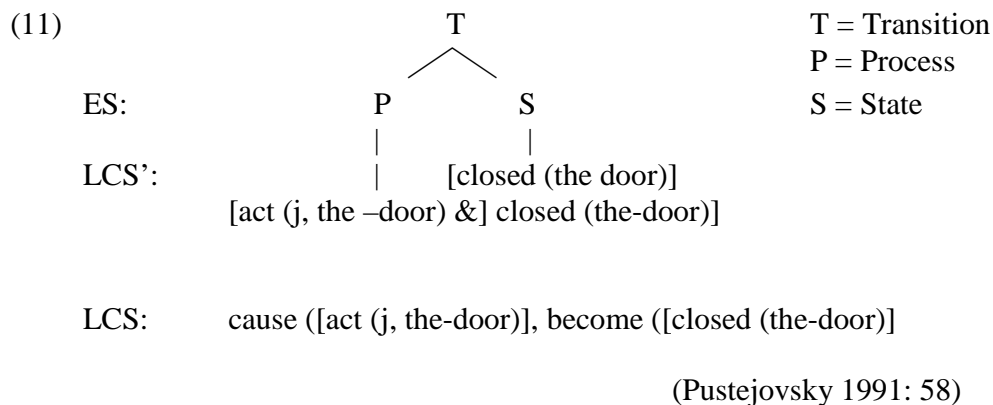
(Dowty 1979: 123-124)

Dowty's account is centered on the decomposition of events and does not assume a syntactic representation or linking system to the syntax. As we will see later in this chapter, Dowty's account has been of enormous influence on subsequent works (e.g., Pustejovsky 1991, Harley 2005, Travis 2010, and Ramchand 2008). For example, claiming that causative sentences consist of a causing sub-event and a result sub-event has become a standard for later theories.

⁶ See section (2.5.2.) for more details about Vendler's aspectual classification of verbs.

Pustejovsky

Pustejovsky (1991) proposes that events are complex entities consisting of one or more sub-events. A syntax of sub-events, based on minimal semantic behavior of a lexical item, is constructed in order to create a generative grammar of different event types. Predicates such as CAUSE, ACT, and BECOME are still used for the semantic representation; however, these predicates are mapped to a level called Event Structure that contains information about the aspectual properties of the events. Pustejovsky utilizes tree structures to represent the aspectual properties of each event, especially the temporal ordering and any sub-event that contributes to determining the type of each event. For example, he represents *John closed the door* as shown in (11).



Pustejovsky starts with a level of the Lexical Conceptual Structure (LCS) similar to that of Dowty's. This level is mapped to another level LCS' where the LCS is broken down into two sub-events (a process and a state) illustrating the nature of relation between the two sub-events, i.e. one causing the other.

The level of Event Structure (ES) is what distinguishes Pustejovsky's work from previous ones. This ES shows the nature of interaction between the sub-events in a minimal way. Instead of using primitives to determine the type of event for each lexical entry, which could be "exhaustive" as suggested by Pustejovsky, the ES represents a "compositional" aspect of lexical semantics. For example, accomplishment verbs consist of a process (P) and a state (S) that form a Transition (T) as represented in (12). Though Pustejovsky's (1991) paper tackled some important issues that factor in determining event type, which have been influential on subsequent works, the proposal of ES and utilizing tree structures to represent it remains the most influential to later works. As we will see towards the end of this chapter, many recent researchers (e.g., Harley and Noyer 2000, Travis 2010, Ramchand 2008, Hale and Keyser 2002, among others) incorporate Pustejovsky's proposal into the domain of syntax by associating similar sub-events with different layers of VP (VP-shells).

Rappaport Hovav and Levin

Rappaport Hovav and Levin (1998, henceforth L&RH) employ a predicate decomposition to represent the internal structure of verb meanings. L&RH use lexical semantic templates to classify the types of events as given in (12).

- | | | |
|------|-----------------------|---------------|
| (12) | [x ACT <MANNER>] | (activity) |
| | [x <STATE>] | (state) |
| | [BECOME [x<STATE>]] | (achievement) |

[[x ACT <*MANNER*>] CAUSE [BECOME

[y <*STATE*>]]]

(accomplishment)

[x CAUSE [BECOME [y <*STATE*>]]]

(accomplishment)

(L&RH 1998: 108)

Event structure templates are made up of two types of components, primitive predicates and constants. The structural aspects of verb meanings are represented by a fixed set of predicates, while the set of constants (italicized in angle brackets), which represents the idiosyncratic meaning of a verb, is open-ended. The constants are ontologically categorized into a fixed set of types (e.g., state, thing, manner, place, etc.). L&RH employ “canonical realization rules” that help associate each ontological type with a particular event structure template as shown in (13).

(13) Realization Rules.

a)manner → [x ACT<*MANNER*>] (e.g., jog, run, creak, whistle)

b)instrument → [x ACT<*INSTRUMENT*>] (e.g., brush, hammer, saw,
shovel)

c)placeable object → [x CAUSE [y BECOME AT <*CONTAINER*>]] (e.g.,
bag, box, cage, crate, garage, pocket)

d)place → [x CAUSE [BECOME [y <*PLACE*>]]] (e.g., *bag, box, cage,*
crate)

e) internally caused state → [x <STATE>] (e.g., *bloom, blossom, decay, flower*)

f) externally caused, i.e. result state → [[x ACT] CAUSE [y BECOME <RES-STATE>]] (e.g., *break, dry, harden, melt, open*)

(L&RH 1998: 109)

One other aspect worth mentioning about work by L&RH is their treatment of complex events through their proposal of “Template Augmentation.” L&RH argue that templates of event structure can freely be “augmented” to other templates by representing the sub-events utilizing same basic primitives used for the basic verb meaning. For example, the activity verb *sweep* in (14a) is augmented up into an accomplishment verb (14b) by adding another sub-event.

(14) a. Phil swept the floor. [Phil ACT<SWEEP> floor]

b. Phil swept the floor clean. [[Phil ACT<SWEEP> floor] CAUSE [BECOME [floor <CLEAN>]]]

Another significant contribution by L&RH is given in L&RH (1995). Drawing on Smith (1970), L&RH (1995) argue that what determines a verb’s behavior is whether that verb, in its Lexical Conceptual Structure (LCS), lexicalizes an “externally caused” event or an “internally caused” event. Externally caused verbs describe an event that is brought about by an external force with immediate control over the event. Verbs belonging to this class, known

by their prototypical member as *break-type* verbs, include verbs of motion and change-of-state verbs as shown in (15).

(15) Externally caused verbs.

a. Change of state verbs: *bake, blacken, break, cook, cool...*

b. Verbs of motion: *bounce, move, roll, rotate, spin...*

(L&RH 1995: 93)

In contrast, internally caused verbs, known by their prototypical member as *bloom-type* verbs, describe an event that does not require an external force. Some internal characteristics of the entity are responsible for bringing about the change-of-state event. Examples of these internal characteristics are listed below.

(16) Internally caused verbs.

a. Sound: *burble, buzz, clang, crackle, hoot...*

b. Light: *flaxh, flicker, gleam, glister, shimmer...*

c. Smell: *reek, smell, stink*

d. Substance: *bubble, gush, ooze, puff....*

(L&RH 1995: 91)

L&RH (1995) propose a system of linking that associates event structure with syntactic structure. These linking rules are laid out below.

(17) L&RH's Linking Rules.

a. *Immediate Cause Linking Rule:*

The argument of a verb that denotes the immediate cause of the eventuality described by that verb is its external argument. (L&RH 1995: 135)

b. *Directed Change Linking Rule:*

The argument of a verb that corresponds to the entity undergoing the directed change described by the verb is its direct internal argument.

(L&RH 1995: 146)

c. *Existence Linking Rule:*

The argument of a verb whose existence is asserted is its direct internal argument. (L&RH 1995: 153)

d. *Default Linking Rule:*

An argument of a verb that does not fall under the scope of any of the other linking rules is its direct internal argument.

(L&RH 1995: 154)

These rules mean that certain semantic notions are responsible for determining the argument structure of the verb. For example, externally caused verbs participate in the causative/inchoative alternation as in *John opened the door* and *the door opened*. On the other hand, internally caused verbs have only one argument that cannot be externally controlled, and thus they do not undergo the alternation. Therefore, internally caused verbs such as *glitter/sparkle* cannot participate in the causative/inchoative alternation as illustrated in (18).

- (18) a. The jewels glittered/sparkled.
b.#The queen skittered/sparkled the jewels.

L&RH apply the notion of externally vs. internally caused verbs to English. They point out that language that morphologically mark the causative alternation often allow causative of internally caused events. (More about this these types of verbs will be discussed in Chapter 5).

2.4 Syntactic Representations of Event Structure

Like most theories that attribute argument structure realization to lexical characteristics of verbs only, L&RH's account faces some problems. For example, Ramchand (2008) indicates that the process of *template augmentation* as proposed by L&RH cannot be extended to all other verbs. There exist some verbs that resist causativization as illustrated in (19a) or telic augmentation as illustrated in (19b).

- (19) a.#John **slept** the baby.
b.#John **watched** Mary bored/to boredom.

(Ramchand 2008: 22)

The linking rules proposed by L&RH rely on semantic notions that seem to be read off from the event of a verb or from the information specified by lexical

entries. In other words, these semantic representations cannot account for all variable behaviors of some verbs that seem to be constrained only by real-world knowledge. Pylkkänen (2002) indicates that L&R's proposal assumes that the external argument is part of the lexical meaning of that verb which is incompatible with recent theories of syntax and semantics of external argument.⁷ Ramchand (2008) gives the examples in (20) to show that a verb behavior cannot be constrained by the information specified by lexical entries alone because it can appear in multiple constructions.

- (20) a. John ate the apple.
b. John ate at the apple.
c. The sea ate into the coastline.
d. John ate me out of house and home
e. John ate.
f. John ate his way into history

(Ramchand 2008: 21)

The drawbacks of theories solely relying on semantic representations for argument structure realization have led researchers to adopt a constructionist approach, which assumes that event structure is wholly or partly determined by the syntax (cf. Hale and Keyser 199; Harley 1995; Marantz 1997; Kratzer 1996; van Hout 1996; Ritter & Rosen 1998; Folli & Harley 2005; Ramchand 2008, Travis 2010). One advantage of this approach is that it simplifies the theory of

⁷ See section (2.4.1.) for more discussion about the external argument in syntax.

argument structure and eliminates the need for both lexical semantic representation and linking rules. Proponents of this approach assume that different verb behaviors and verb alternations can be better captured and accounted for from a syntactic point of view. As mentioned earlier, constructionists have different views on how much of lexical information should be taken into consideration. The radical constructionist approach denies the role of lexical information for argument realization (e.g., Borer 1998; 2003; 2005) and assumes that encyclopaedic and real world knowledge is the only factor that determines the insertion of lexical items into syntactic contexts. Other constructionists (e.g., Travis 2010; Kratzer 1996; van Hout 1996; Ritter & Rosen 1998) attribute argument structure realization to some aspectual properties that can be read off the syntactic structure itself. Researchers such as Folli & Harley (2005) and Ramchand (2005, 2008) tolerate the presence of lexical specification that puts constraints on how lexical items are associated with syntactic positions.

Before reviewing some of these constructionist studies, it is important to shed light on some syntactic developments that help constructionists integrate semantics in syntactic structures. The developments of the semantic representations of events were paralleled by changes in the syntactic representation of verb phrase.

2.5 Syntactic Developments within the VP

This section describes the articulation of the VP layer and some functional projections that provide tools for representing the event in syntactic structures.

2.5.1 External and Internal Arguments

Following Williams (1981), Marantz (1984) makes a distinction between external argument and all other internal arguments of the verb. The interpretation of a verb can be affected by its internal arguments, while external arguments barely do so. Therefore, subjects, according to Marantz, are not true arguments of verbs. The examples in (21) show how different internal arguments trigger different interpretations of a single verb.

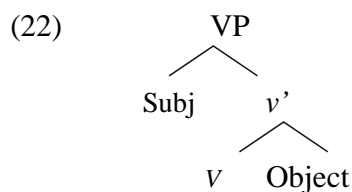
- (21) a. kill a cockroach (literal)
b. kill a conversation
c. kill a bottle (empty it) (idiomatic)
d. kill an evening
e. kill an audience (wow them)

(Marantz 1984: 28)

The interpretation of the verb *kill* varies depending on the internal arguments that appear with the verb. In contrast, using different external arguments does not lead to different idiomatic readings. We will see later how recent researchers (e.g., Harley 2005; Travis 2010; among others) further explore the idea that the choice of an object may affect the semantic interpretation within the VP.⁸

⁸ See Blanco (2011) for more discussion about syntactic and semantic treatments of external argument.

Recent syntactic research under the framework of MP supports the assumption that the external argument is not a true argument of a verb. In the mid 1980s, the external argument was placed in the Specifier of VP instead of the Specifier of IP while other internal arguments were placed in lower positions under V' as illustrated in (22) below.

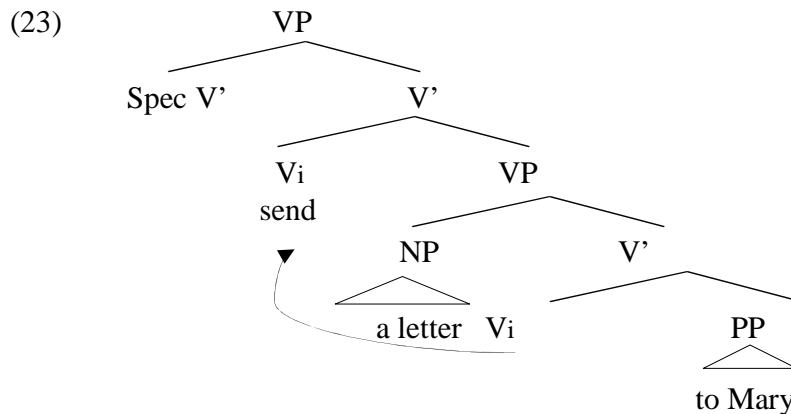


The external argument at this stage is still within the domain of VP but distinguished from other internal arguments only by being sister to V'. This basic structure (22) provides the core domain for thematic assignment. The external argument is still within that domain, which is not consistent with the idea that external arguments are not true arguments of the verb.

2.5.2 VP-Shell

A significant milestone in the development of VP structure took place when Larson (1988) proposed the verbal shell structure (VP-shell) to account for the multi-complement nature of ditransitive and locative constructions. Three-place predicates are problematic to the X Bar Theory because they cannot satisfy the requirement of binary branching with one head. Larson suggested that additional heads must exist within the VP to license multiple complements within

the framework of binary-branching hypothesis. The following tree (23) is a representation for the sentence *John sent a letter to Mary*.



(Larson 1988: 342)

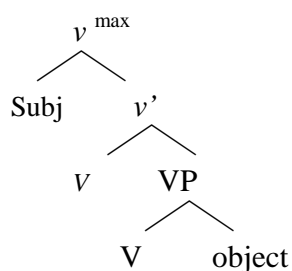
The VP-shell construction allows a VP to embed in another VP. The verb *send* moves from the lower V head to the higher "semantically empty" V head position. The specifier of the upper VP hosts a DP that represents the external argument with Agent/Causer theta-role. The specifier of the lower VP hosts a DP with a Theme theta-role. The complement of the lower V' introduces the Goal/location theta-role.

This structure represents the external argument within a domain that is schematically external to the domain of internal argument. It captures the internal/external argument distinction, and represents internal arguments in a hierarchical configuration. In addition, it is compatible with the VP-internal Subject Hypothesis (VPISH), originating with Koopman & Sportiche (1991), which argues that all arguments, including the external argument, originate in the

VP.⁹ As we shall see later in this chapter, the VP-shell structure gives researchers more space to include aspectual and functional elements within the domain of VP that may affect the interpretation and argument realization of verbs.

Over the last two decades, researchers investigating external arguments have utilized structures that echo Larsonian's VP-shells (e.g., Hale & Keyser 1993; Bowers 1993; Pylkkänen 2002, 2008; Harley to appear b). Those researchers extend the basic idea of Larsonian VP-shell and represent the external argument in a layer above the lexical domain of VP. Those researchers, however, have different views on the source of theta-role assignment to the external argument and on the nature of that head. They also have different labels for the head introducing the external argument (e.g., 'little *v*' in Chomsky 1995 and 1998; 'Voice' in Kratzer 1996 and Harley to appear a; and 'Predicate' in Bowers 1993). What is common among these researchers is that they all present hierarchical structures that show the asymmetry between external argument and internal arguments. A structure that is still generally assumed in minimalist approaches is represented in (24).

(24)



(Chomsky 1995: 352)

⁹ See Harley (1995) for more details about the VISH and the syntactic arguments behind it.

The projection of little *v* (or the upper VP), commonly referred to as “transitivity head” ensures the structural prominence of external argument and separates it from the lexical layer (lower VP) where internal arguments are projected. Arad (2002) states that:

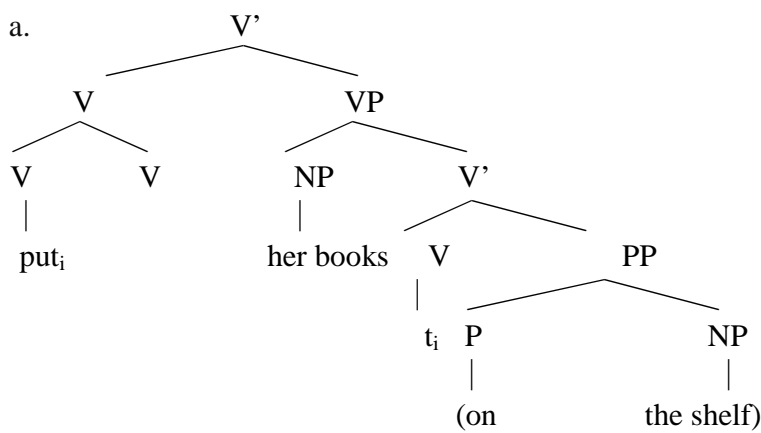
The motivation for postulating *v* is twofold: first, it captures the correlation between the presense of an external argument and (structural) object case (Burzio’s 1986 generalization). Second, by having the external argument introduced by a functional head we capture the observation that this argument is not an argument of the verb. Structurally, it is external to the verb phrase. Semantically, its interpretation is given compositionally by the whole verb phrase (Marantz 1984; Kratzer 1996). (Arad 2002: 17)

2.5.3 Lexical Relational Structures

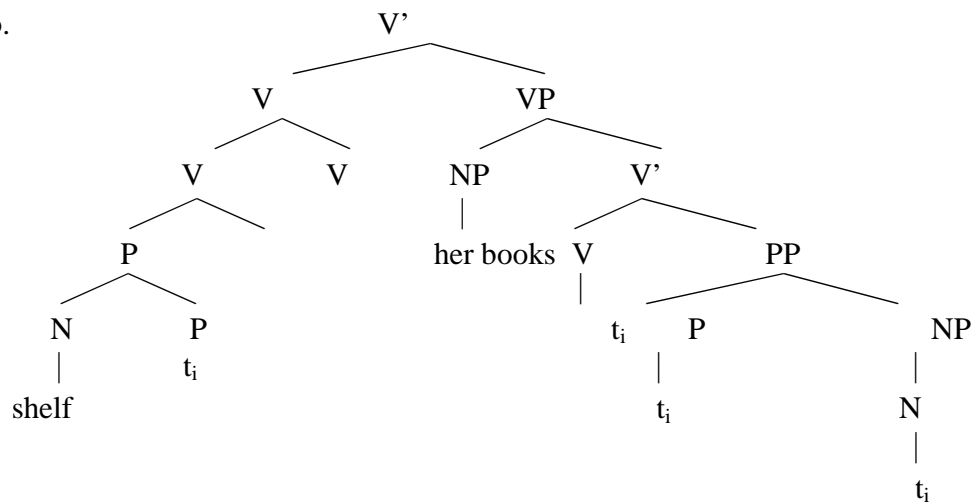
Hale and Keyser (1993, 2002) (henceforth H&K) made another important contribution to the structure of VP and VP-shell. For instance, through their discussion of denominal verbs like *saddle* and *shelve*, H&K (1993) represent a syntactic structure in a VP-shell fashion that reflects the relationship between theta roles, argument structure and aspect. H&K introduce a model where theta roles are read off the structure. They argue that argument structures are triggered by independently motivated syntactic principles, and thematic roles are reduced to syntactic configurations in which lexical items and other functional elements participate. They basically argue for a bottom-up construction, where the category of the complement of the lower lexical VP is responsible for the aspectual class of

verb. For example, a V subcategorizing a preposition in the Lexical Argument Structure representation (LAS) ends up as a locatum verb. The structures represented in (25) show that a denominal verb like *shelve* is derived from the same kind of structure as that of the sentence *John put the books on the shelf* (H&K 1993:57-57).¹⁰

(25) a.



b.



The denominal verb *shelve* is derived through head movements as represented in

¹⁰ H&K use arrows to show the movement.

(25b).¹¹ First, the movement incorporates the N under PP into the P that governs it. The next movement is to the V that governs the whole PP. The compound finally moves to incorporate into the matrix verb. H&K assume that each head on the structure contributes meaning. Starting from the lower layer, the head N *shelf* represents the endpoint of the action and the P contributes a location. The upper matrix V above the inner VP corresponds to the “causal” relation or CAUSE, and the lower V corresponds to inchoativity or BE/BECOME. It has been an almost general consensus, after H&K (1993), that the first vP expresses the process and the second VP expresses the result or an endpoint of an action.

Theta-roles are read off the structure as well in this model, and their positions are not accidental. A DP placed in a particular position is always associated with a specific theta role. For example, the Agent will always be the DP occupying the Specifier of the upper vP, while the Theme will always be the DP occupying the lower VP. An absolute mapping system like this meets the requirement posed by UTAH. However, the semantics of the verb is read off from the sub-events of the structure and not from the inherent properties of the lexicon.

This finer-grained analysis of events is supported by adverbial modification. Folli & Harley (2004) give the example in (26) to show that an event can have sub-parts.

(26) John almost melted the chocolate.

Folli & Harley (2004: 6)

¹¹ This head movement theory is replaced by a theory of “conflation” in H&K (2002).

This sentence is ambiguous between two interpretations. One interpretation is that *John almost performed an action of melting the chocolate*, and the other is that *John melted the chocolate almost all the way*. This ambiguity proves that there exist sub-parts for the event *melt* that may be modified by the adverb *almost*. Higginbotham (1997), as cited in Folli & Harley (2004: 6), gives other examples as illustrated in (27) to stress the need of a “bi-eventive” analysis of causative structures.

- (27) a. John sat his guest on the floor **on purpose**.
b. John sat his guest on the floor **slowly**.

(Higginbotham 1997: 3)

The adverbial *on purpose* can only modify the causing sub-event in (27a), while the adverbial *slowly* in (27b) can only modify the sitting event.

2.5.4 Different ‘flavors’ of Little *v*

A number of researchers investigating argument structure argue that different types of *v* heads are responsible for determining different behaviors of verbs (e.g., Harley 1995, Miyagawa 1998, Arad 2002, and Folli & Harley 2004). Those researchers look at *vP* in an abstract way, and do not assume that this *vP* represents a particular light verb or a causative head.

Harley (1995) investigates the typology of the little *v* projection and argues that the little *v* head corresponds to an Event head that can be either causative

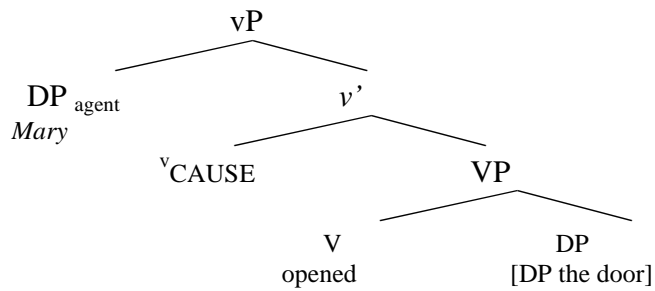
with an external argument, or stative with a BE-head that doesn't select an external argument. Later in Folli & Harley (2005), little *v* comes with more 'flavors': CAUSE, DO or BECOME. Causative semantics is separated from the agentive interpretation because there exist verbs in English and most other languages that place 'selectional restrictions' on their external argument. Examples from English are given in (28).

- (28) a. The army/The tornado destroyed the city.
b. #The city destroyed.
c. John arrived.
d. #The atrain arrived John.
e. Sue/The tornado killed someone.
f. Sue/#The tornado murdered someone.
g. The warden/Sickness imprisoned Andrew.
h. The warden/#Sickness jailed Andrew.

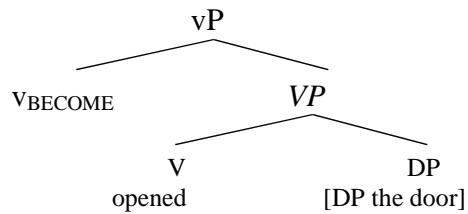
(Folli & Harley 2004: 103)

Folli & Harley argue that it is more efficient to account for these alternations from a syntactic point of view. Blanco (2011), drawing on Harley (1995), presents the structures in (29) as examples to show different types of *v* (causative, inchoative, and unaccusative).

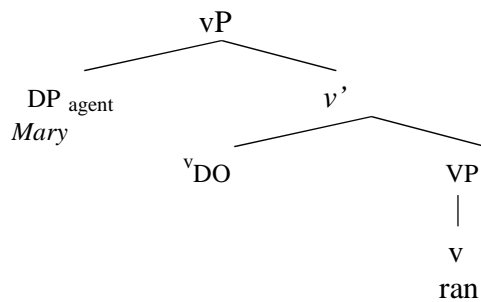
(29) a. v_{CAUSE} (Mary opened the door)



b. v_{BECOME} (The door opened)



c. v_{DO} (Mary ran)



(Blanco 2011: 27)

In (29a), the causative reading for the sentence *Mary opened the door* is determined by the little v head, which has the property of v_{CAUSE} . In (29b), the flavor given to the little v head, which is v_{BECOME} , determines the unaccusative

nature of the sentence *The door opened*. Finally, the unergative nature of the sentence *Mary ran* in (29c) is determined by the selectional property ν DO.

2.5.5 Exo-skeletal Approach

Borer (2003, 2005) adopts a strong computational system in accounting for argument structure realization. The structure, according to Borer, is the only determinant of grammatical properties and the fine-grained meaning of lexical items themselves. She argues that the lexicon does not contain information about syntactic projections. It only contains the *encyclopedia*, defined as a “list of all pairings between sound and meaning” (Borer 2004: 30). She criticizes some accounts that attribute different behavior of verbs to different little ν heads (cf. Kratzer 1996, Marantz 1997, and Folli & Harley 2005). For her, associating different arguments with different syntactic projections is not very different from traditional lexicalist accounts that do “associate, for example, verbs of emission with a particular argument structure” (Borer 2005: 220).

Borer’s argument for a strong computational system that puts the entire burden of argument realization on syntactic functional features is justified by the fact that a verb behaves flexibly and cannot always be predicted by semantic or lexical means. She uses a paradigm, originally provided by Clark and Clark (1979), to show that the multiple syntactic projections of a verb like *siren* cannot be accounted for in semantic terms. This paradigm is given below.

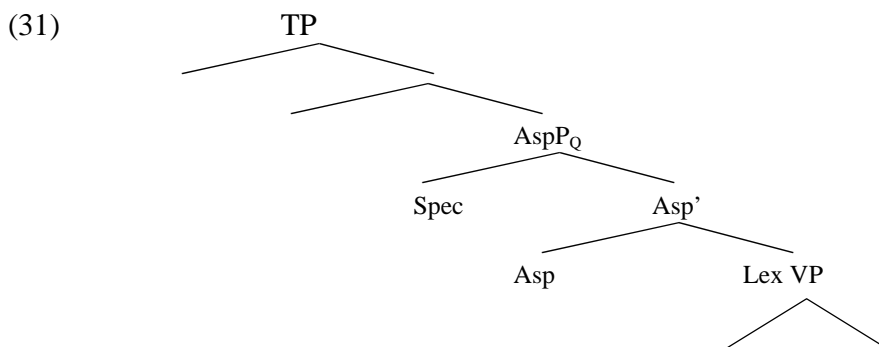
- (30) a. The fire stations sired throughout the raid
b. The factory sired midday and everyone stopped for lunch
c. The police sired the Porche to a stop.
d. The police car sired up to the accident.
e. The police car sired the daylights out of me.

(Borer 2005: 69)

Borer points out that these sentences contain one specific verb that can be classified as a verb of emission in L&RH's sense. However, this class of verbs or the meaning of 'emitting a sirening noise' cannot account for the different syntactic projections represented in each sentence. Borer indicates that we would need five different entries for the verb *siren* in the lexicon if we assume that the lexicon is responsible for determining the syntax of the arguments and event structure. She argues that the event interpretation of each sentence is rather determined by the syntax of the arguments, and the verb *siren* is interpreted as a 'modifier' in that sentence and not a determiner of argument structure. Borer uses "Event roles" (subject of change, subject of state, subject of process) instead of the traditional thematic-roles to determine argument structure.

Borer proposes a structure that distinguishes between functional and lexical domains. The functional domain, which comes above the lexical domain, relies heavily on some inner aspects such as telicity, cumulativity and quantization (mostly inspired from Krifka 1989; 1992) (more about inner aspects is discussed in the next sub-section). The structure of functional domain in Borer's account is

based on a complex theory of argument projection that goes beyond the scope of this dissertation. Therefore, a simplified structure that represents only the syntactic portion of her account is provided in (31) for the telic interpretation of the sentence *Kim built a house*.



Borer argues that the DP arguments under the Lex VP get their interpretation after they move out of the VP to the specifier of the functional projection above. The internal argument must have a property α (i.e. quantity) so the derivation converges and does not crash. The internal DP with the α property moves to the Specifier of AspP assigning range to Asp. If the internal DP does not have this property, the derivation will crash. For example, if the internal DP has a non-quantity property [-Q] as in *houses*, the derivation will collapse. For the structure not to crash with a [-Q] internal DP, the structure must have a different functional projection.

One substantive challenge to Borer's (2005) account is the fact that not all verbs can have unconstrained syntactic projection. Borer argues that pragmatics and real-world knowledge are responsible for ruling out impossible structures.

Ramchand (2008) instead proposes that verb behavior is sometimes selective. For example, verbs like *sleep* and *arrive* do not allow causative/inchoative alternation as shown in (32a). Also, some verbs resist “telic augmentation” as shown in (32b).

(32) a.#John **slept** the baby.

b.#John **watched** Mary bored/to boredom.

(Ramchand 2008: 10)

2.6 Aspectual Classification of Verbs

Aristotle is generally known as the first to observe that the meanings of some verbs involve an “end” or “result” while other verbs do not. However, a classification that has been more beneficial and relative to linguistics was not developed until the twentieth century, when Vendler (1967), drawing on Ryle (1949) and Kenny (1964), classified verbs, according to inner aspect, into four distinct categories: states, activities, achievements and accomplishments. This classification is simply based on how an event proceeds in time.¹² Aspectual classification of verbs is known as lexical aspect, Aktionsart, situation aspect, or inner aspect. Examples of the four aspects are given in the following table.

¹² See Dowty (1979) for further details about the development of aspectual classification of verbs.

Table 2.2

Verb Aspectual Classes (Dowty, 1979: 54)

States	Activities	Accomplishments	Achievements
know	run	paint a picture	recognize
believe	walk	make a chair	spot
have	swim	deliver a sermon	find
desire	push a cart	draw a circle	lose
love	drive a car	push a cart	reach
		recover from illness	die

State verbs do not have duration and do not imply a change in conditions.

Activities, on the other hand, include non-goal oriented verbs that have no endpoint or results. Therefore, they are characterized as atelic verbs.

Accomplishments and achievements have built-in terminal points and, therefore, are telic verbs. Accomplishments are differentiated from achievements based on their duration: accomplishment verbs imply long duration (durative), while achievement verbs denote short or no duration (punctual). Vendler provides some diagnostics to test the Aktionsart of each category. For example, states and achievements are grouped together as they both lack progressive tenses, while activities and accomplishments are set together because they both allow progressive tenses. In what later became a standard test to distinguish between telic and atelic verbs, Vendler indicates that states and activities can be modified by the adverbial *for*, as in *John walked for an hour*, while achievements and accomplishments take time adverbials with *in*, as in *John ate an apple in an hour*.

Vendler's classification has been subject to criticism and gone through significant modifications by subsequent researchers. Many researchers (Dowty 1979; Tenny 1994; Smith 1991; Pustejovsky 1991; Verkuyl 1993; Jackendoff 1996 among others) question the reality of achievements and Vendler's claim that it is the verb alone that determines aspectual class. Current researchers investigating lexical aspect generally agree that the inner aspect cannot be determined by the verb alone (e.g., Ritter & Rosen 2001; Borer 2005; Harley 2005; Thompson 2006; Travis 2010; Ramchand 2008; van Gelderen 2011). Other elements in a sentence such as direct objects, adjuncts, and subjects affect the aspectual classification of verbs. For example, the accomplishment verb *eat* is atelic when the object is a mass noun (no specific quantity of material [-q]), but becomes telic when the direct object is a count noun (specific quantity of material [+q]) as illustrated below.

- (33) a. Mary ate the apple in an hour/#for an hour.
b. Mary ate apples #in an hour/ for an hour.

Another instance that shows how telicity or inner aspect of a verb can be affected by elements around the structure is manifested through the addition of a prepositional phrase or 'path' as in Jackendoff (1996) to a transitive activity verb as shown in (34).

- (34) a. John pushed the cart for an hour/#in an hour.
b. John pushed the cart to the end of the store #for an hour/ in an hour.

The interpretation in (34a) is durative and it becomes telic when we add a PP, which marks the potential end point to which the object *cart* moves.

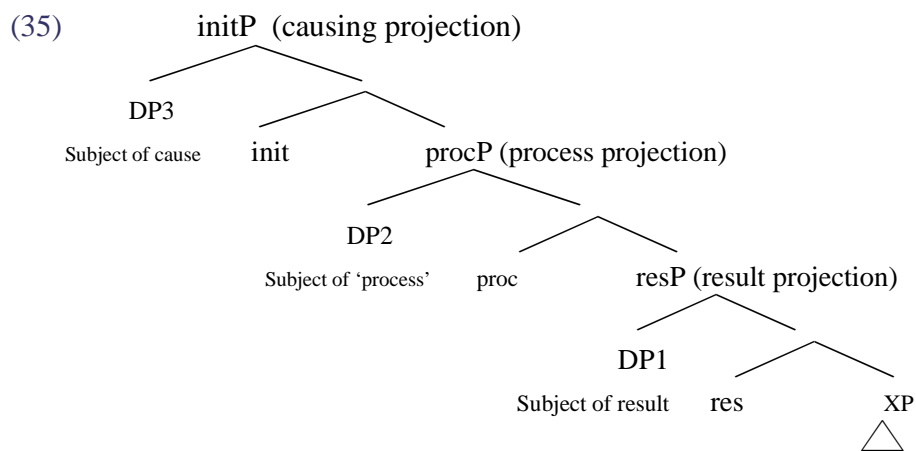
2.7 Syntactic Representation of Lexical Aspect

This section briefly reviews some syntactic accounts of lexical aspect. The purpose of this section is to show how different linguists account for the relationship between the inherent properties of objects (e.g., telicity, definiteness and boundedness) and lexical aspect of verbs in their syntactic representation.

Ramchand (2008)

Ramchand (2008) presents a syntactic model of argument structure that, as she argues, replaces the lexical model where each lexical item has its own special primitives and modes of combination. She, nonetheless, does not deny that there is encyclopedic information that has to be listed/memorized. She claims that lexical behavior is systematic and generalizable due to syntactic modes of combination and not to specific lexicon-internal processes or L-syntax as proposed by Hale and Keyser (2002). Investigating non-stative eventualities, which are complex in nature, Ramchand represents a syntactic decompositional model consisting of three sub-events traditionally associated with lexical items. These sub-events are represented by separate functional projections allocated to

specific positions. The highest is the initiation sub-event InitP (for causation or initiation), the middle sub-event is the process ProcP (denoting change or transition), and the lower is the result sub-event ResP (marking the endpoint or final state). Ramchand's syntactic model is provided in (35).



(Ramchand 2008: 39)

Each sub-event has a subject in its Specifier. The subject of the InitP, similar to the little *v* as in Chomsky (2005), introduces the external arguments of the verb (i.e. Agent, Instrument, and Causer). The central projection ProcP is an essential component that, according to Ramchand, must exist with all dynamic or non-stative verbs. The Specifier of ProcP hosts the subject undergoing transition or change of a process. Finally, the ResP introduces the 'holder' of the result state. The ResP layer, which introduces the final state or endpoint, captures

telicity of predicates that explicitly express a result state as in *Mary pushed the cart to the end of the store*.

Although Ramchand does not disprove the claim that some properties of internal arguments affect the aspectual interpretation of a verb, she, nonetheless, argues that this relationship is not always straightforward, and thus it should not be relevant to the semantics and syntax of events.

Unlike Borer (2005), who argues that a lexical verb does not specify any features relevant for syntax, Ramchand assumes that lexical units carry certain functional features that constrain their behavior. For example, the lexical entries for the verbs *break* and *throw* in English are represented in (36).

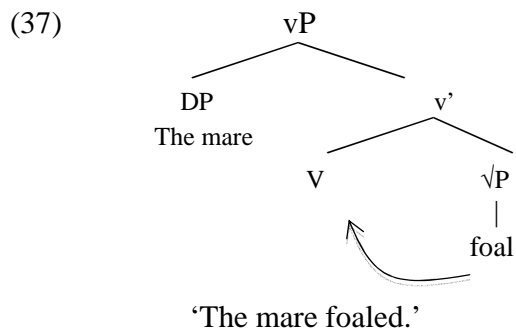
- (36) a. Break: [(init),proc, res]
b. Throw: [init, proc, res]

(Ramchand 2008: 88)

The verb *break* can be intransitive as in *the window broke* or transitive as in *John broke the window*. This is why the lexical entry of *break* appears with an optional initiation. On the other, the verb *throw* is always transitive as in *John threw the ball*. It cannot be intransitive as in *#the ball threw*. Therefore, the lexical entry for such a verb indicates that the initiator or external argument must exist.

Harley (2005)

Harley (2005) investigates the lexical aspect of denominal and deadjectival verbs. Based on the I-syntactic approach of Hale and Keyser (1993), she argues that denominal verbs are derived by incorporating the Root noun in object position into the “light” verb that selects it. For example, the I-syntax for the verb *foal* is represented in (37).



(Harley 2005: 46)

Harley attributes telicity or lack of telicity to the mass or count properties inherent in the object. She further argues that the Root position itself has inherent mass or count properties, and thus telicity is predicted by the I-syntactic approach before the incorporation takes place. Therefore, the Aktionsart properties of the transitive paraphrase of the verb *foal* remain the same even after incorporation/conflation as represented in (38).

- (38) a. The mare bore a foal in two hours/ #for two hours.
b. The mare foaled in two hours/ #for two hours.

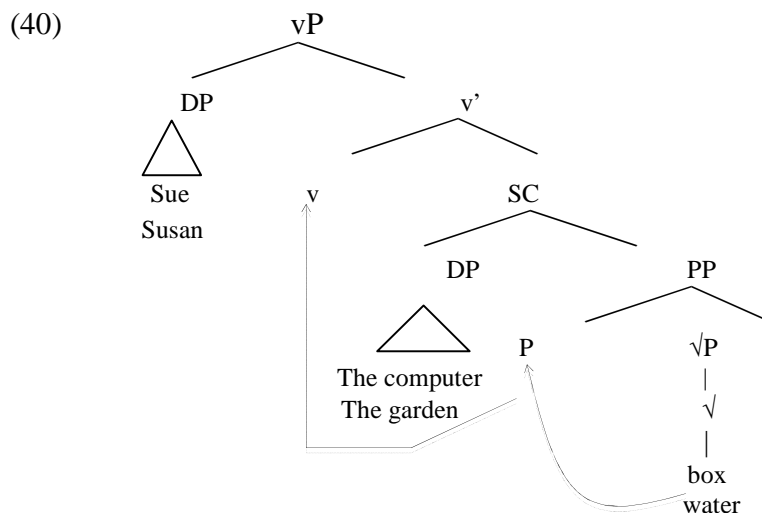
(Harley 2005: 47)

There is no functional projection to check the telicity of the direct object in the underlying structure or I-syntax. Harley indicates that the homomorphism between event and object depends on position of the object in the I-syntax, and not on features that need to be checked by the object in the syntactic configuration.

Beside the unergative verbs, Harley discusses the telicity and lack of telicity in location and locatum verbs. Examples are represented below.

- (39) a. Sue boxed the computer
 b. Susan watered the garden.

Unlike the structure of unergative verbs such as *foal* and *calve*, the structure of location and locatum verbs is complex because it contains two eventualities. Following H&K (1993), Harley provides the following structure in (40) for such verbs.



The number of the subject of the SC indirectly affects the lexical aspect of verb in such a structure. The examples in (41) show the effect of the number of the Inner Subject on the aspectual interpretation in both locative and locatum verbs, and the identical effect on their paraphrases in (42).

(41)

- a. Mom blindfolded a six-year-old #for / in five minutes.
- b. Mom blindfolded children for five minutes/ #in five minutes.
- c. Sue boxed the computer #for five minutes/ in five minutes.
- d. Sue boxed computers for five minutes/ #in five minutes.

(Harley 2005: 59)

(42)

- a. Mom fit the child with a blindfold #for five minutes/ in five minutes.
- b. Mom fit children with a blindfold for five minutes/# in five minutes.
- c. Sue put the computer in a box #for five minutes/ in five minutes.
- d. Sue put computers in a box for five minutes/ #in five minutes.

(Harley 2005: 59)

Harley points out that the number or mass/countness of the indirect object in the paraphrases can affect the Aktionsart of the vP too as shown in (43).

(43)

- a. Sue put the computer in boxes for five minutes/ #in five minutes.
- b. Sue fit the horse with saddles for five minutes/ #in five minutes.

(Harley 2005: 59)

Harley argues that the atelicity of the paraphrases in (43) is due to the unboundedness of the prepositional object. However, if the root is bounded and the indirect object is also bounded, the sentence will always be telic as in (41c) and (42c). On the other hand, if the root is an unbounded thing, the sentence will be atelic, as in (44) below.

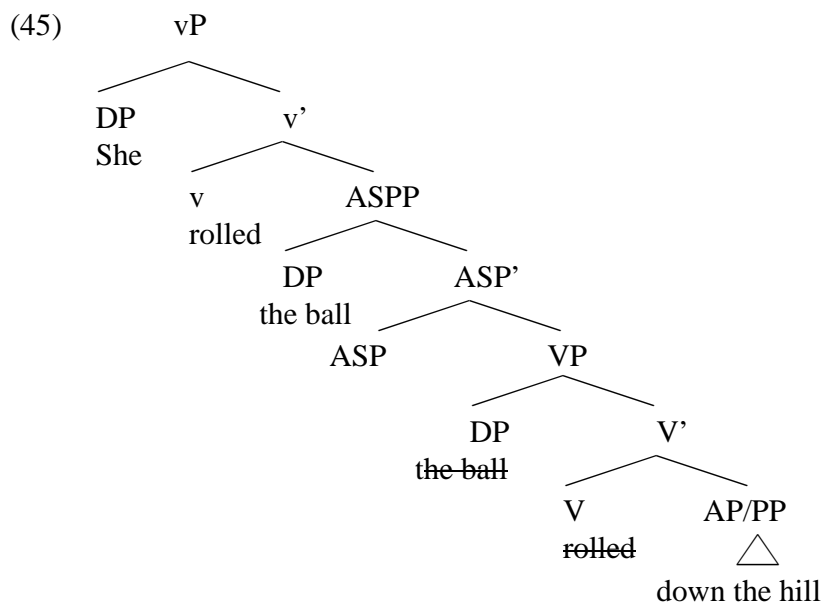
- (44) a. Susan watered the garden for an hour.

(Harley 2005: 60)

van Gelderen (2012)

van Gelderen (2012) presents a model with a functional projection of lexical aspect. She assumes that argument structure cannot be solely determined by the vP. Utilizing Reinhart's (2002) binary features of thematic roles, van Gelderen proposes that some verbs enter the derivation with certain minimal features determined by the lexicon. For example, the lexical information we need to know about the verb *roll* is that it minimally has a Theme [-c,-m] that can be represented in a sentence like *the ball rolled*. If this verb is used as causative, it is

apparently the syntax or the light *v* that is responsible for such a construction. The syntactic structure of the sentence *she rolled the ball down the hill* is given below.



(van Gelderent 2012: 103)

This structure represents three layers: the *vP* introduces the causer/initiator of the action, the *ASPP* is the process of the action towards the result, and finally the *VP* hosts the state or result. Unlike Harley (2005), van Gelderen syntactically encodes the aspect inside the *vP* through the functional projection *ASPP*. In such a model, for a structure to converge, certain features on the object have to check with that functional layer.

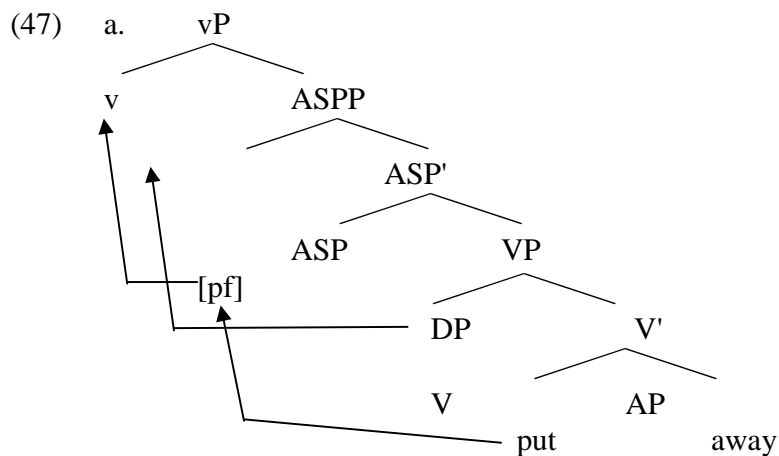
van Gelderen discusses phrasal verbs and *VP*-adverbials because she believes that they show a clear connection between aspect and definiteness. Discussing particle verbs, she argues that the particle of a phrasal verb that

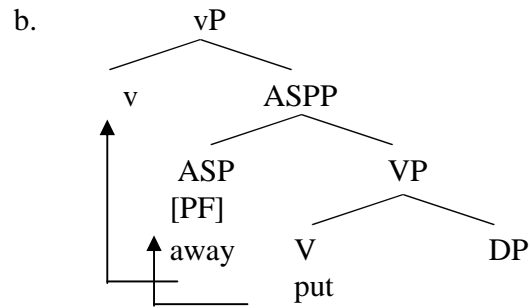
appears with a definite object is often placed in a different position as shown in the following sentences.

- (46) a. She put away a big Tennessee breakfast
 b. She put the phone away

(van Gelderen 2012: 126)

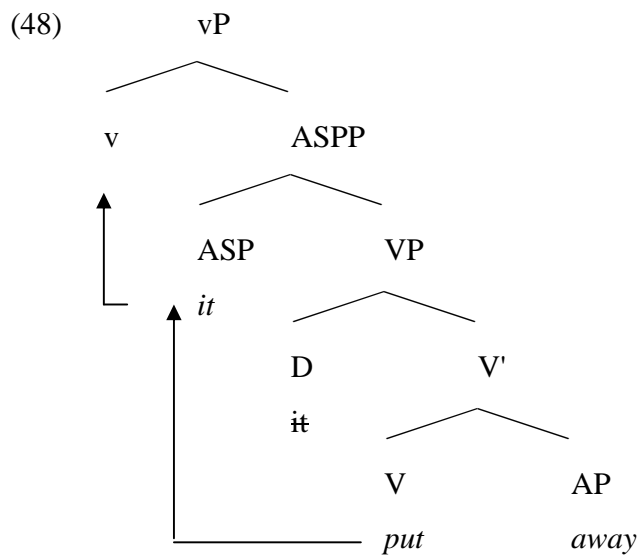
Indefinite objects, on the other hand, cannot be placed before the particle. To account for that syntactically, van Gelderen argues that the adverb that appears with perfective aspect can either be part of the VP or part of the ASP. She presents the structure (47a) for an order like that in (46b), where the definite object appears before the particle, and the structure (47b) for (46a).





(van Gelderen 2012: 127)

In (47a) the adverb *away* merges with the VP while the verb *put* internally merges with the ASP and then moves to the v. In (47b) the verb moves to ASP and the nominal object moves to the specifier of the ASPP to check perfective aspect. Finally, the verb moves to the v. The structure for a sentence where a definite object appears after the particle is provided in (48).



Here the pronominal object moves to the head of the ASPP to check perfective aspect and definiteness, and the verb left-adjoins to it while moving to v.

2.7 Conclusion

The primary goal of this chapter is to introduce the key developments in the research on argument structure and to reveal the relationship between syntax and semantics. We have seen that the articulation of VP has been very flexible in accommodating different arguments and other elements such as definiteness and aspect. It is now understood that the lexical aspect of a verb is sensitive to structural elements around the verb and not to the verb alone. That fact has led to creating models that attempt to capture the primary syntactic factors that coerce or help in determining the lexical aspect of a predicate. I assume that a researcher who would investigate the argument structure and inner aspect of verbs in a new language will take into consideration these different accounts and assess their applicability to that language. Arabic is a language that has not received much attention in the literature of argument structure and inner aspect. Similar tools will be applied in the following chapters to investigate the language of study, which is Standard Arabic.

Chapter 3

SYNTACTIC AND MORPHOSYNTACTIC ISSUES IN ARABIC

This chapter discusses some salient aspects of Arabic syntax related to argument structure. A contentious issue in this chapter is the traditional argument that verbal patterns (morphosyntax) can always determine argument structure in Arabic. I will show that the majority of verbal patterns in Arabic can appear in a number of different argument structures. However, a few verbal patterns can be thought of as templates for specific argument structures (especially those used as inchoatives). I will also argue that verbs or verbal patterns that select similar argument structures do so because they share common semantic characteristics. In other words, those specific verb patterns that display a unique syntactic behavior are used as templates to express certain semantic characteristics (e.g., human quality).

Another goal of this chapter is to investigate the word order and the hierarchy of thematic roles and arguments in Arabic. This is examined through the investigation of Case-marking in the language and the relation between morphologically Case-marked arguments and word order. I will show that the remarkable free word order in Arabic is due to the extensive overt Case-marking. However, the language respects a very specific word order if Case-marking fails to distinguish between arguments. Classifying Arabic verbs into *transitives*, *unaccusatives*, and *unergatives* and accounting for the different syntactic and semantic properties they represent tell us something about the thematic role of Agent. More importantly, showing that Arabic has unaccusative and unergative

verbs that semantically and syntactically behave like their counterparts in English will at least set the stage for further discussion (in subsequent chapters) of these classes in relation to argument structure.

One important point I make in this chapter is that Roots in Arabic do not determine the argument structure. Only when a Root is merged with a specific pattern will it obtain semantic meaning, and in some cases a specific syntactic behavior. To support my argument, I propose a morphosyntactic model within the framework of Distributed Morphology. Arabic is a rich morphological language, and such a model should enable us to see how different morphemes are distributed in the syntax. This account also offers a very convincing explanation about how denominal verbs are derived. Towards the end of this chapter I will discuss denominal verbs in Arabic and show how the morphosyntactic model I propose can account for the semantic relation between denominal verb and the base verb. The way denominal verbs are derived in Arabic supports the argument that a Root does not carry lexical information related to the argument structure.

3.1. Word Order and Subject-verb Asymmetry

The subject in Arabic can occur in a pre-verbal position as in (1a), and in a post-verbal position as in (1b).

- (1) a. البناتُ ضربنَ (#ضربت) زيداً
 al-banaat-u Darab-na/#-at Zayd-an
 the girls-NOM hit-PST-3FP/#3FS Zayd-ACC
 'The girls hit Zayd'

b. ضربت (#ضربين) البناتُ زيداُ

Darab-at/#-na 1-banaat-u Zayd-an

hit-PAST-3FS/#3FP the girls-NOM Zayd-ACC

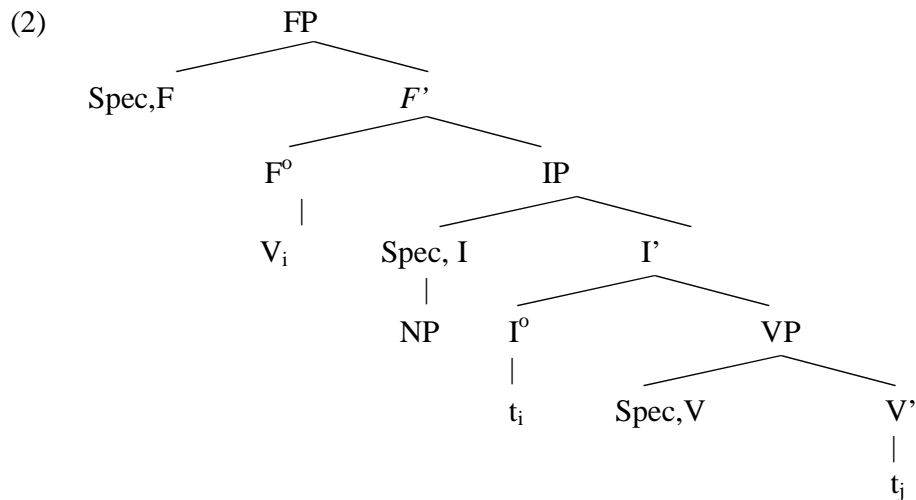
'The girls hit Zayd'

(van Gelderen 1996: 756)

Pre-verbal subjects agree fully with the verb (in person, gender and number), while post-verbal subjects agree partially with the verb (in person and gender). The SVO and VSO structures and the subject-verb agreement asymmetry have been extensively analyzed in the literature (cf. Fassi-Fehri 1993, Aoun et al 1994, van Gelderen 1996, Benmamoun 2000, Harbert & Bahloul 2002, Soltan 2007, and Benmamoun et al. 2010). It is beyond the scope of this dissertation to discuss in detail the different analyses of this issue. I choose to limit my discussion here to the main views that have received a wide measure of acceptance in the literature (cf. Soltan, 2007 for extensive discussion and evaluation of different approaches).

One approach to the variability in subject positions assumes a syntactic movement, whereby the SV order is derived by moving the subject from inside the VP to the Spec of TP. As for the issue of the subject-verb agreement asymmetry, two main types of analyses are presented here. One type of analysis is advanced by Aoun et al. (1994) under the government-binding framework. They argue that features are licensed only under the Spec-Head relation formed at intermediate points in the syntactic derivation. The partial agreement found in (1b) (gender agreement) is licensed because the verb is in a Spec-Head relation

with the subject before it moves to the higher functional head position (F^0) as represented in the following structure.



According to Aoun et al., agreement information gets 'lost' on heads when they move and they are not in a Spec-Head relationship. It is worth mentioning that gender feature is retained because it is considered an inherent feature of the lexicon, while the number information is lost because it is not an inherent feature, but rather "gathered" by that verb in I^0 .

Another type of analysis of the subject-verb agreement asymmetry is the null expletive analysis. One basic assumption about this type of analysis is that Spec-head relation between I and the lexical subject in its Spec is responsible for the full agreement in SV orders, while Spec-head relation between I and a null expletive in its Spec is responsible for the partial agreement in VS orders. The arrows in (3) indicate the Spec-Head relation in SV and VS orders obtained under the null expletive analysis.

(3)

a. SV: [_{IP} Subj_j V_i+I [_{VP} t_j t_i]]

b. VS: [_{IP} *pro*_{EXPL} V_i+I [_{VP} Subj t_i]]

Adapting an earlier work of Mohammed (1989), van Gelderen (1996: 1) modifies the minimalist framework and argues that there is a null expletive in VS structures that is responsible for the agreement and “the breakdown of agreement”. One interesting point about van Gelderen’s (1996) analysis of subject-verb agreement asymmetry is the fact that she not only accounts for the lack of number agreement in SV order, but unlike previous researchers explains why, under such an order, agreement in gender is still maintained. van Gelderen provides evidence that the expletive in Arabic is specified for singular number but not for gender and person. She argues that number is a strong V-feature while gender and person are weak features. Another assumption she makes is that the verb is specified for strong N-features. Unlike weak features, strong features require overt movement. A null expletive is inserted to check strong N-features in a verb that moves to T before SPELL-OUT and before the LF movement of the subject. The gender feature, being a weak feature, is not checked overtly, but covertly after the movement of the subject. The verb in VSO order moves to T (position for the null expletive) and agrees with the Spec of vP (number agreement with the expletive subject), while in SVO order the DP moves to the Spec of TP after the movement of the V to T.

A third approach to the word order alternation in Arabic assumes that the two structures are derived from different underlying representations (cf. Fassi Fehri 1993; Soltan 2007). The SV order is viewed as an instance of left-dislocation, where the preverbal DP is base-generated in the left-periphery of the clause. Ignoring irrelevant details, the syntactic representation of the SV and VS orders under such analysis is given in (4).

- (4) a. SV: [_{TopicP} DP Top [_{TP} T [_{vP} *pro* V.....]]]
 b. VS: [_{TP} T [_{vP} DP V.....]]

This type of analysis supports the argument of the traditional grammarians that pronominal subjects are used for discourse reasons i.e. to emphasize the subject. Traditional Arab grammarians do not treat the preverbal DP as a subject. This DP is called *mubtada'a* (that which it is begun with / topic) and the sentence it appears in is called a *nominal sentence*. The VS order is traditionally viewed as denoting the default or “thetic” interpretation, whereas the SV order is viewed as representing a *topic-comment* structure or a “categorical” interpretation (Soltan 2007: 50). The argument that the preverbal DP is viewed as a topic is supported by the fact that in Arabic we cannot begin a sentence with an indefinite NP as shown below.

- (5) a. ولدٌ كسر الباب #
 #walad-un kassar-a l-baab-a

- boy-NOM break-PST.3SM the-door-ACC
- b. كسر ولدُ البابَ
- kasara walad-un l-baab-a
- break-PST.3SM boy-NOM the-door-ACC
- 'A boy broke the door'

(Soltan 2007: 51)

The discussion above only considers the surface structure of Subject in Arabic, and mentions nothing about the semantics of that Subject. In what follows, I will delve in deeper to discuss the thematic nature and origin of Subject in Arabic by examining the unergative/unaccusative dichotomy in the sense of Perlmutter's (1978) Unaccusative Hypothesis. Arguing that unaccusative and unergative Arabic verbs are similar to their counterparts in English establishes the ground for examining and comparing their behavior. More specifically, in Chapter 5 I will examine the participation of these two types of verbs in both languages in the causative/inchoative alternation.

3.1.2 Unaccusative and Unergative Verbs

As mentioned in the previous chapter, intransitive verbs, according to the Unaccusative Hypothesis (UH), are classified into unaccusatives and unergatives. Distinguishing between unaccusative verbs and unergative verbs, Sorace (2000: 879) states that "The single argument of an unaccusative verb is syntactically equivalent to the direct object of a transitive verb, whereas the single argument of

an unergative verb is syntactically equivalent to the subject of a transitive verb."

Crosslinguistically, verbs like *fall*, *break*, and *arrive* are recognized as unaccusatives, while verbs like *laugh*, *resign* and *run* are viewed as unergatives. Unergative verbs entail willed, volitional, and controlled acts carried out by an Agent, while unaccusatives are typically known as intransitive change-of-state/location verbs. Some differences between the two types of verbs in English are provided in Table 3.1.

Table 3.1
Unaccusative and Unergative Verbs (Adapted from van Gelderen 2012: 107)

Unergative (Agent argument)	Unaccusative (Theme argument)
a. <i>deliberately</i> is ok and the argument is human/animate	<i>deliberately</i> is not ok and argument can be +/-animate
b. a Theme can be added	no Theme can be added
c. V+ <i>er</i>	#V+ <i>er</i>
d. <i>be</i> + perfect participle	<i>have</i> + perfect participle

After the introduction of VP shells by Larson (1988), a number of linguists (e.g., Chomsky 1995; Harley 1995; Arad 1998) have argued that the Spec of the upper vP (or the light v') is the thematic position of the external argument and hosts the subject of unergative or transitive verbs. Chomsky (1995) views the upper V head as a functional head that projects the agent and assigns Accusative Case to the DP under the lower VP. The subject of unaccusative verbs, which

have no object or external argument, on the other hand, is placed in the Spec of the lower VP.

The distinction between unaccusative and unergative verbs is syntactically and semantically encoded (cf. van Valin 1990; Dowty 1991; Levin & Rappaport Hovav 1995). *Telicity, agentivity, passivization, incorporation, there-insertion, adverbial modifiers, and cognate objects* are some of the most popular diagnostic tests used in the literature to distinguish between unaccusative and unergative verbs.

Some of the unaccusative/unergative diagnostic tests used for English may be applicable to their counterparts in Arabic. Mahmoud (1989) examines the validity of a number of syntactic and semantic tests to distinguish between unaccusative and unergative verbs in Arabic and he comes up with some interesting findings. To sum up, he points out that some syntactic tests (e.g., Resultative Secondary Predication, the insertion of pleonastic *hunaalika* “there”, and cognate objecthood), and some semantic tests (e.g., small clause complementation, and agentivity and control relations) are useful tools to distinguish between the two structures in Arabic, though he also points out that there exist some minor exceptions.

Examples demonstrating the validity of applying three of the aforementioned tools to distinguish between the unaccusative and unergative verbs in Arabic are provided below. Sentences (6a, 7a, and 8a) contain unaccusatives that are compatible with the syntactic test considered. The unergative verbs in (6b, 7b, and 8b) are incompatible with that same syntactic test.

(6) *Resultative Secondary Predication*

a. إنكسرَ الزجاجُ إلى قطع

n-kasar-a z-zujaaj-u ila gita'-in

INTR.break.PFV-3.MS the-glass-NOM to pieces-GEN

'The glass broke into pieces'

b. مشىَ الطفلُ تعباًناً#

#mas-a t-tifl-u ta'baan-a

walk.PFV.3SM the-child-NOM tired-ACC

'The child walked tired' (i.e. The child became tired as a result of walking)

(7) *Pleonastic Hunnalika هنالك Insertion*

a. تجلت هنالك عوامل الفشل

ta-jallat hunaalika 'awaamil-u

INTR.obvious.PFV.3FS there factors-NOM

l-fasal-i

the-failures-GEN

'There appeared factors of failure'

b. بكىَ هنالك طفلاً#

bak-a hunaalika tifl-un

cry.PFV-3SM there child-NOM

'There cried a child'

(8) *Cognate Objecthood*

a. صاح زيدٌ صيحةً عاليةً

sah-a zayd-un sayhat-an ‘aaliyat-an

cry.PFV.3SM zayd-NOM a cry-ACC loud-ACC

'Zayd cried a loud cry'

b.# انكسر الزجاجُ كسرةً كبيرةً

n-kasar-a z-zujaaj-u kasrat-an

INTR.break.PFV.3SM the-glass-NOM breaking-ACC

kabiirat-an

big-ACC

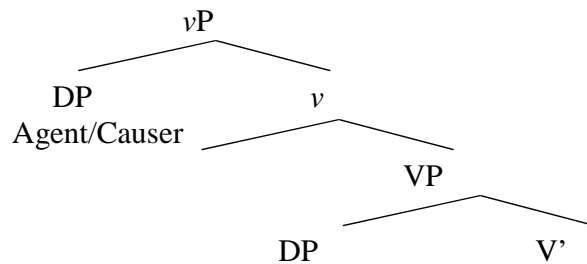
'The glass broke a big breaking'

(Mahmoud 1989: 80-112)

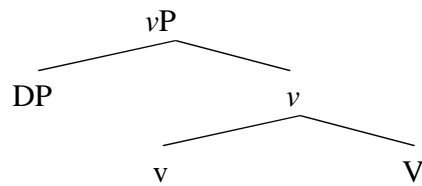
Based on these findings, I will assume, for now, the following representations in (9a-c) for the different verb classes discussed above (i.e. transitive, unergative, and unaccusative).

(9) Syntactic Representation of Different Verb Classes.

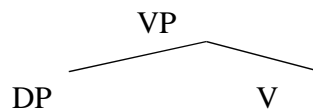
a. Transitive/Causative Verb (i.e. *John broke the window/John ate the apple*)



b. Unergative Verb (i.e. *He laughed*)



c. Unaccusative Verb (i.e. *he arrived*)



In Chapter 5, I will modify the position of external argument and assume a functional head, namely VoiceP above the vP along the lines of Pylkkänen (2002) and Harley (to appear b).

3.1.3 Case Marking in Arabic

Arabic is characterized by its extensive Case-marking, allowing considerable freedom in word order. Nominative, accusative, and genitive DPs in Arabic are often overtly Case-marked. The forms of these morphological markers vary depending on the gender, number, and definiteness of the DP. Nothing hinges on this, however. In what follows I provide examples to show how the Case system works in Arabic. I also discuss some Case properties of pre- and postverbal DPs. Then, I examine the relation between word order and Case marking.

Generally speaking, nominative case is assigned to subjects, accusative to objects, and genitive to the objects of preposition. The three underlined suffixes

(case-endings) in the following sentence (10) are nominative, accusative, and genitive case markers respectively.

(10) أرسل عليُّ الكتابَ إلى المكتبةِ

arsal-a	Ali- <u>un</u>	al-kitab- <u>a</u>	ila	al-`
send-PST.3SM	Ali-NOM	the-book-ACC	to	the-
				maktaba- <u>ti</u>
				library-GEN
'Ali sent the book to the library'				

All post-verbal subject DPs are assigned nominative case as in (11a).

Nominative case is also assigned to the subject of a verbless sentence (or *mubtad'a*) as shown in (11b).

(11) a. أكل الأطفالُ التفاحَ

Akal-a	al-atfal-u	al-tufah-a
eat-PST.3SM	the-children-NOM	the-apples-ACC
'The children ate the apples'		

b. عليُّ مدرسٌ

Ali-un	mudarris-un
Ali-NOM	teacher-NOM
'Ali is a teacher'	

Traditional grammarians distinguish between *jumla filiyya* ‘ a verbal sentence’ and *jumla ismiyya* ‘ a nominal sentence.’ A sentence like (11b) above viewed as a nominal sentence because it begins with a NP, while (11a) is taken to be a verbal sentence as it begins with a verb.

A preverbal DP can be assigned accusative Case if preceded by any case assigner. In traditional grammar there are five particles that can assign accusative Case to preverbal DPs or the topic of verbless sentence. These particles are known as the *sisters of inna* as in (12). The particle *inna* is a Complementizer, which is generally used for emphasis. The other two complementizers are *أَنَّanna* and *أَنْan*, both mean 'that'.

- (12) a. إِنَّ عَلِيًّا قَرَأَ الْكِتَابَ
- inna Ali-an qara-a l-kitab-a
- COMP Ali-ACC read.PST.3SM the-book-ACC
- 'Indeed, Ali read the book'
- b. عَلِمَ عَلِيٌّ أَنَّ زَيْدًا جَاءَ
- alim-a Ali-un anna Zayd-an jaa'a
- knew.PST.3SM Ali-NOM that Zayd-ACC came.PST.3SM
- 'Ali knew that Zayd came'

Similar to the Exceptional Case-Marking (ECM) construction in English, a DP appearing with a matrix verb in a raising-to-object construction is also assigned accusative Case. In line with traditional Arab grammarians, Soltan

(2007: 135) divides verbs that can appear in raising-to-object structures into three types: (1) "verbs of desire/expectation" and (2) verbs of "hearts", and (3) "verbs of perception". Examples of each verb type are provided below.

(13) Verbs of "desire/expectation"

أرادَ عليُّ الولدَ أن يأكلَ

Arad-a Ali-un **al-awlad-a** an yakul-u
 Want-PST.3SM Ali-NOM the-boys-ACC COMP eat-3PLM
 'Ali wanted the children to eat'

(14) Verbs of "hearts"

ظَنَّ عليُّ الرجلَ رحلَ

dhann-a Ali-un **r-rajul-a** rahal-a
 believed-PST.3SM Ali-NOM the-man-ACC left-ACC
 'Ali believed the man to have left'

(15) Verbs of "perception"

سمعَ عليُّ الأطفالَ يبكونَ

samia'a Ali-un al-atfal-a yabk-uun
 hear.PST.3SM Ali-NOM the-children-ACC cry-3PLM
 'Ali heard the children cry'

Soltan (2007), following Mohammad (2000) and Ouhalla (1994), argues that the type of nominative case assigned to postverbal subject DPs is structural,

whereas the nominative case assigned to a preverbal DP (in the absence of a preceding case assigner) is the “default” case that is always assigned to topics (*mubtada*). The assumption that the nominative case is the default case for preverbal subjects is supported by the fact that the nominative case is assigned to any DP in any topic-comment construction even if there is no verb as shown in the following examples.

- (16) a. Zayd-un fii-al-dar-i
 Zayd-NOM in-the-house-DAT
 'Zayd is in the house'
- b. Zayd-un muallim-un
 Zayd-NOM teacher-NOM
 'Zayd is a teacher'
- c. Zayd-un said-un
 Zayd-NOM happy-NOM
 'Zayd is happy'

(Soltan 2007: 55)

An interesting point about the relationship between word order and Case in Arabic is the fact that word order is free if no ambiguity exists. For example, the following sentences display six different acceptable word orders for the sentence meaning *Ali killed Zayd*.

- (17) a. qatal-a Ali-un zayd-an
 Kill-PST.3SM Ali-NOM Zayd -ACC
- b. qatal-a Zayd-an Ali-un
 kill-PST.3SM Zayd-ACC Ali-NOM
- c. Ali-un qatal-a Zayd-an
 Ali-NOM kill-PST.3SM Zayd-ACC
- d. Ali-un Zayd-an qatal-a
 Ali-NOM Zayd-ACC kill-PST.3SM
- e. Zayd-an qatal-a Ali-un
 Zayd-ACC kill-PST.3SM Ali-NOM
- f. Zayd-an Ali-un qatal-a
 Zayd-ACC Ali-NOM kill-PST.3SM

These sentences raise no ambiguity, as we have a clear picture of the different thematic roles. However, this freedom of word order is constrained if overt Case-marking cannot be spelled out. Traditional Arab grammarians indicate that some NPs ending with long vowels such as *Musa*, *kubra*, *qhadhi* are assigned latent (abstract) case markers that cannot be pronounced due to a phonological restriction. A more technical phonological explanation is that such words cannot be assigned overt markers because Arabic phonology disallows having vowels filling three successive slots within a syllable. The permitted syllable structures, of Arabic are, according to Holes (2004), CV, CVV, CVC, CVCC, CVVC and CVVCC (C stands for Consonants, and VV stands for a long vowel or a

diphthong). Inserting any Case-marking suffix to a word terminating in a long vowel and occupying two slots within a syllable violates the constraint stipulating the non-existence of a vowel in three successive positions.

When the subject and object cannot be distinguished by overt morphological Case-marking, the only possible word order is either VSO or SVO as shown in the following examples.

- (18) a. shakar-a Musa Eisa
 thank.PST.3SM Musa Eisa
 'Musah thanked Eisa'
- b. #shakar-a Eisa Musa
 thank.PST.3SM Eisa Musa
 'Musa thanked Eisa'
- c. Musa shakar-a Eisa
 Musa thank.PST.3SM Eisa
 'Musa thanked Eisa'
- d. #Musa Eisa Shakar-a
 Musa Eisa thank.PST.3SM
 "Musa thanked Eisa."
- e. #Eisa shakar-a Musa
 Eisa thank.PST.3SM Musa
 'Musa thanked Eisa'

f. #Eisa Musa shakar-a
 Eisa Musa thank.PST.3SM
 'Musa thanked Eisa'

As shown in the previous examples, in the absence of overt case-markers the word order respects a certain order. This order goes in line with the general agreement among the proponents of thematic hierarchies that the Agent role is the highest ranking role (e.g., Fillmore 1968: Agt > Inst > Obj). It also supports my proposed syntactic representation of transitive/causative construction, where the Theme is located in the Spec of a lower vP. Mohammad (2000: 49) points out that there is a consensus among Arab grammarians that the basic word order in Arabic is VSO where the verb comes first, followed by the subject, then the indirect object, and finally the direct object. An example for such an order is given below.

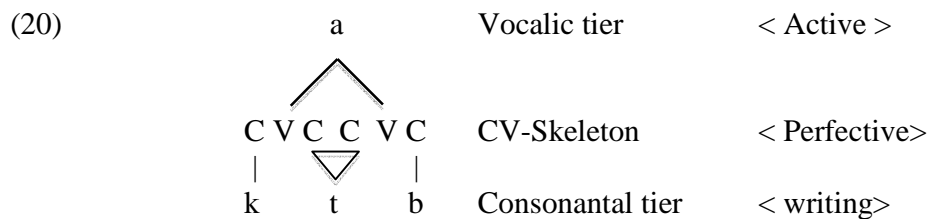
(19) أعطى عليُّ زيداً الكرةَ

a't-a Ali-un Zayd-an Al-korat-a
 give-PST.3SM Ali-NOM Zaydi-ACC the-ball-ACC
 'Ali gave Zayd the ball'

Traditional Arab grammarians use the term (first object) for the indirect object and (second object) for the direct object (cf. Alghalaayyini 1981).

3.1.4 Arabic Verbal System

Like other Semitic languages, Arabic is characterized by its non-concatenative morphology where vocalic infixes are inserted in a non-sequential order (also known as *Root-and-Pattern Morphology*). Most verbs in Arabic are derived from trilateral (three-consonant) roots or quadrilateral (four-consonant) roots by means of morphological affixation. Roots are combined with a variety of patterns that determine the phonological structure and syntactic function. The language achieves its richness of vocabulary by means of these derived forms. The roots contain consonants only, and they represent the lexical content of words, while derived patterns contain consonants and vowels. Morphosyntactic information such as tense, causative and voice is always expressed by vocalic melodies inserted in a non-linear order within a pattern.¹³ For example, following McCarthy's (1981: 391) *multi-linear* approach, the perfective causative verb *kattab* 'cause someone to write', which is derived from the consonantal root /ktb/ is represented in the templatic morpheme CVCCVC as shown in (20).



The pattern in (20) shows that there is no separable affix or morpheme for the causative form that can be detached from the verb stem and applied to another

¹³ There is a view that Aspect is also expressed by vocalic melodies (e.g., McCarthy 1979). More about Aspect will be discussed later in this chapter.

verb. The causative verb is formed by using a verbal pattern in which the middle consonant of the Root is doubled. It is not like, for example, verbs in Malagasy (a concatenative language), where morphemes are inserted in a sequential order. In Malagasy the causative form of the verb *miala* ‘to go out’ is *mampiala* ‘to cause Y to go out’. The infix *-amp-* is inserted into the root verb *miala* ‘go out’ (Travis 2010: 84).

Researchers have given slightly different numbers of patterns (also known as *templates* or *forms* or *CV skeletons*) for Arabic (e.g., Wightwick & Gaafar 2007 and Ryding 2005). In Classical Arabic, traditional grammarians identified fifteen patterns (for the perfective form) that can be derived from a trilateral root and four patterns that can be derived from a quadrilateral root. This classification is based on the syntactic and semantic behavior of each pattern. As for Modern Standard Arabic, I agree with the general consensus that there survive only ten patterns that are derived from trilateral roots and three patterns that are derived from quadrilateral roots (cf. Ryding 2005; Sa’ad 1982; Danks 2011). The other patterns from Classical Arabic have become archaic or unproductive.

Each root can appear in multiple patterns, but there is no one specific root that can appear in all possible patterns. In other words, there seem to be some restrictions that prevent certain roots from taking certain patterns that have specific meanings (e.g., causative, passive, etc.). Therefore, investigating the verb system and verb classification in Arabic is necessary for understanding argument structure and determining factors that help determine the behavior of verbs. It is important to note here that some patterns may be used to express multiple

meanings, some of which may be shared with other patterns (e.g., inchoativity). In other words, although there is always one semantic interpretation for each pattern that will prevail (e.g., causativity, inchoativity, reflexivity etc.), that same pattern may be used to express different meanings. Arad (2003: 742) mentions the same thing about verb patterns in Hebrew (another Semitic language), and terms this phenomenon of multiple meanings for one root “multiple contextualized meaning.”

Traditional grammarians use the dummy root √فعل (ف-ع-ل) meaning 'to do' as a paradigm to represent roots and show how patterns are constructed. They use (F-ف) for the first consonant; (ع-ع) for the second; and (L,ل) for the third. The consonant (L,ل) is also used for the fourth consonant in quadrilateral roots. I will use the letter C for each consonant, and the letter V for vowels. Table 3.2 lists the most common patterns in Arabic with their roots. The words given in the fourth column are perfective and active verbs inflected for a third person singular masculine subject. Patterns from No. 5 to 10 have an additional affix that is not part of the consonantal root. Western scholars of Arabic refer to the patterns by Roman numerals. However, I will use Arabic numbers instead.

Table 3.2

Verb Patterns in Arabic (Adapted from Danks 2011: 20)

No.	Root	Pattern	PFV. SM Form	Possible meaning/s
1	k-t-b	C ₁ VC ₂ VC ₃	katab 'write'	transitive, causative, inchoative, active, stative
2	k-t-b	C ₁ VC ₂ C ₂ VC ₃	kattab 'cause to write'	causative, iterative
3	k-t-b	C ₁ VVC ₂ VC ₃	kaatab 'write reciprocally'	participation
4	r-s-l	?-C ₁ C ₂ VC ₃	?arsal 'send'	causative, active, inchoative
5	f-r-q	ta-C ₁ VC ₂ C ₂ VC ₃	ta-farraq 'disperse'	inchoative, reflexive, iterative
6	J-h-l	ta-C ₁ VC ₂ VC ₃	tajahal 'ignore'	reciprocal, simulative
7	k-s-r	?-nC ₁ VC ₂ VC ₃	?n-kasar 'broke'	inchoative, passive
8	n-s-r	?-C ₁ -ta-C ₂ VC ₃	?ntasar 'triumph'	reflexive, reciprocal, inchoative
9	h-m-r	?-C ₁ C ₂ VC ₃ C ₃	?hmarr 'turn red'	inchoative
10	x-b-r	?st-C ₁ C ₂ VC ₃	?s-ta-xbar 'inquire'	request inchoative
11	a-r-g-l	C ₁ VC ₂ C ₃ VC ₄	argala 'hinder'	transitive causative
12	d-h-r-j	ta-C ₁ VC ₂ C ₃ VC ₄	ta-dahraja 'roll'	inchoative, active
13	h-l-k	?-C ₁ C ₂ VC ₃ VC ₄	?hlawlak 'become dark'	inchoative, passive

As shown in Table 3.2, the verbal patterns are non-transparent as they are not associated with one specific semantic or syntactic property (e.g., the causative meaning can appear in four different patterns). This non-transparency of the Arabic verb system is also manifested by the existence of single patterns that may

host two or more types of verbs (e.g., patterns 1 and 4 are templates for causative and inchoative verbs). I will show in Chapter 5 that the selective nature of roots to specific patterns that share one common semantic interpretation is arbitrary.

Root-and-pattern morphology applies to all verbs in Arabic, including borrowed words as shown in the following examples:

- (21) Borrowed word (noun) verb
- جيلاتين Gelatin → ta-jaltan تجلتن “gelatinized” (INTR)
- مغناطيس Magnet → magnat مغنط “magnetize” (TRAN)
- مغناطيس Magnet → ta-magnat تمغنط “magnitized” (INTR)

The consonants of the borrowed nouns remain in all forms of verbal derivation while the vowels are adjusted according to the selected verbal pattern. Denominal verbs in Arabic and their morphosyntax will be discussed towards the end of this chapter. I argue that these borrowed verbs should be morphosyntactically treated as denominal verbs.

Table 3.2 is exclusively designated for verbs only. Arabic has many other patterns with different prefixes and vocalic melodies for nouns and adjectives that are derived from trilateral or quadrilateral consonantal roots. For example, the root [k-t-b] that is associated with the meaning ‘writing’ in *Muhit Al-muhit* Dictionary appears in 26 distinct patterns (verbs, nouns and adjectives) (Albustani 1977: 769). Some of these patterns are shown in Table 3.3 below.

Table 3.3

Patterns Derived from [k-t-b] (Adapted from Tucker 2011: 2)

Word	Meaning	Pattern
Katab	<i>write</i>	C ₁ VC ₂ VC ₃
Kattab	<i>cause to write</i>	C ₁ VC ₂ C ₂ VC ₃
ʔaktab	<i>cause to write</i>	ʔ C ₁ C ₂ VC ₃
Nkataba	<i>subscribe</i>	ʔ-nC ₁ VC ₂ VC ₃
Staktab	<i>request s.o. to write</i>	st-V C ₁ C ₂ VC ₃
Ktataba	<i>write, be registered</i>	ʔ-C ₁ -ta-C ₂ VC ₃
Kittaab	<i>Book</i>	C ₁ -i-C ₂ VVC ₃
Kuttaab	<i>Library, bookstore</i>	C ₁ -u- C ₂ C ₂ VVC ₃
Kittabii	<i>Correspondent, reporter</i>	C ₁ -i- C ₂ VVC ₃ VV
Kutayyib	<i>Booklet</i>	C ₁ -u- C ₂ CA-yy-iC ₃
Maktaba	<i>Library, bookstore</i>	Ma-C ₁ -C ₂ C ₂ VC ₃ V
Mukaatib	<i>Correspondent, reporter</i>	Ma-C ₁ -C ₂ C ₂ VC ₃ V

As shown in Table 3.3, the root [k-t-b] appears in different patterns that have varied meanings, a fact that makes it hard to always associate a root with a specific meaning. However, since in most cases the root retains one core meaning shared by all patterns we may presumably associate a root with one general meaning. I will limit my discussion of argument structure in Arabic to verbs only, as discussing all possible patterns (e.g., nouns and adjectives) in Arabic is beyond the scope of the dissertation.

Unlike root-and-pattern classifications presented by traditional Arab grammarians, McCarthy's (1981) representation of patterns as consisting of two morphemes (vocalic tier and skeletal tier) makes the distinction among patterns more systematic and that eventually reduces the number of possible patterns. For example, the two distinct verbs *haataf* 'talk to each other on phone' and *quutil* 'be fought', both conveying a reciprocal meaning, share one *CV-Skeleton* (pattern 3) but differ in their vocalic melodies –{a-a} and {u-i}. According to McCarthy's analysis, these two verbs would still be represented by one pattern ($C_1VVC_2VC_3$) unlike the traditional analysis that would regard them linguistically unrelated as they belong to two different patterns, [faaʕal] and [fuuʕil] (Boudelaa & Marslen-Wilson 2004: 247).

As for the view that certain patterns are assigned specific argument structures, I agree with Tucker (2011) that this is not always the case as there exist some patterns that may display variant argument structures. As shown in the Table 3.4, verbs of pattern 2 as an example, can be used to express sentences with different argument structures.

Table 3.4

Argument Structure and Patterns (Adapted from Tucker 2011: 197)

Root	Verb	Meaning	Argument Structure
a. bst ^ʕ	bassat ^ʕ	to spread out	< <u>AGENT</u> , THEME>
b. dʒnb	dʒnnab	to keep away from	< <u>AGENT</u> , GOAL>(<THEME>)
c. s ^ʕ wt	s ^ʕ wwat	to vote	< <u>AGENT</u> >
d. mlk	mallak	to cause to own	< <u>CAUSER</u> , AGENT, THEME>
e. ʁim	ʁaiiam	to become cloudy	<Theme>

As shown in Table 3.4, there is no direct relationship between pattern (2) and specific argument structures, and that applies to the majority of other patterns in the language. Nevertheless, there exists a specific group of verbs belonging to one particular pattern that seem to always display a similar syntactic structure. The traditional classification of patterns into transitive and intransitive *اللازم والمتعدي* (cf. Alshamsan 1987; Wright 1967) indicates that the lexicon can sometime be an important factor in determining the argument structure in Arabic.

Traditional grammarians point out that most of the intransitive verbs that cannot be transitivized belong to the pattern C₁VC₂VC₃. The vowel on the second radical could be /i/ or /u/. Wright (1967) indicates that "The distinction between them is, that i indicates a temporary state or condition, or a merely accidental quality in persons or things; whilst u indicates a permanent state, or a naturally inherent quality" Wright (1967: 30). The following table lists some verbs in Arabic that always appear as inchoative and cannot be transitivized.

Table 3.5

Only-Intransitive Verbs (Adapted from Wright 1967: 30)

Meaning	Word	Meaning	Word
He Left	راح	To cringe	اقتنع
To be glad	فرح	To become red	احمرَّ
To be sorry	حزن	To be safe and sound	سلم
To be proud	بطر	To be sick	مرض
To be beautiful	حسن	To become old	كبر
To be ugly	قبح	To be blind	عمي
To be heavy	ثقل	To be large	كبر

3.2 The Morphosyntax of Arabic Verbs

Arad (2003; 2005), drawing from Marantz (1997; 2000), provides an innovative proposal to account for the morphosyntax of Semitic verbs. I argue that Arad's model can be used to explain the mechanism of root derivation in Arabic. It can also successfully account for the derivation of denominal verbs. The purpose of applying such a model to Arabic verbs is not only to show the syntactic distribution of morphemes, but also to investigate at what level the argument structure is realized (e.g., roots or patterns?). This model at least shows that the root in Arabic can never specify the argument structure. In other words, the root in Arabic does not encode syntactic information and it is only given semantic interpretation after it is merged with a specific pattern. This will be more apparent when we discuss the derivation of denominal verbs that have to stick to one specific semantic interpretation although they go through two syntactic operations.

This section proceeds by briefly outlining some key premises of Arad's (2003; 2005) model for the morphosyntax of Hebrew verbs. I argue that the Aradian model works very well with Arabic verbs except for some morphophonological issues that will be pointed out throughout my discussion. Towards the end of this section I address the issue of deriving denominal verbs in Arabic.

3.2.1 Arad (2003; 2005)

Arad (2003; 2005) draws upon ideas from Marantz (1997; 2000) to show that word-formation is performed in the syntax. One main point suggested by Marantz is the distinction between words that are built from a *root* (an atomic element that has no syntactic function) and words that are created from existing words that had been already derived from a root. These two syntactic processes of word-formation are shown in (22).

(22) a. Word-formation from roots

$$\sqrt{\quad} \quad \frac{x}{\quad} \quad x$$

b. Word-formation from existing words

$$\frac{XP}{\quad} \quad n, v, a \dots \quad n, v, a \dots$$

(Arad 2003: 738)

According to Marantz, all lexical categories (words) are phrasal idioms where the root appears with a sister head that functions as a categorizing head as seen in (22a). To give an example, Marantz (1997) uses the root [k-t-b] “writing” in Arabic, which can appear in multiple words as we have seen in Table 3.3 above. He states that “Semitic languages would seem to wear their root and little x structure on their sleeves” (Marantz 1997: 17).

Under this view of word-formation, roots are seen as unpronounceable elements that have no specific semantic interpretation. They become actual words (noun, verb, or adjective) with semantically fixed interpretation only after they merge with a head that bears a category feature (i.e. x in 22a). An important claim Arad (2003) makes, arguing that it holds across all languages, is that when a word merges with a category head and obtains semantic meaning it no longer can obtain a different interpretation when merging with another head. In other words, when a head merges with a word that has already been merged with a root as in (22b), that later head “can only see the head below it, not the root” (Arad 2003: 739). The following Table lays out the main differences between root derivation and word derivation.

Arad (2003; 2005) builds upon these suggestions, but adds some intriguing developments to fit the morphosyntax of Semitic verbs. The fact that the system of root derivation in Hebrew-type languages (Semitic languages) substantially differs from that of the English-type languages leads Arad to propose further developments on Marantz’ model of word-formation.

Table 3.6

Word Derivation and Root Derivation (Spagnol 2011: 74)

Root-derived words	Word-derived words
merger with a category-assigning head	merger above category-bearing head
idiosyncratic, idiomatic meanings	predictable meanings
apparent semi-productivity	apparent complete productivity
independent of argument structure	possible operations on argument structure

Semitic languages like Hebrew and Arabic, as mentioned before, are characterized by their non-concatenative morphology where morphemes are inserted in an arbitrary and non-sequential order, unlike English-type (concatenative) languages where morphemes are inserted in a sequential order. The verb-and-pattern system poses a challenge to Marantz' model of word-formation in syntax. For example, Marantz' (1984) analysis of causatives in languages such as Malayalam (a language spoken in India) and Chi-Mwini (a language spoken in Somalia) is based on merger analysis. The causative verbs are derived by simply merging the causative affix with the verb root. The causative affix in such a language can be distinguished from the root as below.

(23) amma kuttiekkonte aanaye null-**icc**-u.

Mother-NOM Child-INST elephant-ACC pinch-CAUSE-PAST

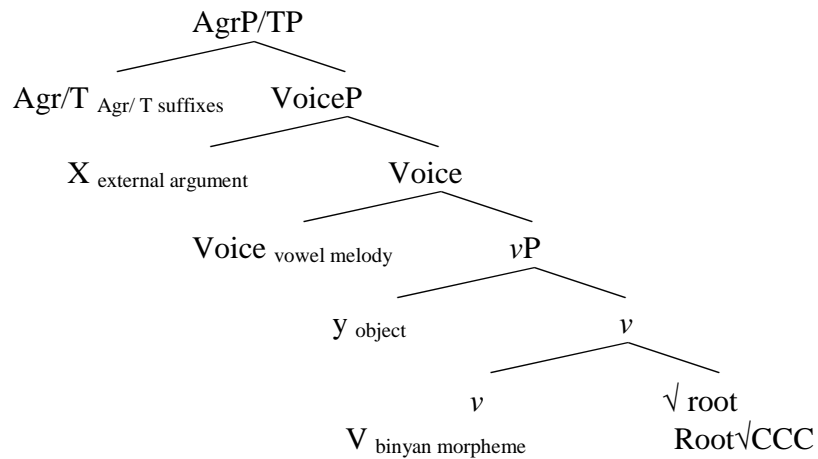
'Mohter made the child pinch the elephant.' (Marantz 1984: 279)

Marantz shows that the causative affix *icc* in *null-icc-u* and the verb *null* “pinch” are placed in two different positions in the “l-s structure”. The causative structure is formed in “s-structure” by merging the causative affix *icc* with the root *null* “pinch.” This type of merger analysis cannot be used to account for some causative patterns in Semitic languages as there is no specific causative affix that can be detached from the root or be placed in a position and to merge with the verb. As discussed before, the causative pattern 2 (as in the Arabic verb *kattab* ‘make someone write’) is formed through a prosodic template in vocalic and skeletal tiers where it is hard to allocate or detach a specific causative morpheme or affix. Marantz (1984) indicates in a footnote that “systems of nonconcatenative morphology ... raise some questions for the analysis of the interaction between morphology and syntax presented in this book” (Marantz 1984: 316). Under the same footnote, Marantz suggests that this issue could be resolved by proposing “subcategorization features” to morphemes which can be realized as affixes. However, he points out that there is no support yet for his suggestion.

Revealing the lexical-semantic properties of each morpheme, Arad (2003; 2005) proposes the structure in (24) for the morphosyntax of Hebrew verbs. The structure distributes the morphemes to three syntactic nodes. The lowest node hosts the consonantal root ($\sqrt{\text{root}}$). The verb pattern ‘binyan’ is inserted under the categorizing head *v* (any of the thirteen patterns in Arabic as in Table 3.2. Arad (2003; 2005) argues that this categorizing head hosts the CV-timing tier as represented by McCarthy (1979; 1981). The voice head in this structure hosts the vowel melody (voice features in Hebrew) and the internal arguments of the verb.

Morphemes for tense and agreement are inserted under T and Agr nodes (Arad 2005: 190-191).

(24)



(Arad 2005: 191)

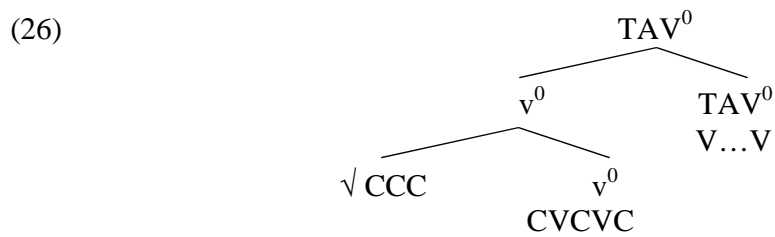
It is worth mentioning that the vocalic melody in Hebrew verbs spells out voice only (Arad 2005: 190), whereas the vocalic melody in the Arabic verbs express voice, tense, and aspect. Tucker (2011) raises this issue and suggests a morphophonological structure for the Arabic verbs to accommodate the complex prosody associated with Arabic verbs. He assumes a postsyntactic FUSION rule that takes place in the PF as shown in (25).

(25) PF-Fusion Rule for Arabic:

$$[T^0 T^0 [Asp^0 Asp^0 [voi^0 voi^0 [...]]]] \rightarrow [TAV^0 TAV^0 [...]]$$

(Tucker 2011: 193)

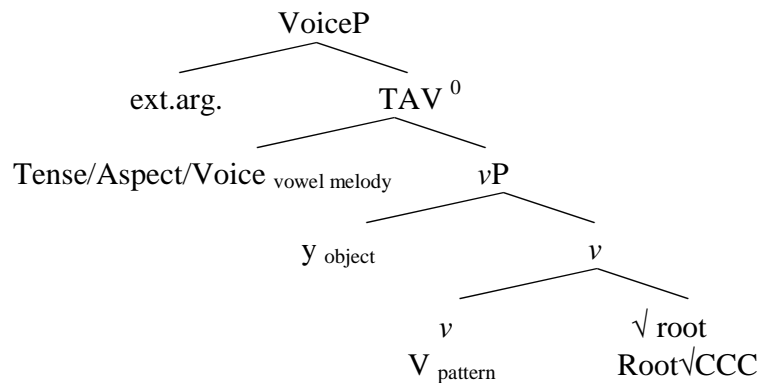
The three heads in this rule (T^0 , Asp^0 , and voi^0) are fused into one head and realized with one single morpheme. Tucker (2011) inserts what he calls the “T(ense)-A(spect)-V(oice)⁰” head above the consonantal root layer as shown below.



The modification of TAV head seems to be a relatively simple solution to find sites for the three features expressed by the vowel melody in Arabic verbs. However, Tucker (2011) recognizes some conceptual problems and another problem that centers on the question of how to order the vowels of TAV head in a linear order. Nonetheless, Tucker (2011) proposes some theoretical solutions to these problems and defends his working hypothesis very ably.

Relying on the morphosyntactic representation provided by Arad (2003; 2005) and the modification made by Tucker (2011), I adopt the morphosyntactic structure provided in (27). I avoid using a complex morphophonological representation of verbs, but nothing hinges on this.

(27)



Beside the main properties of each layer mentioned before, there are some points that need to be noted about this structure. First, the *v* in the lowest layer is in a selectional relationship with the root. This explains the inability of some roots to appear in certain patterns. For example, the root [a-k-l] associated with meanings of “eating”, appears in patterns 1, 2, and 6, but not in patterns 3, 5, 7, and 8 as shown in (28) and (29) respectively.

(28) *Possible patterns for the root [a-k-l]*

- a. akal, ‘he ate’ (pattern 1)
- b. akkal, ‘he made someone eat’ (pattern 2)
- c. ta-ʔakal, ‘coerced’ (pattern 6)

(29) *Impossible patterns for the root [a-k-l]*

- a. #akaala (pattern 3) to refer to a reciprocal meaning.
- b. #ta-kalla (pattern 5) to refer to an inchoative, reflexive, or iterative meaning.

c. #ʔ-nakal (pattern 7) 'the food ate'

d. #ʔ-ʔ-ta-kal (pattern 8) 'the food became eaten'

The nature of the relationship between a root and a certain pattern will be investigated more thoroughly in Chapter 5. I will show that this selectional nature is determined in the lexicon as no morphological or aspectual factors seem to be involved. I will also explain why external argument is introduced in a functional head *Voice* above the vP layer.

One important question to ask here is whether verb patterns or v^0 's suffice to determine argument structure by themselves. Traditional grammarians and some recent scholars like Fassi (1987), Younes (2000), and Ford (2009) classify templates according to their grammatical function alternations and argue for derivational relationships among certain patterns. I argue that patterns are not always associated with certain grammatical functions and the derivational relationships developed by traditional grammarians cannot be always true. In addition to the multiple meanings associated with each pattern as discussed before, a given pattern can also have multiple grammatical functions and can appear in sentences with different argument structures where the external argument is given a different theta-role. For example, among many other examples with other patterns, pattern 1 ($C_1VC_2VC_3$) can be used for transitive and intransitive verbs as shown in (30) and pattern 4 ($ʔ-C_1C_2VC_3$) can appear as a causative verb and can also appear as an inchoative verb as shown in (31).

3.3 Arabic Denominal Verbs

Denominal verbs are verbs derived from nouns. As discussed in the previous chapter, this type of verbs in English has received considerable attention in the literature. Denominal and de-adjectival verbs (i.e. verbs derived from adjectives) have been presented to support the argument that argument structure and word-formation are syntactically determined (cf. Baker 1998; H&K 2002; Harley 2005). The purpose of this section is two fold. First, I plan to show how Arabic denominal verbs are derived. Second, I plan to examine the inner aspect of denominal verbs in Arabic to determine if there exists any semantic relationship between these verbs and their original nouns from which they are derived.

There is a class of denominal verbs in Arabic that are recognized by certain affixes carried over from the nominal patterns from which they are derived. Like the morphologically marked denominals in Hebrew (as in Arad 2003), these verbs in Arabic too seem to be derived from other words that have an established semantic interpretation. As discussed before, the root has no semantic interpretation and can appear with multiple interpretations assigned by the v^0 . However, the interpretation of denominal verbs is tied to the interpretation of the nouns from which they are derived. To illustrate this, let's start by looking at some possible patterns for the root [h-w-r] حور as shown in (32).

(32) [h-w-r] حور

- | | | |
|-----------------------|-----------|--------------------|
| a. $C_1VC_2C_2VC_3$ | hawwar | 'change/spin' TRAN |
| b. $ʔ-C_1-ta-C_2VC_3$ | s-ta-hara | 'puzzled' INTR |
| c. $ʔ-C_1C_2VC_3C_3$ | ʔhwarra | 'whitened' INTR |

d. $C_1VVC_2VC_3$ haawara ‘discuss’ TRAN

The same root can also appear in certain patterns specified for nouns or adjectives. The noun pattern ($m-C_1C_2VC_3$) is used to form the denominal verb ($ta-m-C_1C_2VC_3$) as shown below.

(33) [h-w-r] حور

a. $m-C_1C_2VC_3$ mihwar ‘center’ n.

b. $ta-m-C_1C_2VC_3$ ta-m-hwar ‘centered around’ INTR denominal v.

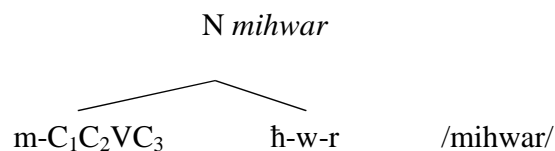
c. $m-C_1C_2VC_3$ mahwar ‘centered around’ TRAN denominal v.

As shown in (33), the root [h-w-r] can appear in different environments with multiple interpretations. However, the denominal verbs *tamahwar* ‘centered around INTR.’ and mahwar in (33b) and (33c) are believed to be derived from the noun (33a) ($m-C_1C_2VC_3$ *mihwar*). In addition to the presence of the root consonants [h-w-r] in the verb forms, the morphophonological prefix *m-* associated with the original noun *mihwar* ($m-C_1C_2VC_3$) is still present in the verb both verb forms (mahwar and *tamahwar*). In addition, the denominal verb gets its semantic interpretation from the noun from which it is derived from. In support of the argument that the interpretation of a denominal verb cannot have access to the root and that it is always tied to the interpretation of the noun from which it is derived, Arad (2003), following Marantz (2000), postulates a locality principle by stating that " roots are assigned an interpretation in the environment of the first

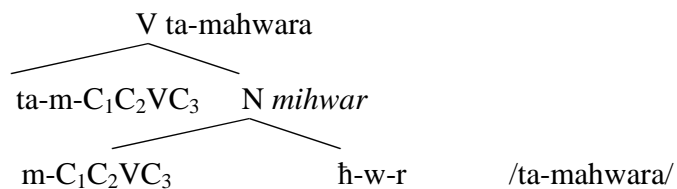
category-assigning head with which they are merged. Once this interpretation is assigned, it is carried along throughout the derivation" (Arad 2003: 747).

Drawing on Arad's (2003: 747) representation of denominal verbs in Hebrew, I assume that the denominal verb *tamahwar* 'centered around *INTR.*' is formed by first merging the root [h-w-r] with the noun pattern (m-C₁C₂VC₃) in the same fashion a consonantal root merges with a verb pattern (binyan) under v⁰ as discussed before. The spelled out noun pattern (m-C₁C₂VC₃) merges with a v head to create the verb *ta-mahwar* as shown in (34) below.

(34) a. Noun formation



b. Denominal verb formation



The head responsible for tense, aspect, and voice (TAV) as suggested by Tucker (2011) and discussed in the previous section can be applied here as well to account for the extra features that Arabic denominal verbs display.

Most common verb patterns that carry certain morphemes from the nouns

from which they are derived are listed in the following table.

Table 3.7
Denominal Verb patterns with Morphological Cues (Adapted from Al-hamlawi 1957)

Noun pattern	Verb pattern	Example
m-C ₁ C ₂ VC ₃	m-C ₁ C ₂ VC ₃ / ta-mC ₁ C ₂ VC ₃	ta-markasa ‘became Marxist <i>INTR.</i> ’
C ₁ -w-C ₂ VC ₃ -ah	C ₁ -w-C ₂ VC ₃ / C ₁ -w-C ₂ VC ₃	ʔa-w-lam ‘globalize <i>tran.</i> ’
C ₁ C ₂ C ₃ n-ah	C ₁ C ₂ C ₃ Vn / ta- C ₁ C ₂ C ₃ Vn	ʔlman ‘secularize <i>tran.</i> ’

Denominal verbs in Arabic are not always distinguished by morphological means. There exist other denominal verbs that may have no morphological cues. The derivation of verbs from nouns in Arabic seems to include a wide variety of verbs whose base nouns denote a thing (e.g., locatum, location, duration, agent, goal verbs, etc.).¹⁴ Some examples are shown in Table 3.8.

Table 3.8

¹⁴ For lists of different types of denominal verbs in English cf. Clark & Clark (1997) and Levin (1993).

Examples of denominal verbs in Arabic

Noun	Denominal Verb	Example/Meaning
Masr ‘Egypt’	Masura Ali-un	‘Ali went to Egypt’
Sham ‘Syria’	Ashama Ali-un	‘Ali went to Syria’
Sharq ‘east’	Sharuqat ash-shams	‘the sun rose’
rabee‘ ‘spring’	Arba-‘a-t al-ardhu	‘the land became green’
baab ‘door’	Bawwaba l-kitab	‘he divided the book into sections’
srj ‘saddle’	Asraja al-faras-a	‘he saddled the horse’
hakam ‘referee’	Hakkam al-mubarat	‘he refereed the game’

I assume that denominal verbs are always derived from nouns whether they display morphological cues or not. Another possibility suggested by Arad (2003) for similar verbs in Hebrew is that both verbs and nouns are derived from the same root. However, this does not seem to be the case considering the fact that denominal verbs have underspecified semantic interpretations based on their nominal bases. As discussed before, roots have no semantic interpretation and can appear in different environments with multiple interpretations. However, the semantic interpretation of denominal verbs is constrained by the meaning of the nouns from which they are derived. The denominal verb *asraja/sarraja* “saddle”, for example, is derived from the noun *sarj*, which attains this specific meaning after it is merged with the root [s-r-j]. If we assume that this verb is derived from the root [s-r-j], it will contradict with other verbs derived to the same pattern but with different meanings (homonymy) as shown in the following examples:

(35) Verbs derived from the Root [s-r-j]

- a. سرَّجَتِ البِنْتُ شَعْرَهَا
sarraja-t al-bint-u sh'ara-ha
dress-PST-3SF the-girl-NOM hair-her
'The girl dressed her hair/ made it beautiful'
- b. سَرَّجَ السَّرَاجَ
sarraj-a al-sirj-a
beautify-PST.3SM. the-saddle-ACC
'He made the saddle beautiful'

As shown in (35), the verb *sarraj* has an underspecified meaning associated with the meaning “beauty” and if we merge that same root-derived verb with nouns like *horse* or *saddle* the meaning will be different. It will mean that *he made the horse/the saddle beautiful*. However, if we assume that the verb *asraj/sarraj* is derived from the noun *sarj* “saddle”, the meaning will be maintained and carried over to the verb in such a context.

Harley (2005) manifests the relationship between denominal verbs and their nominal bases. Harley supports the incorporation of the noun in the object position into the transitive little *v'* as first proposed by Hale and Keyser (1993). My account for the formation of Arabic denominal verbs as provided above is not exactly similar to that of H&K's incorporation of nouns in L-syntax; however, Harley's (2005) investigation of shared semantic properties between nominal bases and their derived verbs is very interesting. According to Harley (2005), the inner aspect of denominal verbs that are derived from Roots via incorporation can

be determined by some inherent semantic features of the nouns (i.e. boundedness, mass, count properties).

Harley (1999) represents the parallel between aspects of nouns and their derived verbs by supporting the claim that the mass/count features that exist in spatial dimension of things are equivalent to the bounded/unbounded features that verbs carry in temporal dimension. Drawing on Jackendoff (1991), Harley (1999) provides the following table to show how things and events similarly encode boundedness.

Table 3.9
Bounded Event and Thing (Harley 1999: 4)

	Thing	Event
+bounded	apple	flash
-bounded	water	sleep

Investigating this relationship between nouns and their derived verbs in Arabic yields the same results, as do their English counterparts. For example, the verb renders a telic interpretation when the Root is a bounded thing as shown in (36a&c).

- (36) a. سرَّجَ عليُّ الحصانَ في ساعة
 sarraj-a Ali-un al-hisan-a fi sa'ah
 saddle-PST.3SM Ali-NOM the-horse-ACC in an hour
 'Ali saddled the horse in an hour'

- b. وضع السرج على الحصان في ساعة

wadʿaʕ-a al-sirj-a ʕla al-hisan-a fi saʿah
 put.PST.3SM the-saddle-ACC on the-horse-GEN in an hour
 ‘He put the saddle on the horse’

c. كَيْسَ التَّمْرَ فِي سَاعَةٍ

kayyas-a al-tamr-a fi saʿah
 bag-PST.3SM the-dates-ACC in an hour
 ‘He bagged the dates in an hour’

d. وَضَعَ التَّمْرَ فِي كَيْسٍ فِي سَاعَةٍ

wadʿaʕ-a al-tamr-a fi kees fi saʿah
 put.PST.3SM the-dates-ACC in bag in an hour
 ‘He put the dates in bag in an hour’

The bounded feature of Roots in (36a) and (36c) is apparent in their transitive paraphrases (36b) and (36d) respectively. On the other hand, with unbounded base nouns, derived verbs render an atelic interpretation as shown by the denominal verb in (37a) with its transitive paraphras in (37b).

(37) a. أَلْبَنَتِ النَّاقَةَ لِمُدَّةِ سَاعَةٍ

ʔlban-a-t al-naqa-tu li-mudati saʿah
 milk-PST.3S-F the-camel-NOM for an hour
 ‘The camel gave milk for an hour’

b. دَرَتِ النَّاقَةُ حَلِيْبًا لِمُدَّةِ سَاعَةٍ

darr-a-t	al-naqa-tu	halib-an
give-PST.3S-F	the-camel-NOM	milk-INDF
li-mudati	sa'ah	
for	an hour	
'The camel gave milk for an hour'		

These examples show an interesting connection between denominal verbs and their nominal bases. However, I argue that the determination of the inner aspect of denominal verbs in Arabic is subject to some inner aspect determinants that will be discussed in the next chapter.

3.4 Conclusion

One of the key points this chapter discusses is the relation between word order and Case marking. I have showed that word order in Arabic is free as long as arguments are overtly Case marked. Only SVO or VSO word orders allowed when morphological Case-marking fails to distinguish between arguments. Although these two word orders may be used interchangeably, I have pointed out some syntactic and semantic properties that might be associated with each order. Using a VP-shell structure, I assume an underlying structure for three different classes of verbs in Arabic (i.e. transitive, unaccusative, and unergative).

Another key point I make in this chapter is that, contrary to the traditional view, the CV-skeletons (morph-syntax) in Arabic by themselves cannot be solely responsible for determining the argument structure. The model I have presented

for the morphosyntax of Arabic verbs under the framework of DM provides a clear picture of the mechanism of root-to-pattern derivation. It also accounts for a very important aspect related to argument structure, i.e., the Root is not given a semantic interpretation before it merges with a specific verb pattern. Therefore, Roots should not be held responsible for determining the argument structure. The DM model also gives a step-by-step process of how denominal verbs in Semitic languages are derived, and shows the relationship between this type of verbs and their original nouns from which they are derived.

Chapter 4

INNER ASPECT AND ARGUMENT STRUCTURE IN ARABIC

The conceptual content of a sentence as expressed by the verb and the relation between its arguments is an important domain in investigating the interface between syntax and semantics. Researchers over the last four decades have shown that Vendler's (1967) classification of verbs into states, activities, accomplishments, and achievement plays a major role in predicating the syntactic behavior of the verb. In other words, the representation of events and their participants governs the realization of the argument structure. The vP layer is the locus of this interface. This layer introduces argument structure and involves elements that characterize certain types of aspectual information that can be directly associated with certain types of events. An important characteristic that distinguishes between the types of lexical aspect within the vP layer is whether the verb describes a certain process, and whether that process is durative or has an end point (i.e. telic). If the VP does not involve a process, then the meaning of that VP describes a state but not an event. Linguists use the terms *events*, *event structure*, and *eventualities* to refer to different types of inner aspect (Aktionsart) denoted by the verb or VP.

This chapter focuses on the role of the lexical aspect and the mutual relations between argument structure and aspectual structure in Arabic. One key question to be soon addressed in this chapter is what determines the type of events in Arabic? I am interested to know if lexical aspect in Arabic can be determined by the verb alone (verbal pattern) or by other elements around the structure of VP.

Another key question to be discussed in this chapter is whether there is a correspondence between inner aspect and the realization of argument structure in Arabic.

I agree with Beedham (2005: 21) that "aspect is formally realized in three different ways in the world's languages." These three ways are "(i) Auxiliary + Participle; (ii) lexical aspect; and (iii) compositional aspect." However, the "auxiliary + Participle" is not applicable to Arabic, although we may use the auxiliary *kana* كان "was" to refer to a particular tense (e.g., present perfect or past perfect) but not to aspect. Aspect in Arabic may be morphologically (or morpho-syntactically) marked through synthetic means as we will see later. Therefore, I will use the term 'synthetic aspect' to refer to any aspect represented in Arabic verb either by the vocalic means or by a prefix. I will also show that the other two types (i.e. lexical aspect and compositional aspect) factor in determining aspect in Arabic as well. I will take the compositional aspect to refer to Smith's (1991) view of inner aspect and the distinction between situation aspect and viewpoint aspect will be further explained later.

This chapter is structured as follows: Before discussing the different determinants of lexical aspect in Arabic, I will show that Smith's (1991) distinction between the two types of aspect can be a very useful tool in helping settle the ongoing debate on the nature of tense and aspect in Arabic. I will sketch some contradicting views on the nature of grammatical aspect in Arabic that tend to rely on one way of realizing the aspect but not the other. Then, I provide a balanced perspective to account for the perfective-imperfective nature in Arabic.

It is important to note that my discussion of perfective-imperfective (grammatical aspect) is centered on the idea that different factors may play a role in determining aspect (i.e. the compositional environment around the verb as well as the verb itself). After showing how aspect, only as defined by Smith (1991), can contribute to solving the long-standing debate over the nature of aspect in Arabic, I will attempt to draw a relationship between aspect and argument structure in the second section of this chapter. I will identify the determinants of verb inner aspect, and argue that the derived verbs (lexicon) and some elements inside and outside the VP play a role in determining the argument structure based on the interpretation of inner aspect. Finally, I will show that there exists a relation between lexical aspect and argument structure.

4.1 The Notion of Tense and Aspect in Arabic

Tense and aspect in Arabic have recently received increasing attention in the literature (cf. Fassi 1993; Benmamoun 2000; Aoun et. al 2010 among others). However, researchers have not reached a definitive conclusion on the nature of tense and aspect in Arabic. There has been an ongoing debate as to whether verbs in Arabic express tense and aspect or aspect only.¹⁵ Beedham (2005) distinguishes between aspect and tense by stating that:

Whereas tense locates an event relative to the moment of speech as past, present, or future, aspect is an expression of the way in which an action/event passes through time, e.g. as a continuous/extended activity, as

¹⁵ Mood (indicative, subjunctive, and jussive) is another issue that has been discussed in some works. This issue is not related to my discussion of argument structure and thus will not be discussed here (cf. Benmamoun 2000).

an event with a final result, as the beginning of an action, with emphasis on the intensity of an action, etc. (Beedham 2005: 19)

Based on a comparison between Arabic and other languages like Slavic and Romance, Kurylowicz (1973: 116) argues that tense and aspect do not exist in Arabic. He assumes that "it is the lack of the grammatical tense which has induced scholars to speak of verbal aspect in Semitic, especially in Arabic." According to Kurylowicz, the verb in Arabic expresses "anteriority" and that is different from time reference and the perfective/imperfective notion.

Comrie (1976: 78) argues that Arabic reflects combined tense/aspect oppositions. He draws this conclusion based on the fact that the imperfective can be used with past time reference unlike other languages (e.g. Russian) where the imperfective feature is always present tense. He provides the following viewpoint:

Summarizing the uses of the Imperfective and Perfective we may say that the Perfective indicates both perfective meaning and past time reference, while the Imperfective indicates everything else (i.e. either imperfective meaning or relative non-past tense). The Arabic opposition Imperfective/Perfective incorporates both aspect and (relative) tense. (Comrie 1976: 80)

Finally, Fassi Fehri (2004) argues that "Arabic is more of a 'tense language' than an 'aspect language'." He states that "Arabic is typically characterized by the ambiguous use of the same inflected verbal form to express Past or Perf (or non-Past, Imperf) meanings, namely, to express Anterior relations between reference time, utterance time, and/or event time" (Fassi Fehri 2004: 235).

This dispute as to whether Arabic is a 'tense language' or an 'aspect language' has made the issue more complex and made it very difficult to reach one definite conclusion about the Arabic temporal system (Fassi 1993: 141). As pointed out by Al-Tarouti (2001: 219), the problem arises from the lack of a precise characterization of aspect. Another issue that has led to this debate is the argument made by some scholars that some constructions in Arabic go against the traditional assumption that the perfective verb refers to a completed action in the past, while imperfective verb refers to an ongoing action that is happening at the present time. For example, the imperfective form may be used for future reference, and the perfective form may also be used in a structure that refers to future reference as we will see later.

I agree with Al-Tarouti (2001) that there is a lack of a precise definition of the notion of aspect. However, it is not only the confusion between tense and (traditional) aspect that led to a controversy in the literature as he claims. I believe it is more related to the problem of not realizing or considering another (more recent) type of aspect, and that is the 'situation' aspect as will be defined later.

4.1.2 Defining Aspect

Aspect is generally concerned with what Comrie (1976: 3) calls "different ways of viewing the internal temporal constituency of a situation." Aspect has been traditionally taken to refer to the distinction between perfective and imperfective. However, the scope of the term *aspect*, as pointed out by Smith (1991: 1), has been recently broadened to include temporal properties of

situations. Smith uses the term 'viewpoint' aspect to refer to the traditional view of aspect. The viewpoint aspect (also known as external or grammatical aspect) refers to the temporal perspective on situations and how to relate events to a point-of-view (reference) time. The imperfective viewpoint is defined as the point of view that takes an event to be in progress. In English, the imperfective is morphologically marked with the progressive form. The perfective viewpoint indicates that the event is viewed as bounded and complete. It looks at situations as a whole form outside with no regard to the internal structure. In English there is no specific marking for the perfective; however, the simple tenses are taken to be perfective as contrasted with the progressive ones (cf. Comrie, 1976 for more details). As pointed out by Travis (2010), many syntacticians represent viewpoint aspect as a functional category within the inflectional domain of a clause above the vP/VoiceP.

The other type of aspect, which will be investigated more thoroughly in this chapter, is "situation" aspect. Situational aspect (also known as internal event structure, inner/lexical aspect, and Aktionsart) is an inherent property of the verb and the structure around it. This type of aspect generally corresponds to Vendler's (1967) four classes of verbs, i.e. achievement, accomplishment, state and activity. Smith (1991: 3) indicates that this type of aspect is "expressed by the verb constellation." She provides the following examples for the different verb classes and presents their features.

(1) Situation types

States: static, durative (know the answer, love Mary)

Activity: dynamic, durative, atelic (laugh, stroll in the park)

Accomplishment: dynamic, durative, telic, consisting of process and outcome
(build a house, walk to school, learn Greek)

Semelfactives: dynamic, atelic, instantaneous (tap, knock)

Achievement: dynamic, telic, instantaneous (win a race, reach the top)

(Smith 1991: 3)

These five types of situational aspect are distinguished based on four features.

First, stativity and dynamicity distinguish states like *know*, and *love* from processes like *build*, and *walk*. Durativity is the second feature, and it distinguishes instantaneous/punctate events like *knock* and *tap* from events that extend in time like *write* and *drink*. Finally, telicity distinguishes completed events with an endpoint like *reach the top* and *make a sandwich* from those presented as having no endpoint like *sing* and *run*.

It is worth mentioning that viewpoint aspect should be viewed as an independent system of aspect, although "telicity" is a shared feature between viewpoint aspect and situation aspect. A clear distinction between the two types of aspects is summarized by Borik & Reinhart (2004) who argue that:

Semantic aspect, which is exemplified by the categories telic and atelic, is determined by the type of interval at which the event holds in the framework of interval semantics. Morphosyntactic tense and viewpoint

aspect, which reflects the perfective/imperfective distinction, are determined by the Reference time system based on the relations established between Reference time, Speech time, and Event time. Contrary to popular view, perfectivity is fully independent of semantic aspect and is only determined by the relations of Reference time and Speech time. (Borik & Reinhart 2004: 1)

As for the difference between telic and atelic situations, Comrie (1976) indicates that:

if a sentence referring to this situation in a form with imperfective meaning (such as the English Progressive) implies the sentence referring to the same situation in a form with perfective meaning (such as the English Perfect), then the situation is atelic; otherwise it is telic. Thus from *John is singing* one can deduce *John has sung*, but from *John is making a chair* one cannot deduce *John has made a chair*. Thus a telic situation is one that involves a process that leads up to a well-defined terminal point, beyond which the process cannot continue. (Comrie 1976: 44-45)

Unlike viewpoint aspect, situational aspect in Arabic has not received much attention in the literature. More importantly, there seems to be no literature at all that investigates the relationship between situational aspect and argument structure in MSA. Therefore, a large part of the discussion in this chapter will be centered on investigating elements (lexical and syntactic) that affect the inner aspect of verbs in Arabic and on representing them in the syntax.

4.1.3 Grammatical Aspect in Arabic

Arabic verbs are commonly distinguished by two morphological patterns. The first pattern is traditionally associated with perfective verbs, and it is characterized by adding a suffix to the verb stem. The other pattern is associated with imperfective verbs, and it is marked by adding a prefix to the verb stem. Following researchers such as Holes (2004) and Danks (2011), I will refer to these two patterns as the "s-stem" and the "p-stem" verbs (s for suffix, and p for prefix). The reason why they do not simply refer to these two patterns as perfective and imperfective is that these "discontinuous bound affixes" are not only specified for temporal/aspectual uses only, but they can be specified for person, gender, and number (Holes 2004: 106). The different suffixes attached to the perfective form are shown in Table 4.1, while those attached to the imperfective are shown in Table 4.2.

Table 4.1
Perfective Form (Aoun et al. 2010: 21)

Person	Number	Gender	Affix	Verb+Affix
1	Singular	F/M	-tu	Katab-tu
2	S	M	-ta	Katab-ta
2	S	F	-ti	Katab-ti
3	S	M	-a	Katab-a
3	S	F	-at	Katab-at
2	Dual	M/F	-tumaa	Katab-tumma

3	D	M	-aa	Katab-aa
3	D	F	-ataa	Katab-ataa
1	Plural	M/F	-naa	Katab-naa
2	P	M	-tum	Katab-tum
2	P	F	-tunna	Katab-tunna
3	P	M	-uu	Katab-uu
3	P	F	-na	Katab-na

Table 4.2

Imperfective Form in Arabic (Aoun et al. 2010: 21)

Person	Number	Gender	Affix	Affix + Verb
1	Singular	F/M	'a-	'a-drus(u)
2	S	M	ta-	ta-drus(u)
2	S	F	ta-iin(a)	ta-drus-inn(a)
3	S	M	ya-	ya-drus(u)
3	S	F	ta-	ta-drus(u)
2	Dual	M/F	ta-aan(i)	ta-drus-aan(i)
3	D	M	ya-aan(i)	ya-drus-aan(i)
3	D	F	ta-aa	ta-drus-aani
1	Plural	M/F	na-	na-drus(u)
2	P	M	ta-un(a)	ta-drus-un(a)
2	P	F	ta-na	ta-drus-na
3	P	M	ya-un(a)	ya-drus-un(a)
3	P	F	ya-na	ya-drus-na

4.1.4 The Perfective Form

Sibawaih's (1316) analysis of Arabic verbs seems to have had a profound influence in subsequent research concerning the nature of tense and grammatical aspect in Arabic.¹⁶ As pointed out by Versteegh (1977: 77), Sibawaih assumes that Arabic has a perfect (e.g., *qatala* 'killed') and an imperfect (e.e., *yaqtulu* 'be killing'). Put in Versteegh's words, Sibawaih describes these types of verbs in the following way:

As for the verbs, they are patterns taken from the expression of the events of the nouns, and they are constructed to (signify) what is past, and what is to come, and what is being without interruption. The structure of what is past is *dahaba, samia, makuta, humida*; the structure of what did not yet occur is, ... when you are telling something *yaqtulu, yadhabu, yadribu, yuqatalu, yudrabu*, and so is the structure of what is being and is not yet finished, when you are telling something. (Versteegh 1977: 77)

This analysis of the Arabic verbal system revolves around grammatical aspect (i.e. whether an action is finished or not), but it ignores the time of the action/event. Realizing the complexity of the relation between tense and aspect in Arabic, Wrights (1967) argues that:

The Arabian Grammarians themselves... have given an undue importance to the idea of time, in connection with the verbal forms, by their division of it into the past ... the present ... and the future ... the first of which they assign to the Perfect and the other two to the Imperfect. (Wright 1967: 51)

¹⁶ Sibawaih (a non-Arab - born ca. 760 and died ca. 796) was one of the earliest and most influential linguists to write on Arabic grammar.

I argue, in line with Al-Tarouti (1991), that the perfective verb has temporal reference similar to the absolute past tense. As a defining category of aspect, Al-Tarouti (1991: 107) incorporates the feature of "exclusiveness" into the notion of "boundedness" concluding, among other things, that the perfective should make no reference to the present. That conclusion is manifested in the ungrammaticality of (2).

(2) # كتب الرسالة غدا

# katab-a	l-risala-t-a	gad-an
write-PST.3SM	the-letter-f-ACC	tomorrow-ACC
'#He wrote the letter tomorrow'		

Traditional Arab grammarians and some recent scholars analyze the suffix (-a) in a verb like *katab-a* as a marker for both the perfective form and agreement. Other researchers argue that the perfective verb in Arabic realizes only agreement and cannot inflect for tense (e.g., Benmamoun 2000; Aoun et al. 2010). There is also the view that Arabic verbs encode aspect through their vocalic melodies (e.g., McCarthy 1997).

In line with the traditional view of the perfective verb, I argue that the s-stem verb, when occurring with no syntactic (analytic) tense marker, inflects for both (past) tense and agreement. I argue that the tense in s-stem verbs is morphologically marked. However, this morpheme appears as an infix in a non-sequential order. Let's look at some examples for s-stem verbs.

كتب الولد الرسالة (21)

katab-a	al-walad-u	al-risala-t-a
wrote-PST.3SM	the-boy-NOM	the-letter-f-ACC
'The boy wrote the letter'		

كتبت البنت الرسالة (22)

katab-a-t	al-bint-u	al-risala-t-a
wrote-PST.3S-F	the-girl-NOM	the-letter-f-ACC
'The girl wrote the letter'		

The verb *katab* in (3a) is inflected for tense and agreement with the suffix [-a]. If we assume, in line with Aoun et al. (2010), that this suffix encodes agreement only, then there would be no need to include that suffix in (4b) as agreement is already inflected for by the suffix [-t]. The suffix -a then, I believe, realizes past and should be generated in T.

It is worth mentioning that there are other cases where the suffix [-a] cannot be added to certain verbs due to morpho-phonological blocking reasons as shown in (4) below.

الطلاب كتبوا الدرس (23)

al-tulab-u	katab-uu	d-dars-a
the-students-NOM	write-PST.3M.PL	the-lesson-ACC
'The students wrote the lesson'		

In sentence (4) the agreement marker on the verb is the long vowel /u/. One way to deal with two vowels occurring after each other in Arabic is to delete the first vowel. In *katab-uu* the suffix *-a*, which marks tense, disappears; however, its existence is proved in the VSO order where number agreement is lost as shown in the following example.

(24) كَتَبَ الطَّلَابُ الدَّرْسَ

Katab-a	t-tulab-u	d-dars-a
write.PST.3SM	the-students-NOM	the-lesson-ACC
'The students wrote the lesson'		

As for the argument that the perfective form in Arabic can be used to express present tense, as argued by Wright (1976) and Cantarino (1974), I agree with Al-Tarouti's (1991) observation that the sentences they use are “either optatives, performatives, or sentences with resultative and stative verbs, the latter of which are mostly verbs of perception” (Al-Tarouti 1991: 116).

The discussion above has revolved around the perfective form appearing in a simple past tense. It is worth mentioning that expressing finer distinctions in the past tense or the other types of aspect are compositionally marked as shown in the following table.

Table 4.3

Tense/Aspect Analytic Markers in Perfective Form

Tense/Aspect	Auxiliary/particle used	Translation
Remote Tense	Kana daras-a	He studied once in the past
Past Perfect	Kana qad daras-a	He had studied
Present Perfect	Qad daras-a	He has studied

As shown in Table 4.3, most forms of tenses that appear with the perfective form are realized syntactically as isolated units. This (compositional) way of realizing finer distinctions also applies to the present and future tenses. See. Hassan (1994) for an innovative classification of tenses in Arabic. Nothing more hinges.

4.1.5 The Imperfective Form

McCarthy (1997) points out that grammatical aspect in the imperfective form is carried out by vocalic melodies. Aoun et al. (2010), on the other hand, argue that the p-stem verb occurs in different aspectual and temporal contexts. They mention that it is always “impossible to attribute a particular temporal or aspectual interpretation to it”, and conclude that this form "seems to carry neither tense nor aspect” (Aoun et al. 2010: 24).

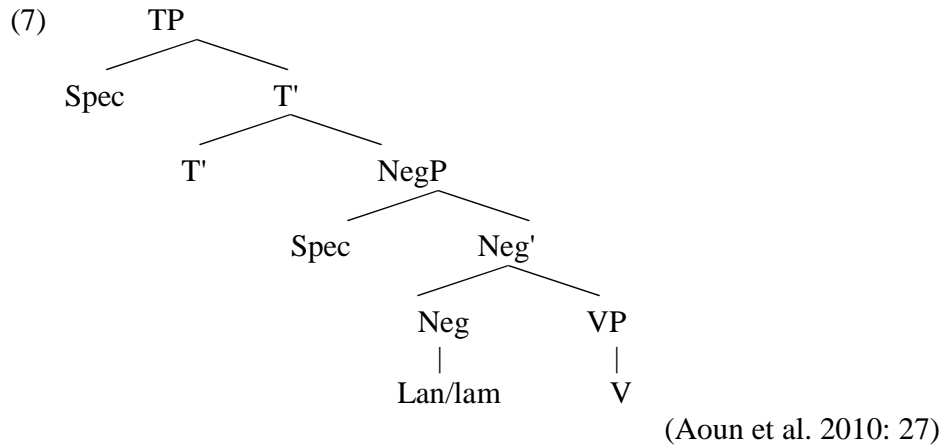
In line with McCarthy (1997), I argue that the p-stem verb does carry tense, but only when it occurs in a structure with no analytic markers (e.g., future particle, negative particle) that indicate a different tense. I will show that tense in p-stem form can be coerced by syntactic elements and that view is argued for by Aoun et al. (2010). However, I completely disagree with Aoun et al. that this form does not carry aspect. I will show that their argument about the inability of p-stem

verbs to carry aspect stems from a narrow perspective of the notion of aspect. More specifically, aspect, according to researchers like Aoun et al. (2010), seems to always revolve around one type of aspect (i.e. grammatical aspect) without considering the other type, which is situational/inner aspect. Let us consider the examples Aoun et al. (2010: 24) use to support their argument that p-stem verbs carry neither tense nor aspect.

- (6) a. لم تكتب
 lam ta-ktub
 NEG.PST 3F-write
 'She didn't write'
- b. لن تكتب
 lan ta-ktuba
 NEG.FUT 3F-write
 'She won't write'

(Aoun et al. 2010: 24)

I agree with Aoun et al. that the tense in (6a&b) is a past tense and a future tense respectively, and the interpretation of tense is affected by the syntactic particles (i.e. negative particle *lam* and future negative particle *lan*). They generate negation between TP and VP to account for the fact that tense occurs on the negative particle as shown below.



I argue that the imperfective form always encodes aspect and present tense when it appears isolated with no syntactic tense-changing particles. For example, no one will question that the imperfective form in the following sentence is used to express present time reference.

(8) يكتب علي الرسالة

ya-ktub-u	Ali-un	ar-risalat-a
M.IPFV-write-3P	Ali-NOM	the-letter-ACC
‘Ali is writing the letter’		

To express negation in Arabic, one may use either a p-stem verb with the negative marker *lam*, or an s-stem verb with the negative marker *ma*, as shown in (9a&b) respectively.

(9) a. لم تكتب

lam **ta**-ktub

NEG.PST 3F-write

'She didn't write'

b. ما كتبت

ma katab-**a**-t

NEG.PST write.PST.3S-F

'She didn't write'

Researchers like Aoun et al. (2010) and others who argue that p-stem verbs never carry aspect infer this assumption from a sentence like (9a) that is interpreted as referring to a completed action that took place in the past. Although they do not explicitly mention that, it seems that they see no difference between (9a&b), and that is why they conclude that neither p-stem verbs nor s-stem verbs carry aspect. I think that the p-stem verb, as in *ta-ktub*, does carry aspect and that there is an aspectual difference between the two types of negation. Traditional grammarians have provided a thorough analysis of the syntax of different negative particles in Arabic. However, to the best of my knowledge, they have not extensively discussed the semantic difference between the two negative particles when they occur before verbs. They simply indicate that negating a verb with *ma* is more absolute than with the particle *lam*.

I argue that the difference between the two types of negation includes something that has to do with the speaker's view of the situational/inner aspect. In addition to the argument made by Aoun et al. (2010) that the negative particle *lam* can be a tense marker, I argue that it can also be used as an inner aspect marker. To illustrate what I mean by that, let us consider the following example.

(10) لم تسمح له باللعب من الساعة الواحدة حتى الثالثة

lam	ta-smah	la-hu	bi-la'ab	min
NEG.PST	3SF-allow	to-him	PREP-play	from
alwahidah	hatta	alsadisah	masa'an.	
One	till	three	evening.	

'She didn't allow him to play from 1 to 6 p.m.'

I argue that using the negative particle *lam* with the imperfective form *ta-smah* in such a situation is more acceptable than using the negative particle *ma* with the perfective form, especially when there is a durative adverbial in the sentence (i.e. from 1 to 6 p.m.). To put sentence (10) in a context imagine a boy who constantly tried to play outside but his mother kept refusing his requests.

There is a group of verbs that denote inherent atelic interpretations (e.g., شاهد watch, مضغ chew). These verbs are more likely to appear with the negative particle *lam* and the imperfective verb as shown below.

(11) لم يشاهد زيدُ البرنامج

Lam yu-shahid Zayd-un al-mubarat
NEG.PST 3SM-watch Zayd-NOM the-match
'Zayd did not watch the match'

The verb *shahad*, meaning 'to look at something carefully' or *watch* in English, implies a durative aspect as the act of watching normally takes a certain amount of time. It is not, for example, similar to verbs like *ra'a* 'see', which may denote an instantaneous/punctuate event as shown in (12).

(12) ما رأيت أجمل منك

Ma ra'a-ytu ajmalla mink-i
NEG.PST see-1S.PST more beautiful than-you
'I have never seen someone more beautiful than you'

It is interesting that the verb *shahad* 'watch' occurs with the negative particle *lam* in more than 300 instances in the Arabic Corpus (<http://arabiCorpus.byu.edu>), while there is no occurrence at all for the same verb in the perfective form with the negative particle *ma*.

Contrary to atelic verbs, verbs that denote an inherent telic interpretation occur as perfective with the negative particle *ma*. Verbs belonging to pattern 9 always give a telic interpretation (unless they are used to denote a reiterative action), as we will see later in this chapter. Verbs belonging to this pattern are

used to express a change of color like اصْفُرُ 'turned yellow ' as in (13). The same Arabic Corpusre returned zero results for a sentence like (13a), where it is impossible, as understood from the context, for that verb to denote a reiterative action.

(13) a. # لم يصفرَّ التمرُ

lam ya-sffaru t-tamr-u
 NEG.PST 3SM-yellow the-dates-NOM
 'The dates did not turn yellow'

b. ما اصفرَّ التمرُ

ma esfarr-a t-tamr-u
 NEG.PST turned yellow-PST.3SM the-dates-NOM
 'The dates did not turn yellow'

To sum up, I have shown that the syntax (through some analytic particles) is an important factor in specifying tense in Arabic. The main argument that I have pursued so far is that the view of the notion of aspect in most previous studies that examined tense and aspect in Arabic seems to be very narrow, and that there has been confusion between tense and aspect. I argue that p-stem forms always carry aspect (either grammatical aspect or inner/situational aspect, or both).

Smith's (1991) "situational aspect" should provide useful insights for future research on the nature of tense/aspect in Arabic. Inner aspect and its relation to other syntactic phenomena in Arabic should be explored in line with a number of studies conducted over the last two decades in some other languages. In the

remainder of this chapter I investigate the relation between this type of aspect and argument structure realization.

4.2 Inner Aspect of Verbs in Arabic

This sub-section investigates the inner aspect of verbs in Arabic. The relationship between aspect and argument structure, in English and some other languages, has been discussed widely in the literature. For example, van Hout (1996), argues for a mapping system that looks at the verb's event type based on telic/atelic alternations. There have been a few studies that investigate the eventuality types of verbs in some dialects of Arabic (e.g., Cowell 1964, Eisele 1988; 2006, and Mughazy 2005). However, to the best of my knowledge, there is no literature that thoroughly investigates the inner aspect in MSA. This section attempts to answer the question of what determines inner aspect in Arabic. Is it the syntax (coercion), the morphology (verb pattern) or a combination of both?

First, I define the notion of "telicity" and explain how it is related to determining argument structure. I also discuss some testing tools used in the literature to determine the telicity of a predicate, and indicate which is the most suitable for Arabic verbs. Then, I propose a number of factors that play a role in determining the inner aspect of verbs in Arabic. I argue that the inner aspect in Arabic is often specified by periphrastic elements outside the predicate or the clause. However, there exist a few cases where inner aspect is specified by the lexicon or a certain verb pattern. Using syntactic trees, I indicate the position of each syntactic factor and whether it is inside or outside the VP.

4.2.1 Diagnostic Tests for Inner Aspect

As mentioned, Vendler's (1967) four-way classification of inner aspect is all about how an action proceeds in time. The notion of *telicity* is concerned with the question of whether the situation has a perfect or an imperfect meaning; a telic situation refers to an event with a process that has a terminal point, whereas an atelic situation expresses an event that has no terminal point. As shown in Table 4.4, two features traditionally distinguish the type of inner aspect, i.e. telicity and durativity.

Table 4.4
Inner Aspect (van Gelderen 2012: 123)

+telic	+durative build a house (=accomplishment)	-durative recognize (=achievement)	(=activity)
-telic	swim	know, be tall	(=state)

As discussed in Chapter 2, some researchers (e.g., Comrie 1976; Tenny 1987; Dowty 1991) indicate that the syntactic tests used by Vendler (1967) to classify verbs are not adequate, and thus came up with different diagnostics. For example, Dowty (1979) proposes different tests to distinguish between the four different aspects of verb. These tests are listed in the Table 4.5 below.

Table 4.5

Tests for Aspectual Classification (Dowty 1979: 60)

Criterion	States	Acti- vities	Accomp- lishments	Achiev- ements
1.meets nonstative tests	no	yes	yes	?
2. has habitual interpreta- tion in simple present tense	no	yes	yes	yes
3. ϕ for an hour, spend an hour ϕ ing:	OK	OK	OK	bad
4. ϕ in an hour, take an hour to ϕ :	bad	bad	OK	OK
5. ϕ for an hour entails ϕ at all times in the hour:	yes	yes	no	d.n.a.
6.x is ϕ ing entails x has ϕ ed:	d.n.a.	yes	no	d.n.a.
7.complement of stop:	OK	OK	OK	bad
8.complement of finish	bad	bad	OK	bad
9.ambiguity with almost:	no	no	yes	no
10.x ϕ ed in an hour entails x was ϕ ing during that hour:	d.n.a.	d.n.a.	yes	no
11. occurs with studiously, attentively, carefully, etc.	bad	OK	OK	bad

The diagnostics used by Dowty (1979) may work well in English. However, they are still language-specific and some of them cannot be applied to Arabic. In addition, some of these tests target verbs as individual elements and may not be applicable on a sentence level, where, for example, the construction around the verb may affect the inner aspect of the verb (e.g., definite object or PP).

Therefore, I will use the time adverbials (*in/for an hour*) to determine the ‘telicity’ as they may be applied to single verbs or to the whole VP.

Applying this kind of test should help us identify telicity determinants in Arabic, and reveal if there exists any relationship between inner aspects and argument structure realization. In what follows, the notion of telicity is applied to different verb classes and patterns to see if telic/atelic interpretation can be solely determined by certain patterns regardless of the lexical classification of the root, or if it is the syntax or a combination of both that determine telicity. The sentences I provide are not supposed to be understood as expressing iterative meaning, unless otherwise pointed out.

4.2.2 Determinants of Inner Aspect in MSA

4.2.2.1 The Morphosyntax

Pattern 1 displays a range of verbs that may be telic or atelic depending on their lexical interpretation. For example, there is a class of activity verbs that have inherent atelic nature (e.g., *chew*, and *rub*, مضغ، علك فرك،) as in (14).

- (14) a. مضغ اللبان لمدة ساعة
madhaq-a al-liban-a li-mudati sa’ah
chew.PST.3SM the-gum-ACC for an hour
‘He chewed the gum for an hour’

b. #مضغ اللبان في ساعة

#madhaq-a al-liban-a fi sa'ah
chew.PST.3SM the-food-ACC in an hour
'He chewed the gum in an hour'

These verbs are always atelic and cannot be placed in a structure that would coerce the type of inner aspect (like the resultative in English as in *hammered the metal flat*). The reason why such verbs are always atelic is because they do not appear to have an end result or a process that leads to a terminal point. On the other there exist other verbs from pattern 1 that are always telic; these verbs are *goal-oriented verbs* (e.g., *enter, arrive, and landed* وصل، دخل، حط) as in (15).

(15) وصل الرجل القمة في ساعة

wasal-a al-rajul-u al-qimmat-a fi sa'ah
Arrived.PST.3SM the-man-NOM the-summit-ACC in an hour
'The man reached the summit in an hour'

The verbs in (14) and (15) belong to the same pattern; however, they display different types of inner aspect. This means that the determinant of inner aspect in such verbs is the lexical semantics of certain verbs or verbs classes and not the pattern itself. Another instance where the inner aspect is determined by semantic properties encoded in a certain class of verb pattern is shown by those inchoative verbs belonging to pattern 9, which express a meaning related to color change. These verbs are always telic (e.g., *reddden and whiten*, as shown in (16)).

(16) إحمر التمر في يومين

?i-hmarr-a al-tamr-u fi yawmain

INTR-become red-PST the-dates-NOM in two days

'The dates reddened in two days'

Comrie (1976) uses the same verb إحمر "became red/ripen" as shown in (17).

(17) أجيئك إذا أحمر البسر

A'ajiu (ipfv.) -ka ida hmarra (Pfv.) l-busru.

I-come to-you when it-ripen the unripe-date

'I shall come to you when the unripe date ripens (shall ripen)'

(Comrie 1976: 79)

Comrie uses this example to show that in a subordinate clause the imperfective verb *a'ajiu* أجيئك in isolation can be referring to present time; however, the subordinate clause forces the sentence to have a future reference. What matters here (not mentioned by Comrie 1976) is the fact that the verb *hmarra* إحمر "turned red/ripened" belonging to pattern (9) has an inherent telic complete verb denoting an end-point even if it is used for future reference. This sentence also supports my previous argument about the compositional nature of tense/aspect in Arabic.

Verb pattern (3) which has an inherent reciprocal meaning, is atelic in nature (e.g., *fight, double, argue, dispute* قاتل، ضاعف، ناقش جادل،) as shown in (18).

(18) قاتل الجنود المتظاهرين لمدة ساعة

qatal-a al-junud-u al-mutamaredin-a

Fight.PST the-troops-NOM the-rebels-ACC

li-mudati sa'ah

for an hour

'The troops fought the rebels for an hour'

The examples above show that it is not always adequate to rely on a given pattern to determine the telicity or inner aspect of verbs in Arabic.

In what follows, I propose some syntactic factors that play a role in determining the inner aspect of verbs in Arabic.

4.2.2.2 Definiteness and Aspect

Like English, analytical constructions or elements outside the verb itself may affect the inner aspect of some verbs in Arabic. I argue that a sentence containing any verb other than motion verbs, and a definite object as in (19) gives a telic interpretation by default.

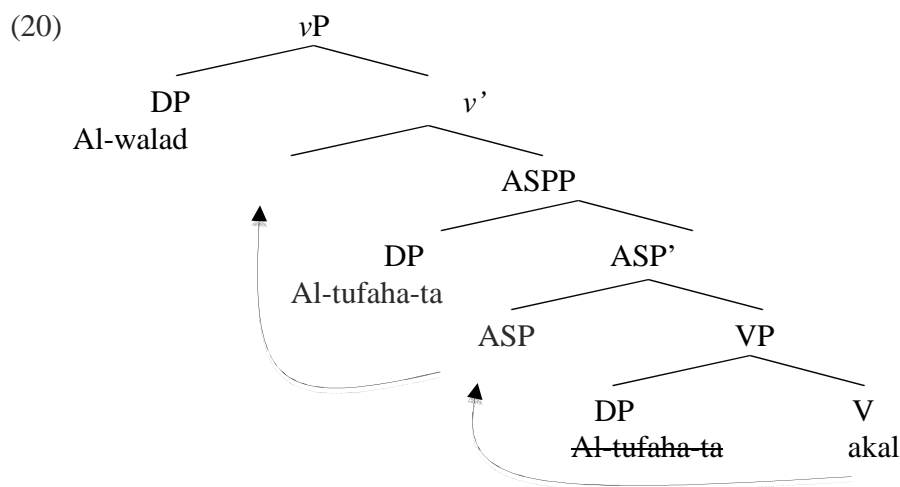
(19) أكل التفاحة في ساعة

akal-a al-tufaha-t-a fi sa'ah

eat.PST.3Sm the-apple-F.ACC in an hour

'He ate the apple in an hour'

As in English, when we use indefinite or quantitatively indeterminate object, the sentence would always give atelic interpretation. In line with van Gelderen (2012), I argue that an Aspect Phrase (ASPP) is included inside the vP shell as shown in (20) below.



The Theme in *al-tufaha-ta* internally merges with the V that has merged (internally) with ASP. van Gelderen (2011) points out that, in structures other than those containing phrasal verbs, it is hard to determine if the position of the ASPP is inside or outside the vp Shell. The definite object in Arabic could be emphasized by the word *kull* 'all', which, I think, works in same fashion as phrasal verbs in English with regards to their order with the verb. As argued by van Gelderen (2012), the particle in English, which indicates perfectivity, always appears before indefinite objects as shown in (21a), while it may occur either before or after definite objects as shown in (21b&c)

- (21) a. Boost **up** his lecture fees (COCA 2008).
 b. Up to a half-ton of water per cord will evaporate **out** (COCA 1994)
 c. But it's going to take some time for this process to issue this money **out** (COCA 2006).

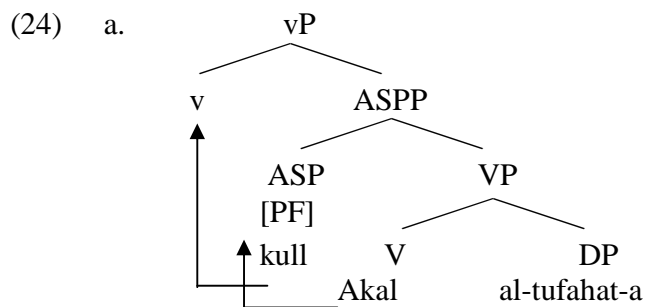
(van Gelderen 2011: 124)

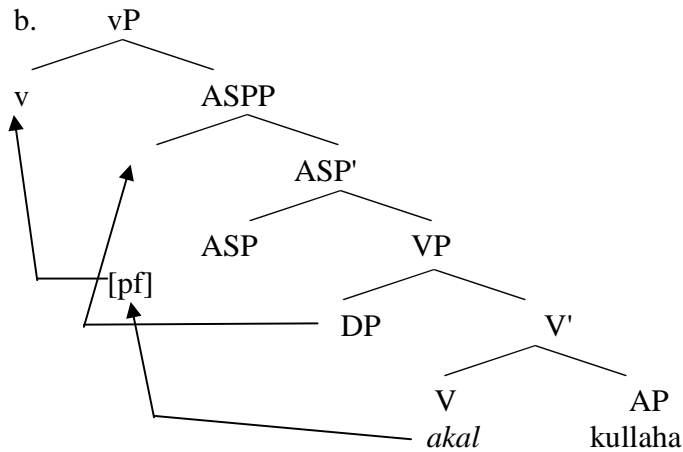
In Arabic, the quantifier *kull* “all” behaves like the aspectual particle of phrasal verbs in English. First, *kull* cannot appear after indefinite object as shown in (22a). Also, it always appears before the noun when used with indefinite objects as shown in (22b), while it can appear either before or after a definite object as shown in (23).

- (22) a. الولدُ أكلَ تفاحاً كله#
 # al-walad-u akal-a tufah-an kulla-hu
 the-boy-NOM eat.PST.3SM apples.INDF all-3PL
 ‘The boy ate apples up’
- b. المدرس كافأ كل تلميذ
 al-mudaris-u kaf-a kull-a telmeith-in
 the-teacher-NOM reward-PST all-ACC student-GEN
 ‘The teacher rewarded each student’

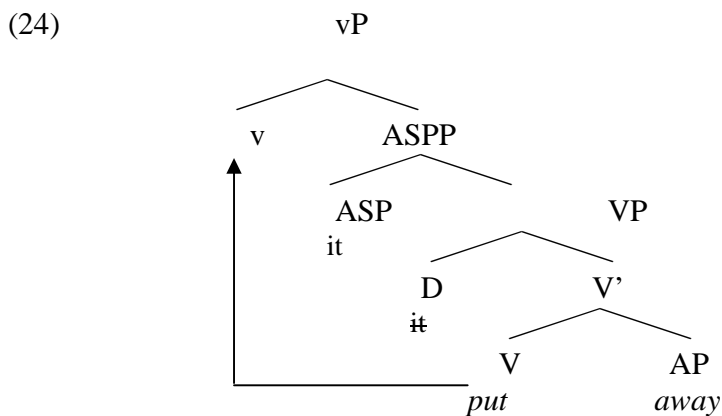
- (23) a. أكل التفاحة كلها
 akal-a al-tufaha-t-a kull-a-ha
 eat.PST.3SM the-apple-F-ACC all-ACC-3SF.
 ‘He ate the apple up’
- b. أكل كل التفاحة
 akal-a kull-a al-tufaha-t-i.
 eat.PST.3SM all-ACC the-apple-F-GEN
 ‘He ate up the apple’

The examples above show that there is a clear evidence for the connection between definiteness and aspect in Arabic in a way similar to phrasal verbs in English. Adopting an account similar to that of van Gelderen’s (2012), I argue that *kull* is an aspectual marker and its position in the tree is represented in (24) below. An inner ASP head represents the perfective aspect and the ASP marker *kull* for the order in (23b) is positioned in ASP (24a), while it appears under VP as in (24b) for the order in (23a).





The quantifier *kull* in (24a) merges with the VP and it assigns a genitive Case to the direct object. The verb *akl* internally merges with the ASP and then moves to the v. In (24b), the verb *akl* moves to ASP and then to v. The definite object *al-tufaha-t-a* moves to the Spec of ASPP to check perfective aspect. van Gelderen (2012) points out that if the object was pronominal, which is the most definite, that pronoun merges in the head of ASPP to check perfective aspect and definiteness before the verb left –adjoins to it when moving to v as represented in (24).



(van Gelderen 2012: 127)

Because the pronoun in a sentence like *he turned it down* is very definite, the adverb *down* will not be an aspect marker and cannot merge with the VP to yield something like *#he put away it*. In Arabic a sentence with *kull*, when appearing with pronominal, would behave similarly as shown in (25).

- (25) a. علي أكلها كلها
 Ali-un akal-a-ha kull-a-ha
 Ali-NOM eat-PST-3F all-ACC-3PF
 ‘Ali ate it up’
- b. #علي أكلَ كلها
 #Ali-un akal-a kull-a-ha
 Ali-NOM eat-PST.M all-ACC-3PF
 ‘#Ali ate up it’

The underlined pronoun in (25a) appears as a clitic to the verb *akal*. The same pronoun appears on the quantifier *kull* as an agreement morpheme in what is known as clitic-doubling. I argue that the aspect marker *kull* indicates perfectivity and entails something like what Anderson (1971: 389) calls a “holistic interpretation” for an event. Anderson (1971) views the notion of telicity in terms of “a holistic/partitive interpretation”. The “holistic interpretation” means that the direct object is wholly affected by the action described by the verb, whereas the “partitive interpretation” means that the internal arguments are not completely

affected by the action. The sentence in (25b) will be grammatical if we add an atelic marker instead of *kull* as shown in (26).

(26) عليُّ أَكَلَ بَعْضَهَا

Ali-un akal-a bad-a-ha

Ali-NOM eat-PST.M some-ACC-3F

‘Ali ate some of it’

In this sentence we used a lack-of-telicity or an atelic marker *b'adh* “some” instead of the telic marker *kull* and the sentence became very grammatical. Unlike *kull*, the aspect marker here is allowed to merge with the VP to indicate that it is only part of the object that has been affected.

4.2.2.3 Semi-lexical Verbs

In Arabic there are a number of semi-lexical verbs that can be used as syntactic elements to determine telicity. These semi-lexical verbs are used with main verbs to help specify the point of time and whether the verb marks the beginning, the middle or the end of an action/event (e.g., begin, start, finish (بدأ، أنهى، أتم). Unlike ‘goal-oriented’ verbs, these verbs work as helping verbs that force the main verbs to be gerundive as illustrated in (27).

(27) أنهى علي قراءة الكتاب في ساعة

Anh-a Ali-un **qira-at-a** al-kitab-i

Finish.PST3SM Ali-NOM reading-Gerund the-book-GEN

fi sa'ah

in an hour

'Ali finished reading the book in one hour'

The need for such a semi-lexical verb is more apparent when used with a verb that denotes an atelic interpretation like the one used in (18) above, repeated here as (28).

(28) قاتل الجنود المتظاهرين لمدة ساعة

qatal-a al-junud-u al-mutamaredin-a

Fight-PST the-troops-NOM the-rebels-ACC

li-mudati sa'ah

for an hour

'The troops fought the rebels for an hour'

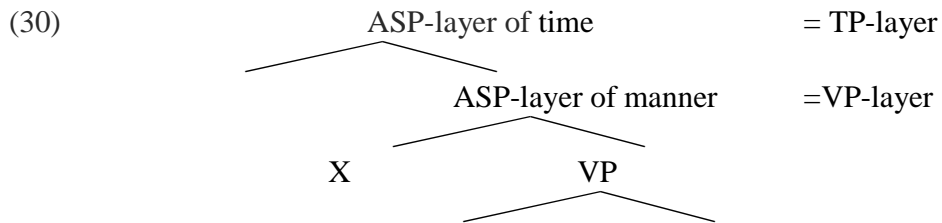
The sentence will give a telic interpretation if we add the semi-lexical verb *anha* as shown in (29).

(29) أنهى الجنود قتال المتمردين في ساعة

Anha	al-junud-u	qital-a	al-mutamaredin-a
finish.PST.3SM	the-troops-NOM	fighting	the-rebels-ACC
fi	sa'ah		
in	an hour		

‘The troops ended their fighting with the rebels in an hour’

The semi-lexical verb *anha* ‘finish’ works as an aspect that gives a telic interpretation to the sentence. I argue, in line with van Gelderen (2012), that semi-lexical verbs are syntactically represented as ASP placed outside the VP as shown in (30) below (from van Gelderen 2012: 234).



There is always a group of verbs that did not seem to be placed under a specific category in traditional grammar books of Arabic. In other words, verbs like ما فتى، ما برح، ما انفك، *ma-anfaka ma-bariha*, and *ma-fatea'a*, all used to express the continuity of action, are not categorized under a certain name/title or function in grammar books. A section that would discuss these verbs is always titled by something like “ma-zala & manfak'a & ma-fate'a & ma-bariha” (Yaqout 1989:

45). This is not to say that traditional grammarians have not adequately explained the semantics and syntax of these semi-lexical verbs. The point is that these semi-lexical verbs have not been introduced as aspect markers or as something related to the inner aspect of verbs. The picture would have been much clearer and these verbs would have received better analysis, I assume, if traditional grammarians knew/considered how verbs work in other languages (e.g., Slavic languages). One piece of evidence, shown by traditional grammarians, that these semi-lexical verbs are different from other regular verbs in the languages is indicated by their syntactic behavior. For example, Yagout (1989: 45) points out that these verbs are not productive (e.g., cannot be imperative or infinitive). In addition, they always appear with a particle like *ma*. They also mean one thing and that is continuity as shown in (31).

- (31) ما انفك يكتب الرسالة
 ma-anfak-a ya-ktub-u r-risala-t-a
 ASP-he-PST IPFV.M-write-3S the-letter-F-ACC
 'He continued writing the letter'

There is also another set of semi-lexical verbs that are mainly used to express the beginning of an event (e.g., *ja'al*, *shara'a*, *akhad'a*, and *tafiga'a* ، طفق، جعل ، أخذ (شرع). The traditional grammarians refer to these verbs as أفعال الشروع *afa'al al-shuro'a* , referred to by Wright (1967: 42) as "verbs of beginning". The behavior

of these verbs is similar to that of the previous set except for the fact that they appear with no particles as shown in (32) below.

(32) جعل يكتب الرسالة

Ja'al'a ya-ktub-u r-risala-t-a
ASP-he IPFV.M-write-3S the-letter-F-ACC
'He started writing the letter'

Finally, there is what traditional grammarians refer to as أفعال المقاربة *afa'al al-muqarabah*, referred to by Wright (1967: 106) as "verbs of appropinquation". These verbs are used to indicate proximity to an action when something is about to take place (e.g., *awshaka*, and *kada* (أوشك ، كاد) as shown in (33).

(33) كاد يطير

kada ya-teer-u
ASP-he IPFV.M-fly-3SM
'He was about to fly'

4.2.2.4 Prepositional Phrases

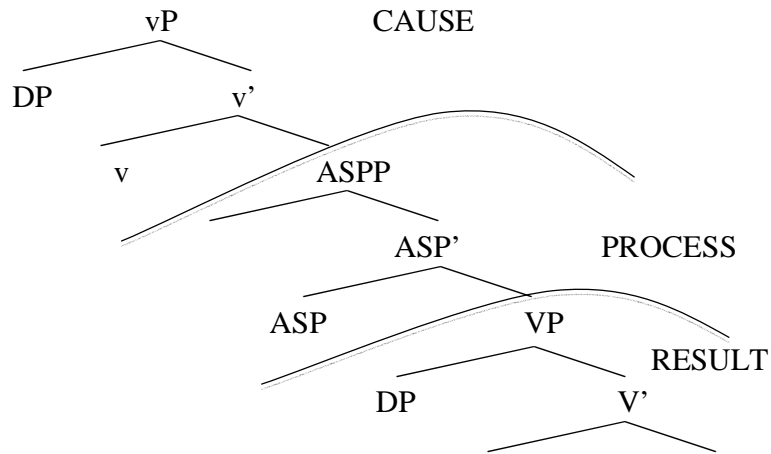
Like English, the PP in Arabic may affect the aspectual classification of verbs. For example, motion verbs that are not 'goal-oriented' such as *push*, *pull*, *drag* دفع جر , which are inherently activity durative verbs, may change to

accomplishment telic verbs that have completed events or end results if modified by spatial prepositions such as *till*, *to*, *إلى*, *حتى*, as shown in (34).

- (34) a. دفع العربية لمدة ساعة
dafa-a al-araba-ta li-mudati sa'ah
Push.PST.3SM the-cart-ACC for an hour
'He pushed the cart for an hour'
- b. دفع العربية إلى المصنع في ساعة
dafa-a al-araba-ta ila al-masna'a-i
Push.PST.3SM the-cart-ACC to the-factory-GEN
fi sa'ah
in an hour
'He pushed the cart to the factory in an hour'

These sentences show that the structure around the VP plays a role in determining the inner aspect, which in its turn provides variant argument structures. For example, in (34a), the inner aspect entails an atelic interpretation where there is no ending point in the temporal structure of the verb. This fact corresponds to a simple structure of VP that does not require the RESULT layer. The VP in (34b), on the other hand, denotes a complex VP structure that requires the RESULT layer as it entails a process and an ending point. The correspondence between inner aspect and argument structure can be captured by a syntactic structure similar to the one provided in the first chapter and repeated here as (35).

(35)



Another example where an element inside the VP plays a role in determining the argument structure based on the type of eventuality is given in (36) below.

(36) a. ركض علي لمدة ساعة

rakadh-a Ali-un li-mudati sa'ah
run-PST.3SM Ali-NOM for an hour

'Ali ran for an hour'

b. ركض علي ميلا في ساعة

rakadh-a Ali-un meel-an fi sa'ah
run-PST.3SM Ali-NOM mile-one in an hour

'Ali ran a mile in an hour'

The verb *rakadh* 'run' is inherently an activity verb and thus yields an atelic meaning. However, the definite object *mielan* 'one mile' coerces the type of eventuality and argument structure.

4.2.2.5 Partitive Meaning

Another means of determining the inner aspect in MSA is to look for apparent elements in the structure that may entail a *partitive* or *holistic* effect on the object. In a language like Finnish, the grammatical aspect can be deduced from the syntax. Comrie (1976) uses the sentences in (37) to show that the grammatical aspect is sensitive to the type of case assigned to the object.

- (37) a. hän luki kirj-an
he read book-ACC
'He read the book.'
- b. hän luki kirj-aa
he read book-PAR
'He was reading the book'

(Comrie 1976: 8)

A sentence is given a perfective reading if the verb takes an object with accusative case as in (37a), and a sentence is interpreted as imperfective if the object appears with a partitive case (PAR) as in (37b). These sentences provide evidence that the syntax plays a role in determining the grammatical Aspect, which, in its turn, is connected with the inner aspect of a verb. In Arabic, the partial reading is possible; however, it is done through analytic means, by separate words outside the predicate as shown in (38).

(38) أكل من التفاح لمدة ساعة

akal-a **min** al-tufaha-i li-mudati sa'ah
Eat.PST-3SM from the-apples-GEN for an hour
'He ate from the apples for an hour'

The object *al-tufaha-i* becomes genitive as it is preceded by the preposition *min*, which changes the inner aspect of the verb from telic/accomplishment to atelic/activity. Here, the object is still definite; however, another element around the structure plays a role in changing the inner aspect of the verb.

Another way of expressing partitive meaning in Arabic is thorough what traditional Arab grammarians refer to as *Al-badal* البديل (=substitution), where, as traditionally defined, an object is replaced by another object for pragmatic reasons. One type of *al-badal* is what is known as '*badal ba'adh min kull* بعض بدل (= part of whole) as in (39).

(39) أكل التفاحة بعضها

akal-a al-tufaha-t-a **badh-a-ha**
eat.PST.3SM the-apple-F-ACC part-ACC-3SF
'He ate part of the apple'

Traditional grammarians always associate *al-badal* with pragmatics and they discuss the contextual situations where such a structure is used. For example,

they indicate that a speaker may use the wrong object by mistake and then, after recalling the right work, he/she may just pronounce it after that object. I think that the existence of such a structure supports my argument that a sentence with a definite direct object always gives a telic interpretation as we saw in (19), repeated in (40) below.

(40) أكل التفاحة في ساعة

akal-a	al-tufaha-t-a	fi	sa'ah
eat.PST.3SM	the-apple-F-ACC	in	an hour
‘He ate the apple in an hour’			

A sentence like (40) with a definite object gives a telic reading by default as discussed before. The notion of *al-badal* cannot be used with indefinite objects as shown in (41), and that supports my argument that a sentence with a definite object always gives a telic interpretation.

(41) أكل تفاحاً بعضه#

#akal-a	tufah-an	badhah-u
eat.PST-3SM	apples-ACC	part-it
‘He ate some apples’		

To sum up, I have argued that the perfective and imperfective meanings and the aspectual classification of verbs in Arabic are not always determined by

the verb alone. The structure around the verb plays a major role in determining the inner aspect of the verb (e.g., in/definite objects and PP). I have shown that ASP can be either internal or external to the VP.

4.3 Conclusion

A major question posed in this chapter is how much we attribute to the morphosyntactic properties of the verb and how much to the syntax (or functional heads) in determining the inner aspect and argument structure in Arabic. I have argued that most of the burden of determining argument structure in Arabic lies in the structure around the VP (e.g., the role of the functional heads AspP and vP or RESULT). I have also provided examples to show that the lexicon (morpho-syntax) may play a role in determining the inner aspect and the argument structure in Arabic.

Chapter 5

THE CAUSATIVE/INCHOATIVE ALTERNATION IN ARABIC

Introduction

This chapter provides an overview of the semantic, morphological and syntactic properties of verbs undergoing the causative/inchoative alternation in Arabic.¹⁷ The causative/inchoative alternation is a universal phenomenon, and it has been of interest to researchers investigating the lexicon-syntax interface over the last four decades. Harley (2008: 1) states that "Analyses of the causative have had a major influence on many foundational aspects of syntactic theory, including control, case marking, clause structure, theta-theory and argument structure, and the morphology-syntax interface". The relation between causative and inchoative verbs covers three modules of linguistic theory: the lexicon, the morphology, and the syntax. Schäfer (2009: 2) indicates that the causative inchoative alternation "has been used as a probe into the organization of the mental lexicon and its interfaces with these three grammatical modules." Although this type of alternation is universal, languages differ with respect to the way they express causativization, and the types of verbs entering into the alternation.

One important objective of this chapter is to examine the behavior of causative and inchoative verbs in Arabic against the background of some dominant theoretical semantic and syntactic assumptions. This chapter covers two main topics. The first is concerned with the directionality of the derivation of causative and inchoatives in Arabic: whether one form is derived from the other.

¹⁷ This type of alternation is also known as the causative-anticausative alternation (Alexiadou 2010), causative alternation (Haspelmath 1993; L&RH 1995; Schäfer 2009), and unaccusativity alternation (Kiparsky 1997).

A careful examination of Arabic causative and inchoative verbs will reveal major drawbacks of the derivational analyses. Another objective is to identify factors (lexical/semantic/syntactic) responsible for (dis)allowing verbs to participate in the causative/inchoative alternation.

I start this chapter by introducing the problem related to the notion of causative/inchoative alternation. I sketch the views of some lexicalist researchers on the apparent cross-linguistic variation in regard to some semantic restrictions on the types of verbs that enter into the causative/inchoative alternation. I also show how causatives (lexical and analytical) and inchoatives are syntactically represented, and how much VP decomposition is needed to accommodate such verbs and any internal and/or external arguments. Throughout the discussion of any semantic or syntactic phenomenon that applies to verbs in English, I provide the Arabic counterparts and highlight any similarities or differences between the two languages.

I also provide a representative list of causative and inchoative patterns in Arabic and account for any syntactic or semantic properties that regulate the selection of specific patterns to express causativity and/or inchoativity. I argue that the two alternates in Arabic are derived from category-neutral roots and they do not stand in a derivational relationship. Finally, I point to some Arabic-specific aspects related to the phenomenon of causativization and how they fit into the universal pattern.

5.1 Why Causative/Inchoative Alternation?

The causative/inchoative alternation is characterized by verbs that can be used as transitive and intransitive verbs. These two types of verbs stand in a semantic relation. The intransitive use typically expresses a change-of-state event without assuming any external argument as the causer of that event, whereas the transitive use expresses an event understood as being brought about by an external argument, i.e. agent or causer. The following examples from English illustrate the difference between the two types.

- | | | |
|-----|-------------------------|------------|
| (1) | a. John broke the vase. | Causative |
| | b. The vase broke. | Inchoative |

The causative verb in (1a) denotes an action/event "breaking the vase" that is caused by a specific Agent/actor "John", while the inchoative verb in (1b) denotes the same change-of-state event but without assuming a specific or implicit entity that caused the event. One interesting observation about this type of alternation, which poses a challenge to the lexicalist approach and theories of linking as discussed in Chapter 2, is the fact that the subject in the inchoative sentence *the vase* bears the same semantic relation to the verb as the object of the causative sentence.

As discussed in Chapter 1, change-of-state verbs entering into the causative/inchoative alternation are formally treated by lexicalists as containing primitives that specify the architecture of their internal meaning 'event structure'

(e.g., Pinker 1989; L&RH 1995; 1998). For example, the Lexical Conceptual Structure (LCS) of the causative alternant for a change-of-state verb like (1a) will be something like ([John [CAUSE [BECOME [THE VASE [BROKEN]]]]]). The inchoative verb as in (1b) will be decomposed in something like ([BECOME [THE VASE [BROKEN]]]). In Chapter 1, I explained how syntacticians have incorporated such decompositional lexical approaches and represented them syntactically in vP-shell structures. Although theories differ in terms of the nature of predicates used and whether decomposition is part of the lexical entry or the syntactic structure, they all assume that "decomposition allows us to capture different aspects of verbal meaning which determine different types of grammatical behavior." (Schäfer 2009: 15). In a related vein, Harley (2012) indicates that lexical decomposition has been widely accepted by syntacticians and semanticists working on argument structure over the last fifteen years. She argues that "Many of the analyses of verbal syntax and semantics that are now accepted essentially without comment are essentially modernized versions of the long-discredited proposals of the Generative Semanticists." (Harley 2012: 2)

Other verbs that exhibit the causative/inchoative alternation cross-linguistically include *open, close, boil, freeze, widen, dry, melt, and sink* (cf. Haspelmath, 1993). Verbs like *roll, bounce, move, rotate, and spin* are verbs of movement and they subsume the notion of change of state as they denote a change of location (Levin & Rappaport Hovav 1994). One key issue that raised a substantial amount of discussion in linguistic theory is the fact that not all verbs can alternate. Verbs that do not express change of state often do not participate in

the alternation. Haspelmath (1993: 93) points to three types of non-alternating verbs, namely state verbs, action verbs like "*help, invite, cite criticize, read*", and Agentive intransitive verbs like "*talk, dance, work*". Alexiadou (2010) provides the following table to show the variation different languages display in terms of which verbs can or cannot enter into the causative/inchoative alternation.

Table 5.1
Cross-linguistic Variation of Alternating Verbs (Alexiadou 2010: 2)

	Causative	Anticausative
a. <i>arrive/appear</i>	+Japanese,+Salish, <u>-English</u>	+in all languages
b. <i>kill/cut</i>	+in all languages	+Greek,+Hindi, <u>-English</u>

As shown in this table, verbs like *arrive* and *appear* can be causativized in Japanese and Salish but not in English. Verbs like *cut* and *kill* can be used as causatives in all languages, but their inchoative use is limited to some languages only.

In Arabic, the verbs *arrive* and *appear* can be causativized as in (2a&b), while verbs like *kill* and *cut* (implying the use of scissors) cannot be used as inchoatives.

- (2) a. وصل القطارُ المسافرين إلى المدينة
- wassal-a al-qitar-u l-musafiryn-a
- Arrive.caus-PST.3SM the-train-NOM the-travelers-ACC
- ila Al-madinat-a

to the-city-ACC

'The train (arrived) the travelers to the city'

a. أظهر الساحر أرنباً من قبعته

Adhar-a al-sahir-u arnab-an

Apper.caus-PST.3SM the-magician-NOM a rabbit-ACC

Min qubati-h

From hat-hi

'The magician (appeared) a rabbit from his hat'

The question to ask is why most change-of-state verbs alternate? Also, why there exist some change-of-state verbs that cannot enter into the causative/inchoative alternation? The next sub-section will address these questions based on the views of some lexical semanticists who attribute that variation to different idiosyncratic meanings in the lexicon (cf. Levin 1993; Levin & Rappaport Hovav 1995; Reinhart 2002; Alexandou et al. 2006; Schäfer 2009). The goal is not to provide an exhaustive review of the literature or examine all meaning components responsible for determining which verbs alternate, but instead to highlight some major findings that have been very influential over the last two decades. These findings will serve as a basis for my discussion of the causative/inchoative alternation in Arabic.

5.1.2 Properties of Change-of-State Verbs

As discussed above, most of the change-of-state/location verbs enter into the causative/inchoative alternation. In addition to the verbs listed above, the following English verbs, mostly deadjectival, are also change-of-state verbs.¹⁸

- (3) *slim, thin, yellow, warm, blacken, harden, soften, purify, intensify, liquefy, dissipate, evaporate, neutralize...*

The following table provides the Arabic counterparts of the English change-of-state/location verbs mentioned so far. These Arabic verbs too can participate in the causative/inchoative alternation.

Table 5.2

Examples of Change-of-state Verbs in Arabic

Causative	Inchoative	Meaning
anhala أنحل	nahila نحل	slim/thin
na'ma نَعَم	na'uma نَعُم	soft
saffara صَفَّرَ	esfarra اصْفَرَّ	yellow
sawwada اسود	eswadda اسوَدَّ	become black
sallaba صَلَّبَ	ta-ssalab تصلب	harden
naqqa نَقَّى	ta-naqqa تنقى	purify
bakkar بَخَّرَ	ta-bakkar تبخر	evaporate
tabba طَبَّعَ	ta-tabba' تطبع	neutralize

¹⁸ See Levin (1993) for more verbs that enter into different types of alternation.

kaththaf كَثَّف	ta-kaththaf تَكثَّف	intensify
a-dfa' أَدْفَأْ	dafia' دَفِئْ	warm
dahraj دَحْرَج	ta-dahraj تَدَحْرَج	roll
harrak حَرَّكَ	ta-harak تَحْرِكْ	move
a-dar أَدَار	estadar اسْتَدَار	spin

As shown above, the majority of verbs that participate in the alternation express a change of state. However, not all verbs belonging to this class can participate in the alternation. Some verbs are used only as inchoatives as shown in (4a), while others appear only in the causative form as illustrated in (4c).

- (4) a. The cactus bloomed/blossomed early
b. #The gardener/The warm weather bloomed/blossomed the cactus
c. The terrorist assassinated/murdered the president
d. #The president assassinated/murdered

(Schäfer 2009: 14)

Similarly, an Arabic verb like *أزهر* *azhar* 'bloom' cannot appear in the causative form as shown in (5a). Contrary to this is a verb like *اغتال* *eghtaal* 'assassinate', which always appears in the causative form but cannot be used inchoatively as in (5b).

- (5) a. أزهر المزارع الوردية #
 #azhar-a al-muzari'-u l-wardat-a
 Boom-PST.3SM the-farmer-NOM the-flower-ACC
 '#The farmer bloomed the flower'
- b. انغال اغتال الرئيس #
 #enghal-a/eghtal al-ra'ys-u
 Assasinat-PST.3SM the-president-NOM
 '#The president assassinated'

Haspelmath (1993) investigates 31 alternating verbs across 21 languages. He ranks the verbs along a "spontaneity scale" where there is a split between verbs that express events that are more likely to occur spontaneously with no external causer (e.g., *bloom*, *laugh*) and verbs that occur through the initiation of an external entity (e.g., *wash*, *decapitate*). Verbs that will most likely participate in the causative/inchoative alternation cross-linguistically are those lying in the middle of the scale between spontaneous verbs at one side and verbs that are normally initiated by an external causer at the other side. The following table lays out the alternating verbs examined in Haspelmath (1993).

Table 5.3

Break-type and freeze-type verbs in Haspelmath (Adapted from van Gelderen 2012: 114)

<p>Spontaneous, freeze-type verbs</p> <p>boil, freeze, dry, wake up, go/put out, sink, learn/teach, melt, stop, turn, dissolve, burn, destroy, fill, finish</p> <p>Outside force, or break-type verbs</p> <p>begin, spread, roll, develop, get lost/lose, rise/raise, improve, rock, connect, change, gather, open, break, close, split, die/kill</p>

The fact that not all change-of-state verbs alternate raises a question about the properties that enable some verbs to participate in the alternation. Schäfer (2009: 14) makes the point that the participation in the alternation is determined by two semantic properties. First, the verb must express a change-of-state. Second, the selected change-of-state verb must have certain meaning components in its "lexical core" to participate in the alternation. In what follows I discuss these meanings components and their implications on argument structure in English and Arabic.

5.1.3 Agentive vs. Non-agentive Verbs

In line with Haspelmath's (1993) classification of the most/least likely candidates to participate in the alternation, and drawing from Smith (1970), L&RH (1995: 102-106), through their discussion of internal versus external causation, indicate that change-of-state verbs do not need the "volitional intervention of the agent". A verb cannot be used in an inchoative structure as in

(4d) if this type of verb requires an animate agent as a subject in the causative form. Verbs such as *murder*, *assassinate*, *build* cannot take an inanimate nonintentional agent as shown below.

- (6) a.#The explosion assassinated/murdered the senator.
b.#My anger wrote a letter to the editor of the local newspaper.
c.#The windstorm built a sand dune.

(L&RH 1995: 102)

These sentences involve causal relations between two events and their LCS perfectly matches that of alternating verbs like *break*. However, the semantic constraint in the lexical core, which requires animate intentional and volitional agent, hinders them from participating in the causative/inchoative alternation. Alternating verbs like *break* do not require a volitional animate agent, as they allow natural forces and instruments to be subjects as shown below.

- (7) The vandals/The rocks/The storm broke the windows.

(L&RH 1995: 103)

The ungrammaticality of a sentence like (4b) is also explained by the argument that a verb like *bloom* is a nonagentive verb, and it describes an internally-caused event that is not brought about by an animate agent, but by inherent properties of its arguments.

L&RH (1995: 91) provide another class of nonagentive verbs, namely "verbs of emission". This class of verbs is further divided into four subclasses as shown in (8).

- (8) a. Sound: *burble, buzz, clang, crackle, hoot, hum...*
 b. Light: *flash, flicker, gleam, glitter, shimmer...*
 c. Smell: *reek, smell, stink*
 d. Substance: *bubble, gush, ooze, puff, spew ...*

(L&RH 1995: 91)

Like their counterparts in English, verbs of emission in Arabic, as given in Table 5.4, always appear in the inchoative form only.

Table 5.4
Examples of Emission Verbs in Arabic

تلاشى Ta-lasha	'fade'
رامش\ ومض ramisha\ Wamadh-a	'flicker/flash'
فاض fadha	'gush'
فاح faha	'smell'
نضح nadaha	'ooze'
سطع sata'	'shine'
أفل afala	'disappear'
بزغ bazaga	'rise'

Verbs like *homogenize*, *humidify* cannot be used in the inchoative form because they require a volitional subject. Also, the verb *break* itself cannot be used intransitively in contexts where the world-knowledge tells us that the event is only caused by an animate subject only as illustrated below.

- (9) a. He broke his promise/the contract/the world record.
 b. #His promise/The contract/The world record broke.

(L&RH 1995: 105)

Examples of agentive verbs in Arabic are given in Table 5.5. They appear only in the causative form and cannot be detransitivized. This table includes *state* verbs and *action* verbs, which, too, cannot be used as inchoatives.

Table 5.5
Agentive Inchoative Verbs in Arabic

qassa قصَّ	'cut'
khalaq خلق	'create'
ekhtara'اختراع	'invent'
sammama صمم	'design'
kataba كتب	'write'
a'ata أعطى	'give'
qara'قرأ	'read'
ahaba أحب	'love'

5.1.4 Synonyms and Lexical Restrictions

The idiosyncratic meaning associated with a given verb is very important in determining its argument structure. We saw that agentive and non-agentive verbs in Arabic echo their English counterparts in terms of their (in)ability to participate in the alternation. To examine the behavior of a given verb in two languages, the very specific lexical meanings denoted by the two verbs should be fully observed. Criticizing the survey-based study conducted by Haspelmath (1993), L&RH (1995: 101) argue that "It is difficult to get the required level of detail from most grammars and dictionaries or from perfunctory data solicitation from informants." In what follows, I will discuss and compare the syntactic behavior of two English verbs, i.e. *cut* and *burn* against their 'dictionary' counterparts in Arabic.

In English, the verb *cut* appears in a causative form with only animate or instrument subject, but not with a natural force as illustrated below.

- (10) a. The baker/the knife cut the bread.
b.#The lightning cut the clothesline.

(Schäfer 2009: 17)

The verb *cut* implies a sharp instrument that is necessarily used by a volitional agent to denote the *cutting* event. The event cannot be spontaneous or caused by a natural force like the verb *break*, and that is why it cannot be used intransitively

as in #*the clothesline cut*. L&RH (1995) argue that verbs that only accept agents, or agents as well as instruments (but not causers) cannot be used inchoatively.

The dictionary translation of the English verb *cut* to Arabic is قطع *qata'a*. Unlike its English counterpart, the Arabic verb *qata'a* can participate in the causative/inchoative alternation as shown in (11a&b).

(11) a. انقطع الحبلُ

ʔn-qata'-a	al-habl-u
INTR-Cut-PST.3SM	the-robe-NOM
'The robe got cut'	

b. قطع علي الحبل

Qatta'-a	Ali-un	al-habl-a
cut.TRAN-PST.3SM	Ali-Nom	the-robe-ACC

Based on these examples, some may conclude that the verb *cut* in Arabic does not respect the semantic restrictions imposed on its English counterpart. However, this conclusion is not true because the Arabic verb *qata'a* is not an accurate translation of the English verb *cut*. Arabic has the word قَصَّ *qassa*, which is generally viewed as a synonym of the verb *qata'a* 'cut'. However, the verb *qassa* displays the same behavior as the English verb *cut* in regard to its participation in the causative/inchoative alternation as shown in (12).

(12) c. انقص الحبلُ#

ʔn-qass-a al-habl-u

INTR-cut -PST.3SM the-robe-NOM

'#The robe cut'

d. قص عليّ الحبلَ

Qass-a Ali-un al-habl-a

Cut.TRAN-PST.3SM Ali-Nom the-robe-ACC

'Ali cut the robe'

The verbs *qassa* and *qata'a* in Arabic have different idiosyncratic lexical meanings and that difference restricts their syntactic behavior. The verb *qata'a* can be caused by an agent or a natural force, while the verb *qassa* implies that the event is brought about by using a sharp instrument that needs an animate agent. The word *qassa* is a denominal verb and it is derived from the noun *maqas* 'scissors'.

Some of the Arabic causative and inchoative verbs used by Haspelmath (1993: 112) are not the right equivalents of the intended English verbs. Similar to L&RH's (1995: 101) observation about the Hebrew counterpart of the English verb *burn*, Haspelmath (1993: 112) uses the Arabic verb *haraq* حرق, which can be morphologically causativized, as an equivalent of the English verb *burn*. The verb *haraq* حرق is the equivalent of the English verb *burn* only in the sense of 'consume by fire'. There exist other verbs in Arabic that mean *burn* in the sense of 'blaze' or 'emit light/heat', namely *ada'a* and *ash'al* أشعل\أضاء. The verb *haraq* حرق,

as used by Haspelmath, is externally caused and cannot be used to express an internally caused event. In other words, the verb *haraq* حرق is equivalent to the verb *burn* as it is used in the following sentences.

- (13) a. The leaves burned.
 b. The gardener burned the leaves.

However, it cannot be equivalent to the internally caused verb *burn* given in (14).

- (14) a. The fire burned.
 b. #The campers burned the fire

(L&RH 1995: 101)

To illustrate the difference between the verb *haraq* حرق and the verb *ash'al* أشعل consider the following sentences.

- (15) a. احترق الكتابُ

ʔ -htaraq-a al-kitab-u
 INTR-burn-PST.3SM the-book-NOM

'The book burned'

- b. أحرق زيدُ الكتابَ

ʔ hraq-a Zayd-un el-kitab-a

burn.TRAN-PST.3SM Zayd-NOM the-book-ACC

'Zayd burned the book'

c. # احترقت النار.

? htaraq-a-t en-nar-u

burn.INTR-PST.3S-F the-fire-NOM

'#The fire burned'

In (15a&b) the verb expresses an externally caused verb used in the sense of (consumption by fire). Sentence (15c) is unacceptable because the verb *haraq* حرق cannot be used to express an internally caused event in the sense of (blaze or emit light/heat). The right verb to use to express an internally caused verb is to use a verb like *ash'al* أشعل as shown in (16a).

(16) a. اشتعلت النارُ.

Eshta'al-a-t en-nar-u

burn.INTR-PST.3S-F the-fire-NOM

'The fire burned'

b. # أحرق المزارعَ النارَ.

#a-hraq-a al-muzari-u an-nar-a

#TRAN-burn-PST.3SM the-farmer-NOM the-fire-ACC

'#The farmer burned the fire'

Sentence (16b) proves that the causative/inchoative alternation of the verb *burn* in Arabic is only available with the meaning of (consumption by fire) expressed by the verb *haraq* حرق and not by the verb *ash'al* أشعل.

To sum up, it appears that one syntactic property of verbs of change-of-state is that they participate in the causative/inchoative alternation. However, this property is governed by some lexical semantic restrictions inferred from real world knowledge. Alexiadou et al. (2006) provide a compelling account for change-of-state verbs based on the encyclopedic meanings associated with their roots. They classify verbal roots into the following:

- (17) a. $\sqrt{\text{agentive}}$ (murder, assassinate)
- b. $\sqrt{\text{internally caused}}$ (blossom, wilt)
- c. $\sqrt{\text{externally caused}}$ (destroy, kill)
- d. $\sqrt{\text{cause unspecified}}$ (break, open)

Alexiadou et al. (2006: 202)

Alexiadou et al (2006) indicate that only roots with " $\sqrt{\text{cause unspecified}}$ " can participate in the alternation. They indicate that languages differ in how they treat externally caused roots. For example, these roots in English and German form only the passive, while in Greek they form inchoatives. Like Greek, the inchoative Arabic verb *ta-dammar* تدمر 'destroy' is acceptable.

5.1.5 Unstable Valence

Most of the discussion above is focused on change-of-state verbs and the lexical semantic restrictions that govern their participation in the causative/inchoative alternation. I think that the analysis provided by L&RH (1995) for that certain class of verbs is successful in the sense that it reflects some sort of generalization and systematicity cross-linguistically. Still, it will be interesting to know about their stand on other types of verbs that do not seem to have apparent idiosyncratic meanings that may regulate their syntactic behavior cross-linguistically. For example, how would they account for the syntactic behavior of a verb like *arrive*, which resists causation in English but not in some other languages (e.g., Arabic)? Why is it ungrammatical to say, for example, "#the wind/the man/ arrived the ship"?

One possible answer for this question is provided by Reinhart (2002), who argues that the lexicon of a language includes "frozen entries"; an unaccusative verb that lacks a paired transitive causative is viewed as being derived from a frozen transitive verb. This transitive counterpart is only realized in the lexicon and cannot be inserted into syntax.

The topic of transitive and intransitive verbs and the properties restricting the transitivity of verbs was not absent from traditional Arabic grammar books. For example, Ibn jinni (d. 1002) in his book *Al-kasa'is* (1976: 313) indicates that some inchoative verbs imply an implicit causer. He argues that the causative form may be derived from the inchoative after some time. He gives an example of the verb *ghadha* 'decrease' in the sentence 'غاض الماء' 'the water decreased'. The verb

here, I believe, is internally caused. Native speakers of Arabic say this sentence to express a situation when, for example, a drought lowers the water level in a well or pond. Ibn Jinni mentions that the inchoative verb implies an implicit causer that caused the water to decrease. He argues that this causer (or external argument) is syntactically expressed only when Arabs started to use the causative variant.

Chierchia (1989), cited by L&RH (1995: 87), argues that a verb like "*come*", for example, which has no causative counterpart, is related to a causative counterpart that has the meaning of "*bring*"; however, that counterpart is "not lexicalized or is marked as being lexicalized by a verb that is not related to the intransitive verb morphologically."

L&RH (1995: 87) also distinguish between what Chierchia calls "stable" and "unstable valency". Verbs falling under the category of unstable valence are those that "tend to oscillate in valence from transitive to intransitive and vice versa, both diachronically and across dialects".

I find the notion of "unstable valency" very compelling. An example supporting the change in valence within a language diachronically is found in the English verb *boil*. According to van Gelderen (2012: 120), the first use of *boil* in English was intransitive and its transitive counterpart appeared with a light verb.

(18) Pei filled a leed of picche & oile/And fast **duden** hit to boile

They filled a kettle of pitch and oil and fast made it to boil

'They filled a ... of pitch and oil and made it boil fast.'

(1300 Cursor Mundi 11886 (Trinity), from the OED)

An example of a verb falling under the category of unstable valence occurring across dialects is the internally caused verb *deteriorate*. This verb may appear in the causative form as shown in the following sentences cited from the Corpus of Contemporary American English (<http://corpus2.byu.edu/coca>).

- (19) a. I thank them for deteriorating the trust of a generation (COCA, 2006 Atlanta News)
b. without deteriorating the integrity of... (COCA, 1993 RehabResrch ACAD)

I am not sure if the causative use of the verb *deteriorate* is formally accepted in all varieties of English, but I believe that at least it supports Reinhart's claim that there is what she calls 'frozen' causative counterparts for intransitive verbs.

Citing Chierchia (1989) again, L&RH (1995: 87) indicate that he provides the Italian verb "*crescere*" meaning 'grow', which is used only as intransitive in standard Italian, although, as they argue, it is used in other dialects as a causative with the meaning "raise (children)". I think that using data from different dialects might reveal interesting results. However, the same sort of criticism they raise about the survey conducted by Haspelmath (1993), i.e. the difficulty of obtaining accurate detail from grammars and informants, should also be considered when citing data from dialects. As a native speaker of Saudi Spoken Arabic (SSA), I will discuss one aspect about the causative/inchoative alternation in that dialect to show that can be also 'difficult' to make a general argument or obtain accurate

detail about a certain dialect, especially if someone is not a native speaker of that dialect. In standard Arabic, the verb pattern (?-nC₁VC₂VC₃) is always used as a template for inchoative verbs as shown below.

(20) انكسر الكرسي

? n-kasar-a

al-kursi-u

INTR-break-PST.3SM

the-chair-NOM

'The chair broke'

This same pattern is also used in a number of Arabic dialects, including SSA. The verb *sadam* 'hit' in SSA can be derived into this pattern as shown in the following sentence.

(21) انصدم العمودُ

in-sadam-a

al-?aamod

INTR- hit -PST.3SM

the-lamppost

'The lamppost got hit'

(Adapted from Alharbi 2012: 19)

The verb *in-sadam-a*, although it appears in one of the most common templates for inchoative verbs in Arabic (as we will see later), cannot be taken as direct evidence that it, unlike its counterpart in English, participates in the causative/inchoative alternation. I argue, in line with Alharbi (2012), that this

pattern is used in SSA as a passive form and not as an inchoative form. In standard Arabic the passive is formed by modifying the vocalic tier of the base form. For example, the passive form of the verb *akal-a* 'he ate' is *aukil-a*. However, this way of forming passive voice in standard Arabic is not extended to SSA, a dialect that received very little attention in the literature. The causative/inchoative alternation is definitely different from other types of alternations (e.g., passive, and middle structures, cf. Schäfer, 2009 for a discussion of 'core' syntactic properties of this type of alternation and how it is distinguished from other constructions).

5.1.6 Stable Valence

In English, and probably within and across languages, certain sets of verbs that share a common semantic property may display the same syntactic behavior. For example, Levin (1993: 29) lists a number of verbs classified as "change of possession" that do not participate in the causative/inchoative alternation (e.g., *feed, give, lease, lend, pass, pay, refund...*). In my opinion, the conclusion drawn by L&RH (1995) regarding which change-of-state verbs do not participate in the alternation can be also applied to this class of verbs. In other words, all these verbs seem to require agentive subjects.

The majority of unaccusative verbs in English participate in the causative/inchoative alternation. However, L&RH (1995) indicate that unergative verbs belong to the category of "stable valency" as they are basically "monadic" and do not participate in the alternation in English and some other languages like

French, Italian, and Russian. Examples of unaccusative and unergative verbs in English are given in Table 5.6. Notice that I modify the content of this table by underlining verbs whose Arabic counterparts do not, in my opinion, behave similarly in regard to their participation in the causative/inchoative alternation.

Table 5.6

Examples of unaccusative and unergative verbs in English (Adapted from van Gelderen 2012: 114)

Unergative	Unaccusative
Bicycle, burp, cough, crawl, <u>cry</u> , <u>dance</u> , daydream, frown, grin, hop, jog, kneel, <u>laugh</u> , limp, resign, run, scream, shout, smile, swim, speak, sneeze, <u>sleep</u> , talk, walk, work, yell.	Alternating: begin, burn, decrease, drop, fall, freeze, grow, increase, melt, reduce, stop, spread, widen Non-alternating: appear, arise, <u>arrive</u> , come, depart, emerge, ensue, exist, follow, occur, <u>remain</u> , <u>sit</u>

Note. The Arabic counterparts of the underlined verbs display an opposite behavior.

Although unergatives can be semantically and syntactically distinguished from unaccusatives, I believe that this distinction should not be taken as an accurate tool to determine which type (dis)allows the participation in the causative/inchoative alternation. In other words, although the majority of unergative verbs do not participate in the alternation, describing unergative verbs as belonging to 'stable valence' is over-generalized. At least five unergative verbs from Table 5.6 can be used as causatives. These verbs are, *walk*, *sit*, *burp*, *run* and *dance* as illustrated in the following sentences.

- (22) a. I sat him there ... (COCA, 2000 AssocPress)
b. Stacy had burped the baby ... (COCA, 2004 Bk: MistletoeMayhem)
c. Terrien walked the robot around. (COCA, 2009 MechanicalEng)
d. We ran the mouse through the maze. (L&RH 1995: 111)
e. He danced the doll. (COCA, 1993 BkJuv: TalismansShannara)

L&RH (1995: 111-116) argue that the verb in sentence (22d) describes the manner of motion but not the direction as in verbs like *go* and *come*. Therefore, they are different from verbs expressing the notion of "cause". To further support their argument, L&RH mention that Hebrew utilizes a specific morphology to transitive verbs describing the manner of motion that is not normally used with other verbs participating in the genuine causative/inchoative alternation.

In Arabic, however, there is no special causative pattern for manner of motion verbs. For example, the causative verb *maḥḥa* 'walk' appears in pattern 2 that can host most causative verbs in the language (e.g., *kassar* 'break'). L&RH (1995: 188) assume that such verbs are unaccusatives (appear with one internal argument), and "the external argument position is left unfilled and can be filled by an external cause." They indicate that such verbs can have their external argument position filled as long as they have (or understood to have) directional phrase. I don't see this argument very convincing for two reasons. First, sentences (22c&e) do not necessarily have or express a direction. Second, as pointed out by Narasimhan et al. (1996), if all agentive manner of motion verbs can undergo a

lexical shift as long as they appear with a directional phrase, then why would a sentence like (23) be ungrammatical?

(23) #John swam/ran/danced the children apart.

(Narasimhan et al. 1996: 3)

The existence of some unergative verbs that may be used causatively does not weaken the argument that unergative verbs generally do not participate in the causative/inchoative alternation. I think that unergative verbs cannot be characterized as pure 'stable valence'. The same thing can be said about Arabic. As shown from the underlined verbs in Table 5.6, there is only a small number of unergative verbs in Arabic that can be used as causatives. While, on the other hand, almost all unaccusative verbs in both languages display the same behavior. I think that both unergative and unaccusative verbs display a varying degree of 'unstable valence'.

Finally, L&RH (1995: 124) point to other sets of verbs that seem to always display a coherent behavior in terms of their participation in the causative/inchoative alternation, namely "verbs of existence and appearance" (e.g., *appear, occur, happen, exist*). According to L&RH, these verbs, in English and some other languages (i.e. Hebrew, Italian, and Russian), are always used as inchoative verbs, and cannot be causativized. Commenting on this particular class of verbs, L&RH (1995) mention that:

Chierchia (1989) suggests that unaccusative verbs without a transitive causative form are idiosyncratically marked for the nonlexicalization of this form. However, since a semantically coherent subset of the unaccusative verbs consistently lacks this form in a variety of languages, this phenomenon does not seem to be idiosyncratic at all, casting doubt on an analysis that takes these verbs to have a causative lexical semantic representation. (L&RH 1995: 124)

L&RH think that these verbs are not derived from their (non-lexicalized) causative counterparts, as argued by Chierchia (1989: 124), simply because there is no morphological evidence. In other words, although they believe that intransitive verbs are derived from their causative counterparts, they argue that it is not the case with this class of verbs as "there is no general pattern suggesting a transitive causative source". Their claim about the directionality of derivation is based on their observation of the two types of verbs in Hebrew, Italian, French and Russian. The next subsection will briefly discuss some theoretical approaches concerned with the directionality of derivation inchoative and causative forms, i.e. which form is basic and which one is derived? In what follows, I will show that the argument that one form is derived from the other based on the morphological markedness cannot be extended to Arabic for a number of reasons.

5.1.7 Directionality of Derivation

The derivational relationship between the causative and inchoative forms and the question of which alternant is basic and which is derived has received a great deal of attention in the literature. Two main approaches have been proposed over the last four decades.

Some researchers (e.g., Dowty 1979; Pinker 1989; Jackendoff 1990; Hale & Keyser 1998) argue that the causative form is derived from the inchoative form through *transitivization* or *causativization*: an operation that adds a predicate (CAUSE) to the lexical representation of the basic form. The causative structure is taken to be more complex than the inchoative one because it involves more arguments and information.

Fodor (1970) presents an empirical argument against similar approaches that follow a decompositional approach. He provides the following sentences to show that the lexical causative *kill* cannot mean *CAUSE to die*, and thus it is not part of its representation.

- (24) a. John caused Bill to die on Sunday by stabbing him on Saturday
b. #John killed Bill on Sunday by stabbing him on Saturday.

Fodor indicates that because the lexical verb *kill* has only one event it cannot be temporally distinct as in (24b). However, *cause to die* in (24a) denotes two events (a causing event and a result event); therefore, these two events can be temporally distinct. Harley (2012: 3) indicates that "the argumentation developed by Fodor

We think that there are sufficient reasons for postulating that causatives and anti-causatives have basically the same event structure. Their structure does not differ significantly... It involves a CAUSER or a causing event, a CAUSE predicate, and a CAUSED event. The syntax of causation and anti-causation is different, however, as is their morphology. (Fassi Fehri 1987: 30)

Derivational approaches have been subject to criticism for two main reasons (cf. Haspelmath 1993; Piñon 2001; Alexiadou et al. 2006 for a more detailed criticism). First, as shown above, not all inchoative verbs have causative counterparts, and vice versa (e.g., *cut*, *arrive*, *bloom*, *decay* and *appear*).

Proponents of the derivational approach argue that the derived form displays more complex morphology than its base counterpart. However, this argument is "challenged by a mismatch of the assumed derivational and overt morphological complexity" (Alexiadou et al. 2006: 191). These approaches cannot account for the causative and inchoative verbal patterns found, for example, in Arabic, which seem to follow no certain direction, as we will see in the next section. In line with some recent approaches (e.g., Harley 1995, 2006, 2012, to appear; Pylkkänen 2002; Arad 2003; 2005 Ramchand 2008; Schäfer 2009), I argue that no form is derived from the other. As discussed in Chapter 3, Arabic verbs are derived from a root that merges with a verbalizing head selecting a specific pattern. The causative or inchoative interpretation depends on the type of pattern selected in addition to the syntactic configurations in which that pattern participates.

5.2 Causativity and Inchoativity in Arabic

This section focuses on some aspects related to the causative/inchoative alternation in Arabic. One objective of this section is to introduce the different verbal patterns used for causative and inchoative verbs in Arabic and to account for any relation that may regulate the selection of certain forms. This section will show that Arabic verbs exhibit typical properties of root-and-pattern derivation found in other Semitic languages, which include gaps, special meaning, and freedom in pattern selection. Based on the difference between analytical and lexical causatives that will be discussed in this section, I will propose a syntactic account that introduces external arguments in functional heads. I will also present a syntactic representation for unergative verbs in Arabic that can be causativized.

5.2.1 Causative and Inchoative Patterns

As discussed in Chapter 3, Arabic verbs are morphologically complex in general. We saw how a root (an unpronounceable atomic element consisting of three or four consonants) combines with a certain pattern to form actual Arabic verbs. Recall that I took the verb formation in Arabic to be a syntactic process and I provided a morphosyntactic model similar to that of Arad's (2003; 2005).

I agree with Ford (2009) that Arabic has three forms that render causative constructions. These forms are patterns 2, 4, and 1, namely $C_1VC_2C_2VC_3$, $?-C_1C_2VC_3$, and the 'basic trilateral form' $C_1VC_2VC_3$. Examples of verbs belonging to these patterns are provided in the following table.

Table 5.7
Causative Patterns in Arabic

1.C₁VC₂C₂VC₃ (Pattern 2)

Root	Causative	Meaning
ksr	kassara	to break
mzq	mazzaqa	to tear

2.ʔ-C₁C₂VC₃ (Pattern 4)

Root	Causative	Meaning
χtj	ʔ-χraja	to leave
ʔrq	ʔ-ʔraqa	to drawn

3.C₁VC₂VC₃ (Pattern 1)

Root	Causative	Meaning
ksr	kasara	to break
hdm	hadama	to collapse
hzn	hazana	to make sad
hrm	harama	to prohibit

As shown in Table 5.7, causation in Arabic can be expressed in three different ways: gemination (doubling the middle consonant of the root), attaching the prefix ʔ- to the root, or using the pattern C₁VC₂VC₃.

Inchoative verbs, derived from trilateral roots, can appear in one or more of the nine patterns given in Table 5.8.

Table 5.8
Inchoative Patterns in Arabic

1. $\text{?nC}_1\text{VC}_2\text{VC}_3$ (Pattern 7)

Root	Inchoative	Meaning
ksr	in-kasara	it broke
fth	in-fataha	it opened

2. $\text{ta-C}_1\text{VC}_2\text{C}_2\text{VC}_3$ (pattrn 5)

Root	Inchoative	Meaning
ksr	ta-kassara	it broke
srb	ta-sarrab	to get leaked

3. $\text{?-C}_1\text{-ta-C}_2\text{VC}_3$ (Pattern 8)

Root	Inchoative	Meaning
hrq	?-h-ta-raqa	become burnt
rfʕ	?-r-ta-faʕ	become risen

4. $\text{C}_1\text{VC}_2\text{VC}_3$ (Pattern 1)

Root	Inchoative	Meaning
f-l-t	falata	got released

5. $\text{?-C}_1\text{C}_2\text{VC}_3$ (Pattern 4)

Root	Inchoative	Meaning
zhr	?-zharat	became full of flowers

7. ?-C₁C₂VC₃C₃ (Pattern 9)

Root	Inchoative	Meaning
hmr	?-hmarra	became red

8. ?-C₁C₂VC₃VC₄ (Pattern 13)

Root	Inchoative	Meaning
hlk	?-hlawlak	became dark

9. ?st-C₁C₂VC₃ (Pattern 10)

Root	Inchoative	Meaning
b-a-n	estabana	became clear

As noted in Chapter 3, the patterns (1 & 4, C₁VC₂VC₃ and ?-C₁C₂VC₃) can host both inchoative and causative verbs as illustrated in sentences (30&31, in Chapter 3) and repeated here as (26&27).

- (26) a. فلت الأسيرَ
 falat-a l-asyr-a
 released.PST.3SM the-captive-ACC
 'He released the captive'

b. فلت الأسيرُ

Falat-a l-asyr-**u**
released-PST.3SM the-captive-**NOM**

‘The captive escaped’

(Al-Bustânî 1977; 699)

(27) a. أزهرت الأشجارُ

ʔ-zhar-a-t al-ashjar-**u**
TRAN-flower-PST.3S-F the-trees-**NOM**

‘The trees became full of flowers’

b. أنبت الله الزرعَ

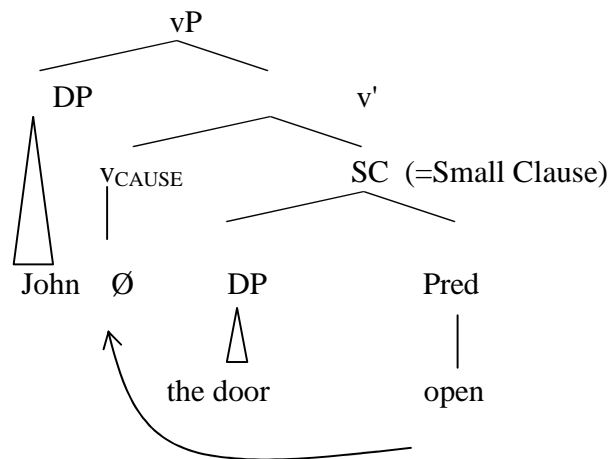
ʔ-nbat-a Allah-u al-azarġ-**a**
TRAN-plant-PST3SM God-NOM the-plants-**ACC**

‘God grew the plants’

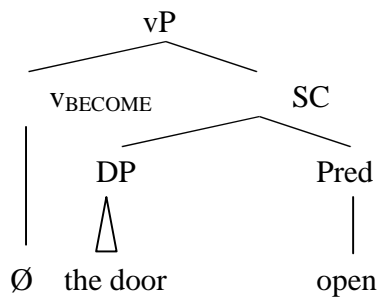
These sentences indicate that we cannot always tell whether a verb is causative or inchoative by looking only at the pattern hosting that verb. Even pattern 2 (C₁VC₂C₂VC₃), which is generally marked as a causative pattern, can still host some inchoative verbs, especially in Classical Arabic as argued by Saad (1982: 74). Therefore, we should look at the syntax and arguments appearing with a selected pattern to determine whether it is used to express causativity or inchoativity. As discussed in Chapter 2, a number of syntacticians (e.g., Harley 1995, 2008, 2012, Ramchand 2008, and van Gelderen 2012 among others) provide syntactic models to account for the alternation. Harley (2008; 2012), for

example, provides the following structures that display different functional heads to show how causative and inchoative verbs are compositionally formed from a lexical root.

(28) a. Causative



b. Inchoative



The lexical root provides basic lexical meaning, whereas the syntactic configuration determines the resulting construction and whether a verb is causative or inchoative.

5.2.2 Against the Derivational Approach

As pointed out by Haspelmath (1993), the causative/inchoative alternation in some languages is expressed by different formal types, including labiality and suppletion. *Labile* verbs are those that appear in one identical form but can be causative or inchoative depending on the arguments they appear with (e.g., English verb *break*). *Suppletives*, on the other hand, are those verbs that do not belong to the same cognate: they have different etymological origins (e.g., English verbs *die* and *kill*). These two types are also used in Arabic. I will take this as the first piece of evidence that causative and inchoative verbs are derived from a common root but not from one another. The verb *ʔalat* 'to release' as appears in (24a&b) is an example of a labile verb in Arabic. An example of a suppletive verb in Arabic is *mata* 'die' with the verb *qatala* 'kill' as its causative variant. Both suppletive and labile verbs in Arabic tend to always appear in pattern 1 (C₁VC₂VC₃).

The second piece of evidence supporting the argument that no form is derived from the other can be deduced from the fact that some causative verbs may acquire an idiomatic or new meaning that is not present in the inchoative variants as shown below.

(29) Root	Inchoative	Causative
ʕlm	ʕalima (knew)	ʕallama (teach/mark)
ʕr	ʕura (became poet)	ʔʕara (notify)
slm	tasalam (received)	sallam (submit/shake hands)

One last piece of evidence I provide for the root-and-pattern derivation of causatives and inchoatives is the relative freedom in the morphological marking. There are no significant aspects that condition the choice of a particular pattern. I argue that the categorization of the Arabic causative and/or inchoative verbs into different morphological patterns is arbitrary as illustrated by the verbs *zalaqa* 'slide' and *qafal* 'lock' in the following table.

Table 5.9
The Arbitrariness of Pattern Selection

Verb	Causative patterns	Verb	Inchoative patterns
zlq	Zallaqa (Pattern 2)	<i>gfl</i>	ta -qafal (Pattern 5)
'slide'	ʔ-zlaqa (Pattern 4)	'lock'	in -qafal (Pattern 7)
	Zalaqa (Pattern 1)		ʔ -q- ta -fal (Pattern 8)
	'to slide'		'became locked'

As illustrated in Table 5.9, the verb *zlq* 'slide' can appear in three different causative patterns. There does not seem to be a semantic or syntactic difference or preference for one pattern over the other. Nevertheless, the causative pattern 2 (C₁VC₂C₂VC₃) and the inchoative pattern 5 (ta-C₁VC₂C₂VC₃) may be used to express *repetition* or *intensity*. For example, the causative verb *kassar* 'break' will imply something like *break into pieces*, while the causative verb *fattah* 'open' may imply a repetitive action in an example like *Fattah alabwab* 'opened the doors repeatedly'. Although I agree that this meaning is possible, I don't think that any verb derived into this pattern necessarily denotes the same repetitive or intensive

meaning. The verb *sawwat* 'vote', for example, does not imply a repetitive meaning.

To further investigate the nature of pattern selection, I examined the behavior of some loanwords in Arabic to determine what forms new verbs select to express causation. Unfortunately, none of the dictionaries I consulted provide too much about word derivations. For example, two recent loanword dictionaries (i.e. *Muajam Al-dakheel fi Alarabya* by Abdulrahim 2011, and *Alma'rb Waldkhill* by Al-saffar 2011) list noun entries only. Only with very few entries do the authors provide some verbal uses. Some of the loanwords in Arabic are provided below.

(30) *markisyah* 'marxism', *manicare* 'manicure', *lagham* 'mine', *kalabsha* 'handcuff', *kartoon* 'carton', *karboon* 'carbone', *booq* 'horn', *t^hraz* 'needle work', *lijam* 'snaffle'.

These words are all loanwords from different languages. All loanwords that contain three consonants (trilateral roots) often select the pattern 2 ($C_1VC_2C_2VC_3$) and the pattern 5 (ta- $C_1VC_2C_2VC_3$) for causative and inchoative verbs respectively. Words with four consonants (quadrilateral roots) always pick the pattern 12 (ta- $C_1VC_2C_3VC_4$) and the pattern 11 ($C_1VC_2C_3VC_4$) for causative and inchoative respectively, as illustrated in the following table.

Table 5.10
Causative Patterns for Loanwords in Arabic

Trilateral Root		
Noun	Inchoative	Causative
t ^ʕ raz 'sewing'	N/A	t ^ʕ arraz
dabbos 'pin'	N/A	dabbas
lagham 'mine'	N/A	laggam
lijam 'snaffle'	N/A	ʔ-ljam

Quadrilateral Root		
Noun	Inchoative	Causative
kartoon 'carton'	N/A	kartan
klbshah 'handcuff'	N/A	kalbash

I think that this observation raises two points: first, the causative pattern 2 is the most common pattern used to form causative verbs in Modern Standard Arabic and the selection nature is arbitrary. Second, the very few instances in which other causative forms were used support my argument that there is no semantic or syntactic relation between a given causative/inchoative pattern and roots. The only loanword verb I could find that used another causative form is ʔ-ljam 'to snaffle', which appears in pattern 4 (ʔ-C₁C₂VC₃).

Finally, words that share the same meaning or belong to the same class will still reflect this kind of arbitrariness in the nature of pattern selection as illustrated below.

(31) a. *Verbs of emotion*

Inchoative	Causative	Patterns Allowed
hazina 'saddened'	hazana	(1) for both
fariha 'become happy'	farrāh #farāh	(1) and (2)

b. *Verbs with Similar meanings (synonyms)*

ta-sarrab 'spread'	Sarrab	(5) and (2)
ntashar 'spread'	nashar	(8) and (1)

In some cases, a verb appears in one causative pattern but not the other because that other is already reserved and associated with a relatively different meaning as shown in (32).

- (32) a. ʔ-xrj 'take out' xarrāj 'to make someone graduate'
- b. ʔ- tʃm 'feed' tʃm 'inject/connect with something'

In these cases the causative pattern 2 (C₁VC₂C₂VC₃) of the same triconsonantal root is already associated with a relatively different meaning, and pattern 4 (ʔ-C₁C₂VC₃) is selected to express causation for the general meaning of the root.

This supports my argument of the arbitrary nature of pattern selection. In other words, different causative/inchoative patterns are not necessarily reserved for particular semantic interpretation.

To sum up, I provided evidence that causative and inchoative verbs are derived from category-neutral roots and not from one another. Both causative and inchoative verbs in Arabic are characterized by the following:

- gaps, i.e. inchoative verbs may have no causative variants, and vice versa;
- specialized idiomatic or lexical meanings that may be available in one alternant but not in the other;
- complex morphology, i.e. the morphological marking appearing on one alternant might be as or more complex than the morphological marking on the other alternant;
- arbitrary pattern selection, i.e. there is no syntactic or semantic explanation as to why certain verbs would select certain patterns.¹⁹

5.2.3 Analytical Causative

Causation in Arabic can be also expressed by the analytical (also known as periphrastic or productive) causative. As pointed out by Comrie (1989), this construction involves two independent verbs, and thus two events. He writes:

The prototypical case of the analytic causative is where there are separate predicates expressing the notion of causation and the predicate of the effect, as in English examples like *I caused John to go*, or *I brought it about that*

¹⁹ Verbs in Hebrew and Maltese display similar behavior (cf. Arad 2005 for Hebrew, and Spongal 2011 for Maltese)

John went, where there are separate predicates *cause* or *bring it about* (cause) and *go* (effect). (Comrie 1989: 167)

Comrie (1989: 167) further argues that "pure analytic causatives are relatively rare" across languages. In Arabic, verbs like 'جعل *ja'ala* ' to make causative, 'ترك *taraka* 'to let,' 'سمح *samaha* ' to allow,' 'أرغم على *argama ala* 'to force,' 'تسبب في *tasabbaba fi* 'to cause,' etc..." (Saad 1982: 81) are used for analytical causative. An example of such a construction is given below.

(33) الجفافُ جعلَ الناسَ تغادرَ القريةَ

al-jafaf-u	Ja'al-a	n-nas-a
the-drought-NOM	made-3PST.SM	the-people-ACC
tu-ghader	l-qaryat-a	
IPFV-leave	the-village-ACC	

'The drought made people leave the village.'

A number of researchers have investigated the syntactic and semantic differences between lexical causatives and analytical causatives (cf. Hale&Keyser 1998; Arad 2002; Harley 2008, 2012; Pylkkänen 2002, 2008; Schäfer 2009). Before reviewing some of these properties it is important to make a note about the terminology used for different types of causation. L&RH (1995) use the term 'lexical causative' to refer to a verb like *break*, where causation is learned to be part of the lexicon. They also use the term 'productive' to refer to any causative sentence that contains a verb that is morphologically marked, as in the Arabic

causative verb *kassar* 'break'. Pylkkänen (2002; 2008) challenges this type of classification between lexical and productive sentences. She argues that morphologically marked (e.g., *kassar* 'break') and morphologically unmarked verbs (e.g., *break*) are both formed compositionally in the syntax. I agree with Pylkkänen, and therefore, I will use the term 'lexical causative' to refer to all causative patterns in Arabic as given in Table 5.7 above. Although, in the remainder of this chapter, I will use the term 'analytical causative' to refer to a structure like (31), I will take the term 'productive' to be a synonym of 'analytical' causative.

5.2.4 Differences between Lexical and Analytical Causatives

One main difference between lexical and analytical causatives is that analytical causatives denote two events while lexical causatives denote one event only. Harley (2012: 9) observes, following Fodor (1970), that "sentential subjects may control the null subjects of certain adjoined gerunds, but objects may not." The following sentences illustrate the difference between the two types of causation in relation to the object/subject control of PRO.

(34) a. John_i caused the milk_j to spoil by PRO_{i/j} sitting in the sun.

b. John_i spoiled the milk_j by PRO_{i/#j} sitting in the sun.

(Harley 2012: 10)

Sentence (34b) shows that the object of a change-of-state verb cannot control PRO in an adjoined gerund. The object *milk* would control PRO if it was a subject of the embedded verb *spoil*, under a null CAUSE predicate. However, that is not the case and thus the only subject that controls PRO is *John*. In sentence (34a), however, there are two potential subjects, i.e. *John* and *milk* that can control PRO. Therefore, two readings are available: the first is that John sat in the sun and that caused the milk to spoil, or the milk spoiled by sitting in the sun. This type of test proved successful in distinguishing lexical causatives from productive causatives in an affixal language like Japanese where the distinction between the two could be a bit problematic as both structures look alike (cf. Harley 2008 for details).

Productivity is another property that distinguishes analytical causatives from lexical causatives, which seems to hold universally across languages. Analytical causatives can be formed from different types of predicates (e.g., unergative, unaccusative, and ditransitive). As discussed before, unergative English verbs generally cannot be used as lexical causatives, while the majority of unaccusative verbs in English can be causativized.

Another difference between lexical causatives and productive causatives is related to the degree of the causer's involvement in the event. Lexical causatives often express *manipulative* situations where the causer exerts some sort of physical force to bring about the action. The analytical causative, on the other hand, expresses an action that can be characterized as *directive*, where one event leads to the other without a direct involvement of the causer. The following examples illustrate the difference.

(35) a جعل المطرُ الولدَ ينزل عن الشجرة

Ja'al-a almataru al-walad-a yanzilu
made-PST.3SM the-rain-Nom the-boy-ACC go down

'n al-fajar-t-i
from the-tree-F-GEN

'The rain made the boy go down the tree'

b. أنزل المطرُ الولدَ عن الشجرة.#

#?nzal-a al-matar-u al-walad-a
TRAN-down-PST.3SM the-rain-NOM the-boy-ACC

'n al-fajar-t-i
from the-tree-F-GEN

'The rain made the child go down the tree'

The causer *the rain* in (35a) leads the causee *the boy* to act and independently brings about an event, i.e. his going down the tree. The causer has no manipulative role and does not act as the entity that directly brings about the change of location the causee undergoes. Sentence (35b) is ungrammatical because the lexical causative *anzal* 'bring down' implies a manipulative causer that can act by itself to bring about the change of location, and that, according to our knowledge of the world, cannot be attained by the *rain*.

The differences between lexical and analytical causatives have significant implications for current theories of syntax, especially on the syntactic

representation of external arguments. In what follows, I will briefly highlight some recent syntactic trends in the treatment of the thematic role of the verb's external argument (e.g., agents, actors and causers).

5.2.5 Cause and External Argument

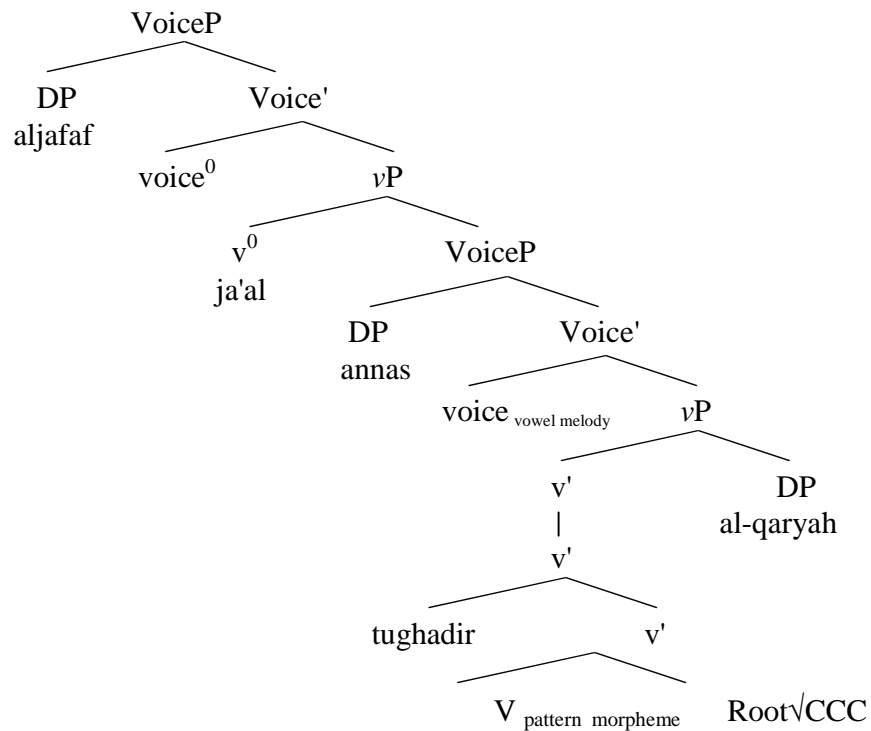
In Chapter 2, I discussed the evidence that external arguments are not true arguments of the verb. I indicated that constructionists utilize the VP-shell proposal of Larson (1988) to provide a two projection structure that can accommodate different types of predicates. The difference between lexical and analytical causatives and the division between *causers* and *agents* and the degree of their involvement in bringing about the event is another piece of evidence that external arguments are not true arguments of the verb. Pylkkänen (2002; 2008) supports the argument that an independent functional projection is needed to introduce external arguments by showing that some languages (as with Finnish desiderative causatives) use causative structures without external arguments. Harley (to appear b) examines the syntax and derivational morphology of Hiaki and argues that the causative v head in that language does not introduce the external argument, and it is there just to introduce the notion of causativity. She argues that the external argument is introduced in the specifier of a higher VoiceP. Alexiadou et al. (2006) argue that the difference between passives and inchoatives revolves around agentivity, which is different from the notion of causation. They show that passives in English, Greek, and German can be modified by a PP to express the agent or causer as in *the vase was broken by*

John/the heat, while inchoatives allow only the addition of a causer through PP modifications as in *the vase broke from the heat/#by John*. Adopting this approach, I propose the syntactic structure (36) for the analytical causative construction in Arabic.

(36) الجفافُ جعلُ الناسَ تغادرُ القريةَ

al-jafaf-u	Ja'al-a	n-nas-a
the-drought-NOM	made-3PST.SM	the-people-ACC
tu-ghader	l-qaryat-a	
IPFV-leave	the-village-ACC	

'The drought made people leave the village.'

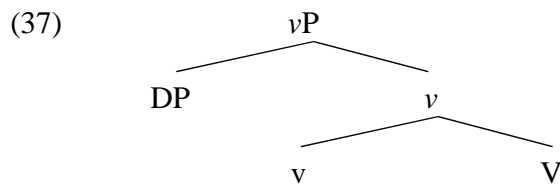


This tree shows the independence of the causer *aljafaf* 'drought' from the light verb *ja'ala* 'make', and the independence of the agent *annas* 'people' from the verb

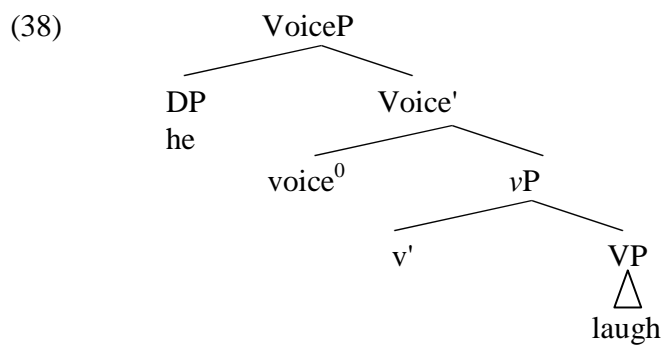
tughadir 'leave'. As argued by Alexiadou et al. (2006), Voice denotes a relation (R) between a DP and event. It is associated with two thematic roles, i.e. agent and causer. The inchoative structure appears with no VoiceP head unless we assume that inchoative structures imply an abstract or implicit causer (but no agent) as proposed by Alexiadou et al. (2006).

5.2.6 VoiceP and Unergatives

Some unergative verbs in Arabic can be causativized as mentioned before. Recall that in Chapter 3 I proposed the structure (9b), repeated here as (37), for a sentence with an unergative verb like *he laughed*.

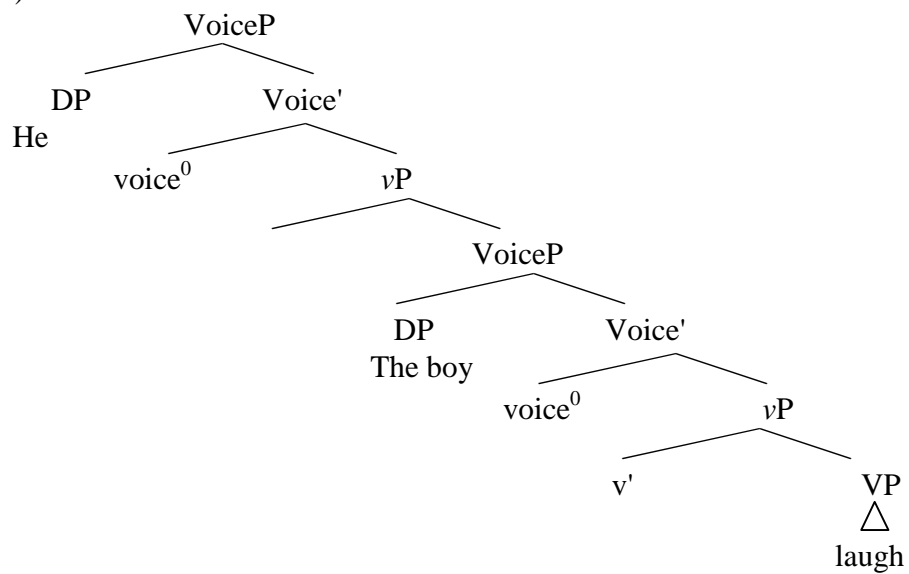


Assuming that the external argument is introduced by the functional head VoiceP above the vP, the modified structure for unergatives now looks like (38) below.



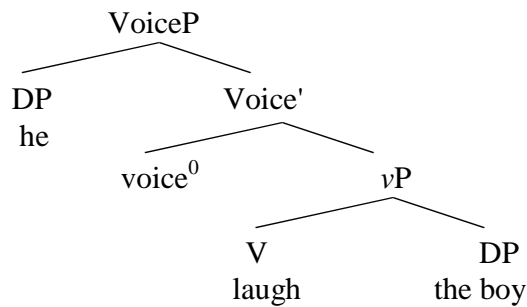
In case the verb ضحك *dahaka* 'laugh' is causativized, we cannot add another v to introduce the causer because the predicate will have two external arguments that cannot be both case checked, and that will cause the derivation to crash as illustrated in the following structure.

(39)



Drawing on Arad (2002: 260), I assume that an unergative verb can be causative "only if its argument is generated as the complement of the verb, in the configuration associated with themes." I propose the following structure for a lexical causative derived from an unergative verb as in *أضحك الولد* *he laughed the boy*.

(40)



The internal argument of the unergative verb *the boy* in this structure is not generated in a position associated with the agent role (specifier of vP/VoiceP). Instead, the argument loses its agent properties when positioned as a complement of the verb in a position associated with RESULT or change of state.

5.3 Conclusion

This chapter stresses the fact that both the lexicon and the syntax play an important role in determining the argument structure. Lexicalist accounts of verbs in English at least render a near-perfect success in accounting for general idiosyncratic meanings that explain which verbs (dis)allow the participation in the causative/inchoative alternation. However, there are always some gaps/irregularities in the behavior of certain verbs that show similar idiosyncratic meanings, either within a language (e.g., English unergative causatives) or across languages (e.g., the verb *dance* in Arabic can be causative but not in English). The relation between types of verbs that participate in the alternation and those that do not is "an important, but yet unsettled topic." (Schäfer 2009: 5)

Lexicalist approaches assume that the lexical entry of a verb contains structural information that determine event and argument structure. Also, they argue for some lexical operations that can modify the lexical entry. In this chapter, I challenged these lexical operations (e.g., *detransitivization* and *causativization*) by pointing to some examples of verbs in Arabic that display gaps in their causative or inchoative uses. These lexical operations are also challenged by a lack of productivity even if their rule conditions are met (e.g., #John danced the children apart).

Constructionist accounts, on the other hand, attribute argument structure realization to the syntax. The causative/inchoative alternation is a result of the interaction between the basic verb element and the syntactic structure. Strong versions of constructionist approaches assume that lexical entries only specify core meanings but they never have information about the number of or types of arguments. A verb is basically free to appear in multiple structures as long as the result is compatible with the general encyclopedic knowledge. However, such accounts fail to explain why, for example, verbs like *arrive* and *laugh* cannot be causativized in English.

I have showed that the external argument is introduced by a separate functional head (VoiceP), and that head may be occupied by a causer or an agent. The specifier-less vP is responsible for introducing the notion of CAUSE (causative/transitive verbs). An inchoative verb appears in the lower VP with its single internal argument and projects no VoiceP.²⁰ Only a small subset of

²⁰ Alexiadou et al. (2006: 202) argue that with inchoatives "there are two options: Voice might be totally absent or realized as Voice [-AG]."

unergative verbs can be lexically causativized in Arabic. I argued that the one argument of an unergative verb is generated as the complement of the verb in order to make it lose its agentivity role when a CAUSE is added.

Chapter 6

CONCLUSIONS

6.1 Chapter Summaries and Contributions

This dissertation examines the interface between semantics, morphology and syntax in Modern Standard Arabic. It has been primarily focused on exploring the mechanisms responsible for determining the argument structure in Arabic. Amidst the opposing viewpoints between the lexicalists and the constructionists, the question asked is, is the argument structure in Arabic determined by the lexicon or by the syntax? I believe that this question has been addressed through the chapters of this dissertation overall.

In Chapter 2, I examined, from a critical perspective, the traditional (projectionist/thematic role) approaches to argument structure starting from the early 1980s. I reviewed some of the challenges raised against the projectionist accounts (e.g., alternating verbs and psych verbs). I also reviewed and criticized some more recent lexicalist accounts (from 1990s to present) that attempt to solve the linking problem that earlier projectionist accounts face.

In addition, I used Chapter 2 to show how syntacticians, over the last fifteen years, have employed semantic accounts of lexical decomposition in their syntactic structures to represent the argument structure. I also examined the relation between verbs' inner aspect and argument structure and argued that elements around the structure of VP play a role in determining the lexical aspect of a predicate. To show how the constructionists syntactically account for

semantic aspects, I traced in some detail some important developments of the VP layer.

In Chapter 3, I discussed some basic issues related to the syntax and argument structure in Arabic. I explained how the verb system in Arabic works and argued that the verbal patterns are non-transparent in the sense that more than one one pattern can be used to express the same syntactic and semantic functions. I showed how Case-marking in Arabic is related to word order and argument structure. Although Arabic can be characterized as a free-word-order language, the default order is SVO.

In addition, I proposed a morphosyntactic model for Arabic verbs within the framework of DM. This model shows that Arabic verbs (the lexicon) break down into roots and verbal patterns. I presented evidence that roots in Arabic are unpronounceable atomic elements void of semantic interpretations. They are associated with common meanings, but given specific semantic interpretation after they merge with a verbal pattern. They are free to appear in multiple patterns to express different meanings, but once they merge with specific patterns their semantic interpretation is fixed.

In Chapter 4, I investigated the relation between predicate's inner aspect and argument structure in Arabic. That chapter contributes to the literature by providing a novel and detailed classification of eventuality types in MSA. I identified a number of syntactic elements inside and outside the VP that factor in determining the predicate's type of eventuality. I also proposed a syntactic model

of the VP to show how these elements affect the aspectual interpretation of predicates in Arabic.

Moreover, Chapter 4 provides a new perspective to the long-lasting debate about the nature of tense and aspect in Arabic. I argued that a big part of the disagreement among researchers over the nature of tense and aspect in Arabic lies in their traditional view of 'aspect'. I suggested that the "situational aspect" proposed by Smith (1991) is a very important criterion that researchers should consider as it displays a deeper distinction between telic and atelic verbs.

Finally, Chapter 5 contributes to the literature by providing an unprecedented comparison between English and Arabic verbs in terms of their participation in the causative/inchoative alternation. The differences and similarities between the two languages are analyzed in light of recent semantic and syntactic theories.

In that chapter, I extended the argument that the syntax and the lexicon are both as important in determining the predicate's argument structure. Some lexical characteristics associated with our knowledge of the real world are important determinants of the verb's (in)ability to undergo the alternation. These lexical considerations generally apply to change-of-state verbs in English and Arabic. However, there are always some verbs within a language or across languages that show semantically unpredictable syntactic behavior. In that case, the syntax will be the best alternative to account for the compositional nature of these verbs. The syntax is also important for linking arguments to their syntactic positions without the need for exhaustive linking rules.

Another important theme in that chapter is the argument I made against the derivational approaches. I gave examples of some verbs that appear as causatives or inchoatives only and argued that verbs are derived from common roots and not from one another. This fact raises questions about the validity and applicability of lexical rules proposed by different lexicalists. Yet, at the same time, it emphasizes the need for the syntax to show how causative and inchoative verbs are formed.

I closed Chapter 5 with some assumptions about the syntactic structure of analytical causatives and unergative verbs that can be causativized in Arabic. I also discussed the thematic roles associated with external arguments and gave evidence that external arguments cannot be part of the lexical conceptual structure of the verb. Instead, they are introduced in the syntax by a functional head (VoiceP).

8.2 Suggested Future Research Directions

Although in this dissertation I investigate one important type of verbal transitivity alternations in Arabic, there remain other types of alternation that can be researched. It is important, for example, to examine the role of lexical and syntactic properties in determining the argument structure in double object/ditransitive construction, psych verbs, and locative alternation in Arabic.

Another important topic that needs further research is the nature of situational aspect in Arabic. In Chapter 4, I suggested that this type of aspect may

provide useful insights about the unsettled debate over the nature of tense and aspect in Arabic.

In Chapter 3, I proposed a morphosyntactic account within the framework of DM to show how verbs are formed in Arabic. It is important to reveal other advantages of the DM approach and examine how it will account, for example, for other phenomenon in Arabic such as the subject-verb asymmetry and the lack of agreement in the VSO order.

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